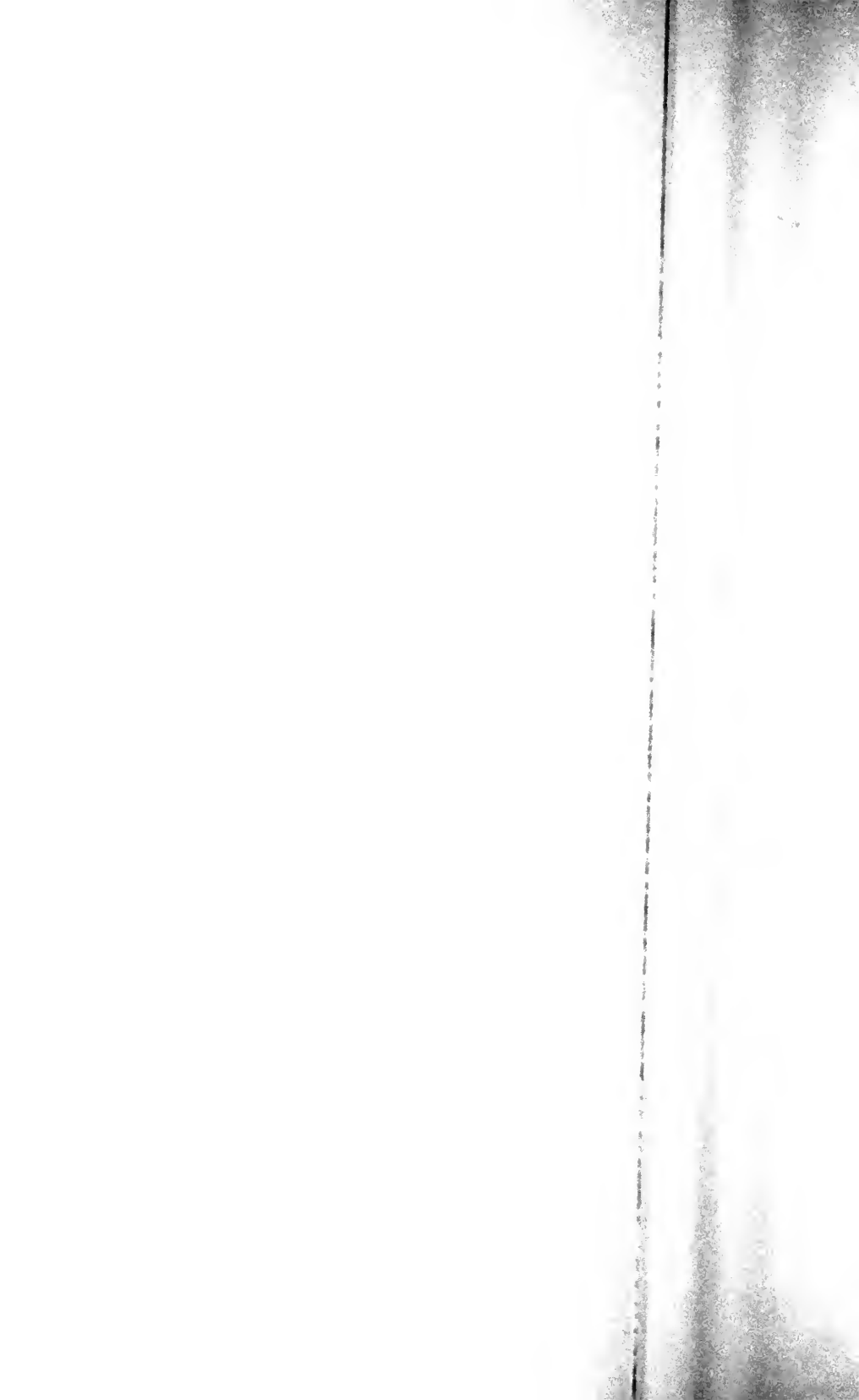


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A MONTHLY JOURNAL DEVOTED TO THE
DISEASES OF INFANTS AND CHILDREN

FOUNDED IN 1884 BY WM. PERRY WATSON, M.D.

EDITED BY

WALTER LESTER CARR, A.M., M.D.,

MEMBER OF THE AMERICAN PEDIATRIC SOCIETY; CONSULTING PHYSICIAN, FRENCH HOSPITAL.
VISITING PHYSICIAN, INFANTS' AND CHILDREN'S HOSPITALS, RANDALL'S ISLAND,
NEW YORK.

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Original Communications.

CONGENITAL STENOSIS (SPASMODIC) OF THE PYLORUS; RECOVERY.*

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The subject of this record, a girl, was born August 14, 1899. At birth she was smaller than the average, but well developed, of an estimated weight of six pounds, and thought by the mother to be about two weeks premature. The breast was readily taken every six hours the first day and every four hours the second. Boiled water was given every two hours when the child was not nursed. The mother's temperature did not exceed 100° F. at any time and her bowels were moved by a laxative on the second day.

The third day the milk flow was established abundantly, but it was reported that the baby vomited freely in from five to twenty minutes after each nursing, bringing up scarcely altered milk and some mucus. The nurse thought the baby had spit up a little since birth. During the previous night the baby had been blue and cold, which conditions had been overcome with hot bottles. The mother's bowels were again moved by one ounce of castor oil.

The fourth day vomiting persisted after each nursing. Minor measures for the relief of the vomiting having failed lavage of the stomach was begun and repeated once each day until the ninth day. During this period, lavage one hour and three-quarters after nursing produced a few white shreds of milk entangled in a moderate amount of colorless mucus.

Vomiting of the stomach contents continued after each nursing, usually preceded by motions of the mouth and inferior

*Prepared for the Section on Pediatrics of the New York Academy of Medicine.

maxilla, which simulated gagging. Lime water, then barley water, and even boiled water, substituted for the breast, were similarly rejected even when given by gavage. Fearing that changing the position of the baby's body or picking it up might act to provoke the vomiting, she was closely observed when lying upon her mother's arm after nursing with no other movement than that caused by the removal of the nipple from her mouth; vomiting occurred, however, as before, nor was this influenced by the length of time nursing was permitted. The longest interval which occurred between the end of nursing and the rejection of the contents of the stomach was on one occasion about one hour. As this took place just after the daily lavage and the baby did a little better for a time after the washings, encouragement was felt for their continuance.

The stools for the first few days were made up of meconium and consisted later of small quantities of dark green mucus without a vestige of milk residue. During the small hours of the night the infant was reported to be frequently blue and cold and to require artificial heat. She cried vigorously, however, and presented no other evidences of atelectasis. While occasionally the rectal temperature in the morning was slightly below normal at no time did the temperature exceed 99.4° F. and there was therefore no inanition temperature. In the absence of scales the apparent loss of weight did not seem to exceed that of many other infants during the first ten days of life. Not until some days had elapsed (seven days) did the mother become alarmed and the supply of breast milk was threatened. Reassurance, careful attention to diet, and allowing her to sit up and walk about as early as was compatible with proper uterine involution, overcame this, however.

On the ninth day the first few, well digested butter yellow particles appeared in the green mucus of the stools. There was not at any time the slightest indication from the stools that such breast milk as was retained was not perfectly digested. As it was now evident that some milk was passing the pyloric orifice, the daily lavage was suspended, but the vomiting of the major part of the stomach contents continued as before. On the twelfth, thirteenth and fourteenth days lavage was therefore resumed and rather more water used in the funnel at each filling. The fourteenth day the catheter passed further than on any previous occasion and a small particle of blood-stained mucus

returning through the tube the lavage was interrupted and omitted the following morning, lest the mucosa had been injured.

The evening of the next day (the fifteenth day) the baby suddenly ceased vomiting after nursing, and from that time retained her nursings uniformly well, gaining weight at the rate of an ounce a day. Her subsequent career has been normal and uneventful.

Pyloric stenosis was diagnosed for the following reasons:

- (a) The early occurrence and persistence of the vomiting uninfluenced by the usual measures for its relief.
- (b) The absence of any vestige of milk residue in the stools until the ninth day, while the presence of green mucus stools (bilious) excluded obstruction below the duodenum.
- (c) Perfect digestion of the milk residue when it appeared in small quantities in the stools, despite the continuance of the vomiting, which seemed to preclude the possibility that the vomiting was due to indigestion.
- (d) The absence of constipation, temperature or any other symptom on the part of the mother which might cause her milk to disagree with the baby, maternal anxiety was not awakened until long after the inception of the vomiting. Two years before she had successfully nursed her first child.
- (e) The abrupt cessation of the vomiting which pointed to a sudden relief of the exciting cause.

Since Pritchard's valuable paper in ARCHIVES OF PEDIATRICS, April, 1900, which entered exhaustively into the discussion of the theories advanced to explain the occurrence of this class of cases, it would be superfluous to renew the discussion at length in connection with this case.

Suffice it to say that the complete cessation of vomiting and subsequent absence of unfavorable symptoms are in support of the view that the pyloric stenosis is "functional and dependent upon the condition of the muscle of the pyloric sphincter." That this stenosis may not at all times be absolute, as indeed has been noted by other observers, is evidenced by the fact that in this case small quantities of digested milk residue appeared in the stools on and after the ninth day, while the vomiting did not cease until the fifteenth.

A careful examination of the literature of this subject, with especial consideration of those cases which present the typical

symptomatology, compels the suspicion that both the macroscopic and microscopic appearances of the thickened and contracted pylori together with the apparently increased thickness of the muscular layers and their individual muscle fibers are chiefly due to the marked tonic spasm of this portion of the intestinal tube. This is in accord with the views of Pfaundler,¹ and Romme.² In Batten's³ case the pylorus was not always palpable, when no peristalsis was taking place, and when the vomiting ceased, the pylorus could no longer be felt. The writer believes from recollections of a series of several hundred autopsies upon young children at the Nursery and Child's Hospital, before his attention had been directed to this subject, that closer observations and measurements of the pylorus hereafter will develop an increasing number of cases in which the pylorus is narrowed and apparently thickened.

The first step in the physiology of vomiting is contraction of the pylorus to prevent escape in that direction of the stomach contents. It is by no means inconceivable that in the sensitive organism of the infant, an unusual spasm of the pylorus should be followed by the other steps in emesis. It is probable that some of the cases of vomiting which have been grouped as "habitual" or due to "habit" will eventually be classed with those under discussion.

Palpable tumor at the site of the pylorus could not be made out in the author's case, nor was there so-called dilatation of the stomach with visible peristaltic movements seen through the abdominal walls but this is not surprising as the infant's nutrition did not suffer severely, and a cure was effected before emaciation, and gastric relaxation associated with digestive disturbances had been set up.

In 11 of Pritchard's 24 collected cases the vomiting began at birth, or shortly thereafter (first to seventh day); the third day is quite often mentioned, and would seem to have some relation to the establishment of free mammary secretion as in the present case.

Thus far, the reported cases of recovery are few, the cases published consisting chiefly of those in which contraction and apparent thickening of the pylorus could be demonstrated *post-mortem*. Finkelstein's⁴ 3 cases of recovery all occurred in the private consulting practice of Prof. Heubner, and were fed at the breast. These children were nine weeks, nine weeks, and

four weeks old when first seen and began to vomit at the fifth week, third week and third week respectively. Gastric distension with visible peristalsis had developed. Treatment consisted of regular nursing, lavage, rectal feeding if indicated, laxatives and small doses of opium to quiet peristalsis.

Batten's³ case of recovery began to vomit at the fifth week and was carefully fed artificially by the aid of a nasal tube. Senator's⁵ case which recovered was three months old, and showed dilatation of the stomach, but no palpable tumor of pylorus. Pritchard mentions a case, not yet published, of Dr. Coates' where recovery was ascribed to rectal feeding.

Nicholl⁶ reports a case where vomiting began at one week, the symptoms corresponding to those present in the author's case, divulsion of the pylorus by Loretta's method was performed at five weeks with complete recovery.

The operation of gastroenterostomy has been followed by recovery in several cases reported or simply referred to by Abel,⁷ Loebker⁸ and Kehr.⁹ These as far as the ages were stated began vomiting four or more weeks after birth. Deaths following gastroenterostomy are also recorded. The author's case is then apparently one of recovery at the earliest age (fifteen days) yet reported. It perhaps justifies the expression of the hope that with an early recognition of the nature of these cases before emaciation and secondary gastric changes have taken place, and a prompt and judicious employment of the remedial measures above mentioned, including maintenance of breast-feeding, lavage, gavage, rectal feeding, and perhaps the use of small doses of opium or belladonna to quiet peristalsis and relieve spasm, a larger number of cases will be permanently relieved and be classed as pyloric spasm instead of congenital hypertrophic stenosis.

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RETROPHARYNGEAL ABSCESS AND ADENITIS.

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Although retropharyngeal abscess was long ago accurately described by Bokai,¹ and its etiology and symptoms are clearly set forth in all text-books, yet on account of its rarity, insidious development and the difficulty of satisfactorily examining a baby's throat retropharyngeal abscess is, as Henoeh says, as good as unknown to most physicians. It is certain that abscesses in this region are uncommon. Henoeh,² in a vast experience of fifty years, saw only 60 cases. The discussion of Dr. Roe's³ paper on retropharyngeal abscess before the American Laryngological Association in 1884, developed the fact that most of its members had only seen 2 or 3 cases. In the Budapest Hospital retropharyngeal abscess was discovered in about 2 of every 1,000 children admitted. I believe it therefore advantageous to report a case of retropharyngeal adenitis and 2 cases of retropharyngeal abscess, and to briefly review the important points of diagnosis. Blackader,⁴ of Montreal, gave a report of 3 cases in the ARCHIVES OF PEDIATRICS, 1889, with an exhaustive bibliography. The cases to be reported are as follows:

FIRST CASE—Retropharyngeal adenitis from an intense rhinitis. At the age of one month the baby had an acute feverish illness with profuse nasal secretion; after a few days the fever subsided and the nasal discharge lessened, still much pus with blood crusts came out of the nose. At the age of two months I was called to see the child on account of the persistence of the bloody, purulent coryza. The baby was well developed with no sign of syphilis in skin or mucosa, no enlargement of cervical lymph nodes, and nothing abnormal in the throat. I ordered the throat and nose to be first sprayed with boric acid solution and afterwards with albolene. No improvement resulting from the local treatment I prescribed gray powder and mercurial inunctions. As the child's expression was suggestive of some obstruction to deglutition when it nursed I made a

digital examination of the throat. At about the level of the epiglottis there projected forward from the posterior pharynx in the median line a pyramidal swelling; the apex encroached into the entrance to the esophagus. The mass was hard—not movable or fluctuating, and was evidently an enlarged retropharyngeal lymph node, a result of the intense rhinitis. The swollen node offered some obstruction to swallowing, none to respiration. The mercurial treatment was continued, and local treatment stopped. The coryza rapidly ameliorated, and in two weeks the child was well. With the relief from the rhinitis the child seemed in perfect health. The mercurial was discontinued, and no attention was paid to the adenitis. At the end of two months exploration of the throat showed that the swelling had entirely disappeared. Although improvement occurred with mercurial treatment there was no actual evidence of lues even after a period of three years.

SECOND CASE—Retropharyngeal abscess followed by ileocolitis. Boy of sixteen months attacked with influenza about December 17, 1899, child feverish and miserable for several days and then made an imperfect convalescence. As the head was held stiffly erect and there was difficulty in swallowing and obstructed snoring breathing, especially in bed at night, on January 5th, I palpated the throat. The left tonsil was swollen and behind it lay a fluctuating swelling. A mouth gag was introduced, and the abscess was first aspirated and afterward incised and evacuated by Dr. W. S. Renner. Nevertheless the child was not relieved, the head could not be moved without pain and the neck muscles were rigid; there was no enlargement of the cervical nodes. The child continued feverish and languid, and about January 20th was attacked by a severe ileocolitis lasting twelve days. His recovery was slow, but the neck muscles were rigid, pressure on the top of the head caused acute pain, giving rise to a suspicion of cervical caries; the throat was clear, no tenderness or prominence of the cervical vertebræ. The child improved slowly and the head was easily moved at the end of six months; he is now in perfect health.

The retropharyngeal abscess and the continued fever and ileocolitis were probably caused by a streptococcus infection. The pain and rigidity of the neck muscles were attributed to a synovitis of the cervical vertebræ, also from a streptococcus infection.

THIRD CASE—Retropharyngeal abscess—sudden death on introducing a mouth gag. Boy of fifteen months; well up to September 15, 1900; about this time he was near a child with a sore throat. Almost immediately the boy sickened with a pharyngitis and tonsillitis. For the first week of the illness the symptoms were not especially severe. During the day the baby played about the house and slept well at night. At the beginning of the second week he appeared to be in some distress at night. He would put his fingers into the mouth as if to reach some source of irritation there. He breathed in a hoarse snoring way and would have attacks of choking when he was laid in bed. During this time the cervical lymph nodes became enlarged. The baby, nevertheless, swallowed and nursed easily and in the daytime its symptoms seemed trivial. Two cultures of the throat were made with negative results, but the pharynx was not palpated.

September 30th—In the evening the baby had an alarming attack of dyspnea, and as the family physician could not be found I saw the case for the first time. The boy was well developed, rather anemic; when taken in his mother's arms seemed languid and somnolent; baby nursed in my presence with apparent ease; he breathed with the mouth open in a nasal, snuffling way. There was no cyanosis; no inspiratory recession of the chest; heart and lungs normal; voice not hoarse nor croupy; cervical lymph nodes enlarged, noticeably so at the angle of the right jaw, where there was a node the size of a chestnut not easily movable. Depressing the tongue with a spoon, there was seen a full even bulging forward of the posterior pharyngeal wall with the mucosa congested; no exudate. Right tonsil was enlarged, and was pressed outward and forward by the pharyngeal swelling behind. On digital examination, finger far down in the throat, a large fluctuating swelling in the posterior pharynx could be felt. The temperature was not taken. The case requiring operative treatment, Dr. Eugene Smith was called. The baby was held on the lap and a mouth gag was introduced for a thorough examination of the throat and to aspirate the swelling. The patient grew slightly cyanotic, and the gag was removed. After a few minutes, the baby being completely restored, the gag was again inserted between the jaws; the baby became livid, stopped breathing; apparently dead. The gag was withdrawn after having been in place but a

minute. The patient was inverted, artificial respiration made and a moment later intubation was performed, but there was no effort at respiration; no entrance of air into the lungs and no evidence of life save a feeble fluttering of the heart. Artificial respiration, rhythmical traction of tongue, stretching of anus, extubation and tracheotomy were resorted to. A soft catheter was introduced into the larynx, but no air could be forced into the lungs until the catheter was pushed to the bifurcation of the trachea; the swelling behind seemed to narrow the lumen of the trachea. Artificial respiration was kept up for about half an hour, but the child had died almost instantly after removing the gag. An autopsy was refused, but we opened the swelling, and the pharynx was flooded with pus. The abscess extended deep in the pharynx, and only the upper portion could be reached by the finger. It is possible that a portion of the abscess was retroesophageal.

It will be remembered that for a week the child had suffered from attacks of dyspnea at night; during this time the abscess had steadily augmented in volume. The introduction of the gag stretched the jaws and pressed the root of the tongue back against the pharyngeal swelling. Whether the cyanosis and sudden death were due to pressure on the larynx or laryngeal spasm or sudden impairment of function of the pneumogastric nerve is uncertain, but as suffocation usually occupies two or three minutes, and the baby apparently expired immediately, and efforts at resuscitation were futile, it is probable death was due to disturbance of the vagus.

Emmett Holt⁵ reports a severe case of asphyxia in using a gag in retropharyngeal abscess. An infant of seven months had shown for twenty-four hours stertorous breathing and difficulty in swallowing, and had refused to eat. An examination showed a large abscess in right pharyngeal wall; a gag was introduced preparatory to evacuating the abscess; the baby suddenly became asphyxiated and respiration ceased, although the gag was immediately removed. Intubation was performed and the child revived after artificial respiration had been made for several minutes. The attack of asphyxia was evidently produced by stretching the mouth by the gag and increased pressure upon the larynx.

Idiopathic retropharyngeal abscess is caused by the inflammation and suppuration of the retropharyngeal lymph nodes. These nodes form a chain from the upper portion of the pharynx

to its junction with the esophagus, located on either side of the median line. They lie between the prevertebral aponeurosis and the muscles of the pharynx. In early life these lymph nodes drain the cavities of the cranium, pharynx, nose and middle ear, and thus may be inflamed in pharyngitis, rhinitis and otitis media. They are most prominent in infancy, and rapidly diminish in size after the third year. Retropharyngeal abscess is certainly a disease of early life, as 83 per cent. of Bokai's⁶ cases were under two years old.

Retropharyngeal adenitis without suppuration is more rarely seen. Retropharyngeal abscess and adenitis may develop slowly or rapidly, being acute, subacute, or chronic in their course. Clopatt⁸ says that in many subacute cases the organism accustoms itself to the obstruction, and the disturbance is not noticed for a while. Great variation exists as to the date of the discovery of the abscesses. Bokai⁶ states that in his cases the symptoms had lasted from two to twenty-eight days. Usually retropharyngeal abscess is the sequel or result of an influenza, rhinitis, otitis, pharyngitis and tonsillitis, and is caused by a streptococcus infection (Koplik).⁷

The symptoms are easily misunderstood; the patient is commonly treated for a pharyngitis or croup. Usually it is noticed that the little patient has difficulty in swallowing. The baby will attempt to nurse and quickly drop the nipple or bottle and cry, or it will refuse all nourishment. The difficulty in deglutition may arise from the pain of inflammation or be mechanical from the obstruction of the tumor. Modifications of the voice are frequent. If the abscess is in the upper portion of the pharynx, the cry is nasal, the breathing is snoring and snuffling in character, and the child sleeps with its mouth open. If the abscess be deep in the pharynx, level with the epiglottis or larynx, there will be hoarseness, stertorous breathing and attacks of choking or cyanosis—indicating laryngeal spasm or stenosis. The symptoms may be erroneously ascribed to a catarrhal laryngitis. The tumor, if large and low down, may press aside the larynx or compress the trachea. Many sudden deaths are recorded from obstruction of the air passages or disturbance of the vagus. The younger the child the more distressing are the symptoms of obstruction in the pharynx and to respiration. All symptoms are much aggravated in the recumbent position. Usually the neck is swollen, the cervical lymph nodes being

enlarged, especially at the angle of the jaw, often with fever and constitutional disturbance. Older children hold the head rather stiffly, inclined sometimes to the unaffected side.

The abscess is commonly found at the side of the pharynx behind or below the tonsil, less commonly in the median line. If the swelling is in the superior portion of the pharynx it can be readily seen by depressing the tongue. One sees a local tumefaction, bulging forward and pushing out the tonsils, sometimes occupying all of the pharynx in sight. Very often nothing can be seen, then the lower portion of the throat should be explored by the finger. This palpation may cause vomiting or choking, and should be quickly done. If unsatisfactory it may be repeated. I believe that the failure to recognize retropharyngeal abscess in babies, with its attending fatalities, arises from the dislike of the physician to hurt the baby by a digital examination of the throat. If the sense of touch reveals a fluctuating swelling in the middle or side of the pharynx above or below, a retropharyngeal abscess may be diagnosed. If a hard mass, oval or pyramidal in form, the size of a bean or chestnut be felt on either side projecting from the posterior wall of the pharynx into the throat, there exists a retropharyngeal adenitis, which may undergo resolutions or more probably will suppurate. It may be emphasized that grave errors in diagnoses will occur if only an inspection of the throat is made and palpation omitted, as a pointing of the abscess externally rarely occurs. The examination is best made with a tongue depressor and not with a gag. Bokai declares that chloroform anesthesia is unnecessary and dangerous, and the experiences of Emmett Holt and myself illustrate the perils of the gag.

Once recognized no time should be lost in evacuating the abscess. Spontaneous opening is not common, occurring only in 19 of 144 of Bokai's cases. Retropharyngeal abscess unrecognized and untreated, usually ends in death. If rupture occur, the baby is suffocated by pus aspirated into the lungs. Death is generally due, not to slow suffocation, but to asphyxia from pressure on the larynx to laryngeal spasm or disturbance of the pneumogastric.

Henoch⁹ relates a case where a professor discovering a retropharyngeal abscess postponed opening it until morning to show it to his class. During the night the baby died suddenly of asphyxia.

Aviragnet¹⁰ had a similar accident in a child of fifteen months. The baby entered the hospital suffering from a paroxysmal cough and slight difficulty in swallowing. An abscess was found behind the right tonsil. Intervention was delayed, as the swelling was not extensive; no dyspnea or attacks of suffocation. On the sixth day of its stay in the hospital the child died suddenly without symptoms of asphyxia. On autopsy an abscess in the pharyngeal muscle at the level of the third cervical vertebra was found.

Relief is readily effected by incising and evacuating the abscess. Bokai's mortality was only $4\frac{1}{2}$ per cent.—14 deaths in 317 cases, but allowance must be made for the great skill and experience of the operator. On account of the tender age of the patient, the extreme narrowness of the isthmus of the fauces and the unusually deep location of the abscess down the pharynx and out of sight, the operation is difficult and a cautious prognosis should be given.

Retropharyngeal abscess is one of the grave affections of infancy, the ultimate mortality is very great; death may take place from asphyxia—pressure on the vagus, spontaneous rupture of the abscess, or from accidents of the operation.

Bokai¹¹ incises abscesses through the mouth, first drawing off a portion of the pus with an aspirating needle and afterwards enlarging the opening with a bistoury, pressing out the contents from below with the finger; after the abscess is opened the child is tipped forward to allow the pus to flow out of the mouth. He prefers this to reaching the abscess from an external incision. Holt opens the abscess with a sharpened finger-nail. Other surgeons prefer the method of Hilton and Burckhardt, who evacuate the abscess through an external incision along the border of the sternocleidomastoid muscle.

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PYELONEPHRITIS IN CHILDREN, WITH REPORT OF A
CASE IN WHICH NEPHRECTOMY WAS
SUCCESSFULLY PERFORMED.*

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In the *Archiv für Kinderheilkunde*,† Prof. Baginsky reviews this subject most elaborately and calls attention to a series of papers by Bernhard and Felsenthal, and Stamm. It is interesting to note that in one case Baginsky reports that the examination of the first specimen of urine showed it to be *normal*, and it was only in the *later specimens* that albumin and morphotic elements could be found. Special attention is called by this author to the fact that the morning specimen of *urine was invariably clear* and almost normal, free from albumin and morphotic elements; whereas the *afternoon urine* was turbid, containing albumin and cellular elements. Baginsky's cases improved by the internal administration of Fachinger and Wildunger mineral waters, besides creosote.

In studying Baginsky's cases as well as the one I am privileged to demonstrate to-night, we find the following noteworthy points: First,—that this disease is characterized by the presence of severe gastro-dyspeptic symptoms such as anorexia and vomiting; pain in the region of the kidneys; and the long continuance of these symptoms. Second,—constipation. In Baginsky's cases there was the shedding of large pieces of membrane, mingled with hardened fecal masses. Third,—the variability of the urine, its change from a perfectly healthy specimen to that of urine containing large quantities of albumin, pus, morphotic elements, and mucus. Fourth,—the peculiar type of fever intermittent in character, with chills and general malaise—in my case accompanied by a gradual but constant emaciation. (See chart). Fifth,—that the urine in cases of pyelonephritis shows,

*Child presented at the Section on Pediatrics, the New York Academy of Medicine, November 8, 1900.

† Beiträge zur Pathologie der Nierenerkrankungen im Kindesalter, Band XXII., page 232.

according to Baginsky, the presence of the bacterium coli in pure culture.

Henry Morris, in his book on "Renal Surgery" for 1898, reports a case of a child twenty-two months old with symptoms of retention of urine. Two large tumors were felt on palpation in the loins. Preliminary laparotomy was done followed by nephrotomy on each side. The condition was one of congenital hydronephrosis (double), and a large quantity of clear liquid was obtained from each kidney. Operation on December 1, 1893; death from diarrhea and exhaustion March 2, 1893.

The same author reports a case* of a boy seven years old having pain in the right loin for one year; hematuria, pyuria and albuminuria; nephrectomy, right kidney: performed January 10, 1893. Kidney found in advanced state of hydronephrosis, and the upper end of the ureter was thickened. Recovery without a sinus.

A male child of nine months, abdomen large since birth, had a definite tumor noticed a month before admission; incision in semilunar line; the pedicle ligated and the tumor removed. It was found to be a sarcoma with secondary deposits in the retroperitoneal and mesenteric lymph nodes. Died within a few hours from shock.†

There are three chief causes at work in the production of secondary renal disease:

First.—Increased pressure in the tubules from obstruction to the escape of urine. Second.—Reflex irritation of the kidney. Third,—the presence of septic matter in the pelvis of the kidney and possibly in the lower parts of the tubules. Most frequently these three causes act, in succession and in the above order, in the same case. As a rule, when acting singly, increased pressure from obstruction will produce hydronephrosis; reflex irritation will excite one of the transient or congestive types of urinary fever; and septic matter in the pelvis of the kidney will cause acute or suppurative pyelonephritis. Increased urinary pressure alone often produces chronic interstitial nephritis as well as sacculatation and dilatation of the kidney; but it rarely, if ever, causes acute or subacute interstitial nephritis. Decomposition of urine in the bladder or pelvis of the kidney may produce suppurative changes in the kidney. If the dilatation

* *Lancet*, June 8, 1895.

† *Lancet*, Vol. 1., 1894.

of the kidney is not complicated by suppurative pyelitis hydro-nephrosis results. If it is so complicated, pyonephrosis is produced. Klebs and others believe that bacteria have migrated to the pelvis and calyces of the kidney, there to produce their destructive changes, hence the names of parasitic nephritis and pyelonephritis as proposed by Klebs.

Lindsay Steven in a thesis on the pathology of the suppurative inflammations of the kidney, published in the *Glasgow Medical Journal*, September, 1884, corroborates Klebs' view and expresses a decided opinion that microorganisms are at the root of the infection, and cause the formation of multiple renal abscesses consequent on diseases of the lower urinary passages. He, however, considers that there are two ways whereby the particular virus gain access to the kidney and sets up suppuration in many different points, namely: First,—by means of the uriniferous tubules, and second, by means of the lymphatics of the ureter and kidney.

Steven shows that the lymphatics, quite independently of any other channel, may form the pathway of the virus from the bladder to the kidney. He admits that the two ways may be more or less combined in many cases; so that multiple miliary abscesses may originate in the same kidney, partly by the invasion of micrococci along the ureter and uriniferous tubules and partly by their inroad along the lymphatic tracts of the kidney.

Traube and others who do not think that the bacteria themselves excite the inflammation, consider that these organisms cause the decomposition of urea into carbonate of ammonia and that this in turn excites the inflammation of the mucous membrane of the kidney.

Pyelonephritis occurs at all ages, but is more common in adult males than in the young. The exciting causes in adult males are stricture of the urethra, renal calculi, prostatic diseases, and infection by means of dirty catheters. That girls seem to have been favored by this disease can be seen by referring to the literature, thus Prof. Baginsky reports three cases, all girls, in the *Deutsch. Med. Wochenschrift*, 1897, No. 25, which he discussed at the Verein für Innere Medizin in 1897. In these three cases the author was able to grow a culture of the bacterium coli from the urine. He believes the bacterium coli to be the true etiological factor in this disease. In these three

cases there were marked gastroenteric disturbances, in two cases membranous enteritis and obstinate constipation. In my case there was severe constipation requiring constant treatment.

Baginsky further maintains that the bacterium coli can enter the kidneys through: First,—the circulation of the blood. Second,—the lymph channels. Third,—the urethra.

Escherich,¹ Finkelstein,² and Trumpp³ have reported a series of cases in which cystitis is found associated with intestinal affections. Baginsky reports two cases of pyelonephritis which could be attributed to the method of using gymnastics during orthopedic treatment for the correction of congenital dislocation of the hip joint. In connection with the exercises a direct invasion of the bacterium coli from the urethra to the bladder could be traced. Other authors, as Posner, believe that external influences have no bearing on the etiology and that the infection takes place from within the body. It is a well-known fact that gonorrheal vulvovaginitis, especially when it occurs in little girls, can cause either pyelitis or pyelonephritis. This is termed the ascending variety. Chronic occlusion of the ureter may be followed by a pure pyelonephritis, without preceding cystitis when the exciting agents of inflammation, which are present in the circulating blood, are eliminated through the kidneys and collect in the stagnating urine in the pelvis of the kidney. Experimentally this disease can be produced in rabbits by ligating the ureter and injecting either bacterium coli or pyogenic cocci directly into the pelvis of the kidney or into the veins.

The patient whose case is so interesting gives the following history:

Hannah W., twelve and one-half years old, was first seen by me in April, 1900. Her mother stated that she had been a healthy child from birth until she reached the end of four years. The child was breast-fed for one year, had no gastric nor intestinal trouble and appeared to be healthy. Dentition commenced at ten months and the child walked when she was sixteen months old. She commenced to talk about the thirteenth month. When four years old the child had measles and chicken-pox. She was put in bed and the usual diaphoretic remedies used in households were given; the family did not deem it

1. Mittheil, d. Vereins der Aerzte in Steiermark, 1894.

2. Finkelstein, Jahrbuch f. Kinderheilkunde, Band XLIII., page 148.

3. Trumpp, Ibidem, Band XLIV., page 249.

necessary to call a physician. Following this attack of measles the mother does not remember whether there was desquamation, but states that the urine was thick and cloudy.

The child never complained of pain; suffered with fever, but never vomited; she also complained of chills. As the fever continued and there were general malaise, the mother took the child to a physician who diagnosed malaria. The blood was not examined for plasmodia.

When first examined I found a very poorly nourished child, with sallow complexion, and flabby muscles. Her bowels moved sluggishly, she was in fact, constipated. There were anorexia and general apathy. She complained of abdominal pains, mostly on her right side in the hypochondriac and iliac regions, the pain being constant and increased on palpation.

FAMILY HISTORY.—There are two other children, both in excellent health. The mother has never had any miscarriages and syphilis can be positively excluded. There is no history of tuberculosis nor anything which might lead to the suspicion of tuberculosis.

OBJECTIVE EXAMINATION.—A large tumor was seen and easily felt on the right side of the abdomen. This tumor was about three inches in length and about four inches wide, and absolutely dull on percussion. On auscultation nothing except occasional gurgling in the ileocecal region could be heard. On bimanual palpation with one finger in the rectum and the palm of the hand pressing over the tumor externally, this large mass could be easily moved, but always caused pain on external pressure. When the finger in the rectum pressed upwards against the tumor the child complained of pain in the right inguinal, ileocecal and the umbilical regions. The tumor felt very hard and solid. The urine was examined many times by myself and also sent to a laboratory for a corroborative chemical examination. Large quantities of albumin, casts, and blood were found; leucocytes were also present. At no time could pus be found in the urine. This fact rendered the diagnosis very difficult. As the tumor completely involved the region of the right kidney I advised an operation. The pains were continuous, constantly increasing in intensity,

and the fever ranged from 100° to 103° F. in the mouth. There was rapid emaciation owing to the loss of appetite, no food being taken for a great many days. The weight of the child, immediately before the operation, was sixty-nine pounds.

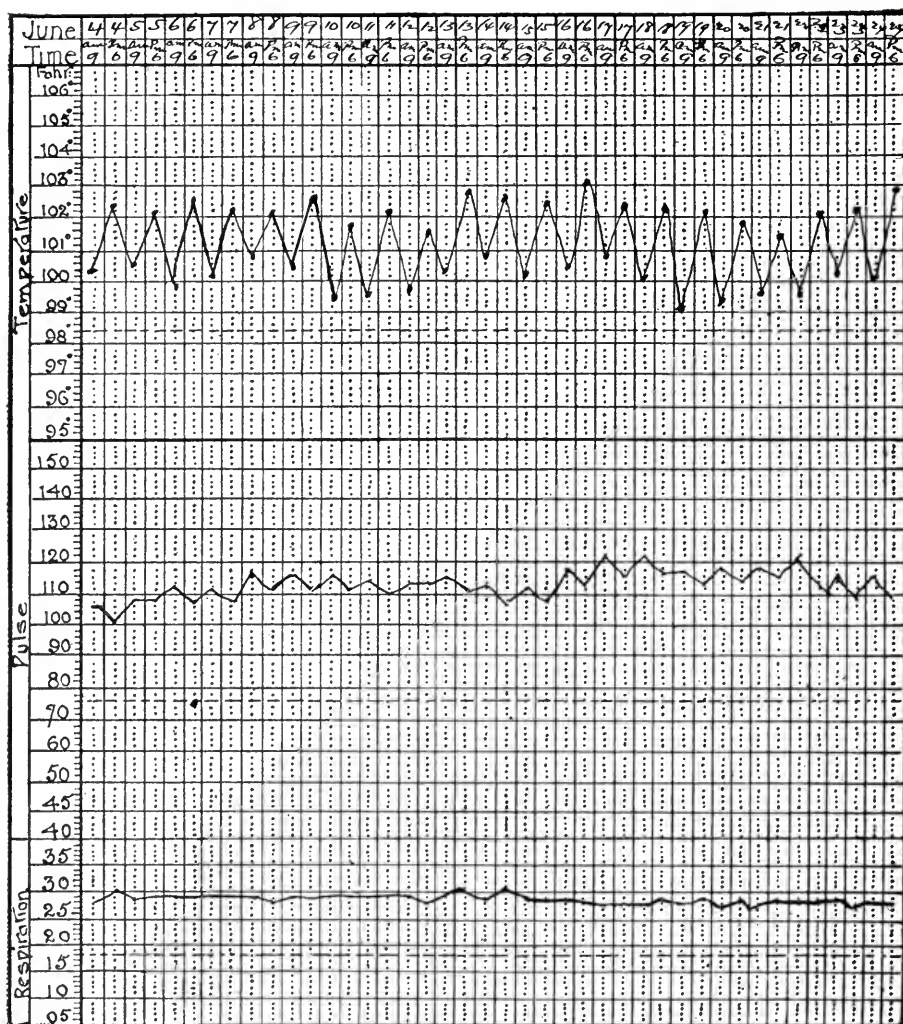


CHART OF CASE OF PYELONEPHRITIS.

Her weight had fallen in a few weeks from seventy-two pounds in spite of the administration of concentrated food and restoratives. The child did not have any bladder symptoms; there was neither pain nor sensitiveness in this region. The urine was very faintly acid and showed the conditions previously stated. Besides albumin and casts there were debris of casts and large quantities of epithelium. There were no leucocytes found and it did not seem to me as though we were dealing with a disease affecting the pelvis of the kidney.

SURGICAL REPORT OF DR. SIMON MARX: "Johanna W. was referred to me by my colleague, Dr. L. Fischer, on July 6, 1900. I find an extremely emaciated child of about thirteen years of age. My examination is limited to pelvis and abdomen. Situated in the right side of the abdomen extending from the right loin posteriorly to within two fingers' breadth of Poupart's ligament in the corresponding side is a large, hard, non-fluctuating tumor the size of a fetal head at term. Superficially the dulness cannot be defined from that of the liver, with which the tumor is evidently closely associated. Genital organs, from a rectal examination, are found normal. Patient prepared for an abdominal section in the usual fashion. July 7th, 8 A.M., a three-inch incision is made through the right linea semilunaris. The peritoneum is quickly and readily opened. The tumor is found, one of kidney origin, retroperitoneal. The posterior peritoneum is very much thickened. The upper part of the tumor is firmly adherent along its entire surface to the inferior surface of the right lobe of the liver. In order to protect the peritoneal cavity from infection, it is thought advisable before extirpating the diseased kidney, to unite both reflections of the peritoneum. This is done by a continuous catgut suture except below where the layer could not be united. At this place a large piece of sterile gauze is packed in. Above where the hepatic adhesions existed, after breaking them up by careful finger and scissor dissection, the parts are firmly packed with gauze to check the rather profuse hemorrhage and wall off the general cavity above. The peritoneal coat (posterior peritoneum) is now split throughout the length of the tumor. Without much difficulty the peculiar lobulated kidney tumor is peeled from its bed. The tissue is so friable that it is removed piece-meal and in breaking into the pelvis, about a tea-cup full of pus and sandy concretions

are removed. The renal vessels, both artery and vein, are destroyed and an insignificant bleeding occurs which is readily checked by Pacquelin cautery and circular suture. This deep cavity is packed with many feet of narrow gauze. The hepatic gauze is removed and a single strip is substituted. Partial suture of the wound. The hepatic gauze is removed on the third day; the gauze in the bed of the renal tumor on the fifth day and changed every alternate day. There is no suppuration and no temperature rise or other disturbance to mar this beautiful convalescence. The wound, except for the very superficial tissue, is completely closed in three weeks."

PATHOLOGICAL REPORT BY DR. F. A. MANDLEBAUM: "I have examined the kidney you sent me. The pelvis was a large pus sac containing many small calcareous particles, such as are often found in cases of chronic pyelitis. Stained specimens of the pus did not show tubercle bacilli nor any other organisms. That some organisms were originally present is beyond doubt, but in long standing cases it is not always possible to detect them. The kidney tissue proper was the seat of numerous small abscesses, undoubtedly due to extension of the process from the pelvis. Sections cut from the cortex, and stained, show an intense inflammation of a chronic nature and small miliary abscesses are scattered throughout. Here and there are remnants of kidney tissue that show a chronic interstitial nephritis.

"DIAGNOSIS.—Pyelonephritis; chronic interstitial nephritis."

October 18, 1900.—It is over three months since this child was operated upon and her weight, which at that time was sixty-nine pounds, is now ninety-eight pounds, an increase of almost thirty pounds.

As this child has but one kidney I have taken careful note of the quantity and quality of the urine passed. Thus the average quantity is about two pints during twenty-four hours. With the exception of phosphates in the urine nothing can be found that would indicate a pathological process. The mother of the child informs me that the feces when passed are flat instead of round as in the normal condition. The child is absolutely free from pain and is, to all appearances, a healthy girl.

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Holt, of New York, read a paper on acute pyelitis in infants before the American Pediatric Society, June, 1894. He mentioned the case of a child eight months old, nursed, who suddenly had a temperature of 103.5° F.; urine showed pus and a trace of albumin; no casts; no treatment given, and the child recovered.

A second case, same author, also eight months old; had been ill nine days; temperature ranged between 103°-106° F.; symptoms all negative; pneumonia suspected. On eleventh day urine showed pus and albumin with bladder epithelium; no casts. Two days later the urine contained 8 per cent. of pus; child received gr. xx citrate of potash daily, and in three weeks all pus had disappeared.

Third case, same author, nine months old, in which malaria or possibly influenza or sepsis was suspected.

Holt has seen a number of cases of purulent infiltration of the kidneys, all of which died. These he regards as distinct from pus in the pelvis of the kidney.

Prof. Monti (*Internation. Klinische Rundschau*, Wien, 1893, Nos. 12 and 13) describes a case of pyelitis occurring in his practice in which he lays especial stress upon the clinical manifestations in pyelitis calculosa together with the associated nephritic colic. He dwells on the fact that irritant drugs can cause this disease in like manner, as has been noted when turpentine, balsam of copaiba, carbohc and salicylic acids have been extensively used.

This author believes that pyelitis can result from an invasion of the gonorrheal pus through the vulva and vagina—extending to the urethra, ureters and entering the pelvis of the kidney directly by this means.

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CLINICAL NOTES ON SCURVY IN THE ISLAND OF CUBA
AND ITS CONNECTION WITH PROGRESSIVE
PERNICIOUS ANEMIA.

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The subject of infantile scurvy has never, to my knowledge, been discussed in Cuba. Neither have I found a case described in Cuban medical literature especially since 1889, when the existence of this disease in the United States was noticed.¹ It is probable, as Forchheimer and Starr think, that many cases of this morbid process were classified as purpura or peliosis.

Since reading the interesting paper presented by Northrup and Crandall in 1894 to the New York Academy of Medicine I have looked for infantile scurvy in my practice, but I did not find a single characteristic case until 1898 when I had the opportunity of seeing one case of the ordinary type, which promptly recovered under the usual treatment.

During past year I saw another of a grave form in consultation with a colleague; the painful swelling of both legs, the purpuric spots, subcutaneous hemorrhages and the black eye were typical and characteristic. The little patient, a male, one year old, had had his condition diagnosed purpura hemorrhagica and he died the day after I saw him with mental phenomena, high fever and hemorrhages from the mucous membranes. He had been raised on boiled cow's milk and appeared to be frail. The parents and grandparents were either arthritic or tuberculous. In this case there was no time to use the ordinary remedies.

Since then, I have had the opportunity of treating a case not quite so grave as the one just mentioned and the patient was completely cured in a short time with orange juice and fresh milk. This patient had been fed with condensed milk. A wet-nurse was provided and the child remained healthy.

In my opinion the severe forms of infantile scorbutus are relatively rare in Havana, at least considering the present conditions of the public health. I suppose that such cases were more frequent during the blockade. Mild and medium cases are

met with oftener, but as they must be sought for, I believe that they are overlooked and confounded with other common morbid conditions.

During the past year I have been able to account for restlessness, insomnia and peevishness attributed to colic or dyspepsia, as undoubtedly of scorbutic origin, because the classical treatment made these symptoms promptly disappear.²

The sensitiveness of the legs may exist without any apparent swelling. Less often have I found small cutaneous spots of a very pale tint on the arms or the legs, and sometimes slight hemorrhagic discoloration at the point of junction of the gums with the teeth about to erupt. Until recently I had not given to this latter phenomenon more than passing consideration, attributing it to rupture of the venous capillaries during congestion, incident to dentition. Its rapid disappearance under an antiscorbutic treatment explains, to my mind, its true etiological significance.

Recently I have had the opportunity to observe a child of seven with ecchymoses of the gums at the point mentioned corresponding to the first permanent molar which had not yet come through. This condition of the gum coincided with two mottled spots on the legs. The rest of the mucous membrane was normal except about the inferior incisors, where it appeared slightly spongy and bled on pressure. I employed pineapple juice with very good results. The suspension of the treatment for a few days resulted in the reappearance of the spots. This child suffered with adenoids and had had many hemorrhages from the nose.

I wish now to refer to a case whose especial symptoms deserve to be reported.

P. V. S., a mulatto, twenty-four months old, was brought to my office on the 19th of May, 1900.

FAMILY HISTORY.—The parents, forty-two and thirty-five years old respectively, are frail but healthy. No history of syphilis or tuberculosis. They had had nine children, one of whom died at eight months of meningitis and another nine years old of fever. The remainder are weak and anemic.

PERSONAL HISTORY.—The child was born at full term and had a normal growth and was breast-fed for six months. From that time her diet consisted of breast and cow's milk, followed

in a short time with the addition of bread, soup and at one year, bananas, meat, eggs and rice. Of these foods she preferred rice of which she ate large quantities almost exclusively. This diet was badly borne and the child suffered frequently with indigestion, diarrhea and fever. Afterwards she contracted measles and made a good recovery. The first tooth was cut at the age of six months while nursing at the breast and in spite of the disturbances suffered later the course of dentition was uninterrupted. The child began to walk when she was sixteen months old.

HISTORY OF THE ILLNESS.—The mother states that the child has been suffering with fever for about a month together with abnormal stools and loss of appetite. For this period the child was given cow's milk and nursed at the breast although she was two years old, but the breast milk was very scanty and poor. The disease did not yield in spite of the treatment she received from different physicians. She was given calomel, salines and quinin. In addition to the fever and diarrhea there were peevishness, sleeplessness and crying, whenever the child was taken up or her position changed. The left leg has been swollen for fifteen days. The emaciation and the loss of strength have been more marked from day to day.

PRESENT CONDITION.—An examination of the child shows the severity of the illness from which she is suffering. There are pallor and emaciation. The flesh is flaccid, and she is unable to stand. She is not very developed for her age, but is well proportioned. Height, 73 cm.; circumference of the head 43 cm.; circumference of the chest 42 cm. Absence of signs of rickets. Conformation of the skull, normal. No costal rosary. No enlargement of the epiphyses or curvature of the long bones. No head sweats. Hair abundant. The abdomen is slightly enlarged, but not painful on pressure. The left lower limb appears at the first glance to be larger than the right. Measurement shows the following difference: Right thigh, $16\frac{1}{2}$ cm.; left thigh, 18 cm.; right leg, $13\frac{1}{2}$ cm.; left leg $14\frac{1}{2}$ cm. The dorsum of the left foot is swollen, but does not pit on pressure. Manipulations of the limb cause pain, screaming and shrinking of the patient. Examination of the mouth reveals an upper and lower set of well formed teeth. The gums are neither spongy nor hemorrhagic, but the borders are purplish, particularly around the superior and inferior middle incisors. The tongue is slightly

coated and moist. There are anorexia and thirst, but no vomiting. The stools, from four to six in the twenty-four hours, are yellowish, semi-solid and slightly fetid. On certain days they are reduced to two or three and harder. Liver and spleen normal. No cough, and on examination the lungs are healthy. Lymph nodes normal. No petechiæ or mottled spots on skin. Temperature, $99\frac{2}{8}^{\circ}$ F., pulse, 120.

I took a specimen of blood in a capillary tube and mounted a fresh preparation for microscopical purposes. A fact worthy of particular mention was that pricking of the finger gave rise to so ready a flow of blood that I had to compress it for a long while in order to stop the hemorrhage.

I ordered the mother not to let the child nurse at the breast, to feed her with fresh cow's milk and to give her the juice of an orange every day. I prescribed an antiseptic made up of benzenaphthol and carbonate of lime and a bitter tonic. I urged her to bring the child on the next week with the axillary temperature recorded every three hours.

Five days after the examination the patient came to the office with the left leg entirely free from swelling and without any pain or tenderness whatever when forcible motion was made in various directions. The mother said that after the second day of treatment the insomnia, restlessness and complaints subsided. The condition of the stools grew better, and the child did not pass but one, yellow and semi-solid, during the twenty-four hours. The temperature record during the five days showed a remittent type with an evening exacerbation ranging from 98° or $99\frac{2}{8}^{\circ}$ to $101\frac{2}{8}^{\circ}$ or 102° F. in the axilla.

Notwithstanding the marked improvement noted this child seemed to grow weaker, the appetite less, and according to the mother it was difficult to get her to drink milk. The antiseptic powders were discontinued. It was ordered that if she could not be made to drink milk she was to have raw meat juice.

I did not know how the little patient was getting along until the 14th of June (twenty-two days after her second visit to my office), when she was visited at her home. The child was in a very exhausted condition, her skin of a very pale, earthy hue and wrinkled. The lips and gums were also pale. Petechiæ and scattered ecchymotic spots, some of them about 5 cm. in size, could be seen on the skin of the thorax. Breathing was frequent and irregular. On auscultation a soft murmur

was perceived over the heart apex. Pulse, 140; temperature, $98\frac{3}{8}^{\circ}$. Temperature record during the ten days had ranged from $96\frac{3}{8}^{\circ}$ to 99° . The abdomen was slightly depressed; the bowels seldom moved. The last stool took place three days before, and, according to the mother, was of normal aspect. The spleen could not be felt on palpation, nor could the retroperitoneal lymph nodes be detected. Examination of the lungs was negative.

The mother stated that her girl continued very ill after her second visit to my office. The anorexia tenaciously continued, the efforts to feed her with cow's milk, beef-tea or meat juice having been fruitless. The taking of any of these substances would provoke vomiting, which frequently increased and resisted treatment by the physician who had been called in. For eight days the stomach would retain absolutely no kind of food or drink.

The urine was scanty and high colored and did not show the presence of albumin. The prognosis was unfavorable. The child died three days later with nasal hemorrhages and hematemesis.

The interest of this history is found in the whole peculiar course of the clinical process, which, commencing by exhibiting the typical picture of infantile scurvy, offered afterwards the features of a severe anemia of a progressive and rapid course and fatal ending.

The lack of a blood count and autopsy make this observation incomplete, but notwithstanding this the examination of the blood which was made on the same day of its collection, afforded a series of data of diagnostic importance. Laveran's plasmodia were not found, nor was there any agglutination of Eberth's bacillus. These facts, together with the absence of clinical signs of malarial and typhoid fevers, allow us to lay aside all suspicion concerning these diseases. Microscopical examination, on the other hand, revealed an advanced poikilocytosis and a large number of macrocytes and microcytes, two prominent characters which progressive pernicious anemia exhibits. It is true that there were no nucleated red cells, but it is impossible sometimes to find them in one examination. Escherich has published an observation of this kind³ and Cabot, of Boston, makes reference to three cases.⁴ On the other hand, the presence of

hematoblasts in the peripheral blood is not, in the opinion of some observers,⁵ a pathognomonic feature of the disease.

After analyzing the clinical history used as a basis for this study, we find the following as etiological factors of scurvy: partial premature weaning and improper food with excess of the farinaceous element, before the end of the first year of life. The child was fed almost exclusively upon large quantities of rice.

No doubt exists regarding the diagnosis of scurvy, deduced from the train of symptoms shown by this little patient when first seen at my office. Painful swelling at the left thigh and leg, inability to move them, malaise, insomnia, restlessness, peevishness and congested gums. Lastly, a rapid disappearance of all these symptoms under antiscorbutic treatment.

Among the etiological influences of progressive pernicious anemia are bad hygienic conditions, wretched dwellings in unhealthy wards, dampness, bad feeding and, above all, repeated digestive disorders, leading to infection of the intestinal tract. (Hunter's views of autointoxication). In this way the system of a child, healthy up to the age of six months, became weak and impoverished, without developing any signs of rickets.

The diagnosis of pernicious anemia is plainly justified by the clinical evolution of symptoms together with the microscopic examination of the blood, in spite of the latter being an incomplete one. Far from thinking with Grawitz and Krokiewicz,⁶ that it is not the microscopic picture of the blood, but the clinical course that is decisive for this disease, I believe the coexistence of both morbid elements is suggestive enough to incline the mind in that direction. On the one hand, gastrointestinal phenomena, fever, progressive emaciation, pallor of the skin and mucous membranes and, in the last stage, vomiting, dyspnea, cardiac murmur, cutaneous, nasal and gastric hemorrhages; on the other hand, poikilocytosis and macrocytes in abundance, form such a combination as to compel a more than probable diagnosis.

The antecedents and the examination of the patient allow the exclusion of tuberculosis, malignant growths and tubular atrophy of the intestine. This case then belongs to the group of anemias which has not an evident origin in the affection of any organ of the body.

The problem to be solved is the following: Are we dealing

in this case with a primary and *unique* alteration of the blood, giving rise to two series of clinical facts, the scorbutic symptoms first and those of progressive anemia afterwards? In other words, should we consider the scurvy as an especial clinical form of progressive anemia? Or, on the contrary, was this a case of association of both processes developing at the same time and in the same person?

The ignorance in which we still are regarding the intimate nature of scurvy and also with regard to that group of kindred diseases characterized by a hemorrhagic tendency make it very difficult to decide this matter for the moment. We must agree that there exists great obscurity as to the pathology of the blood, and that the existing uncertainty regarding the etiology and pathogenesis of said morbid status is the only reason to justify the purely artificial classification to which the clinical observation of the different described types has given rise.

The analogies uniting all these processes, one with the other, have not been overlooked by many investigators, and the undecided forms, classified, as Strümpell says, at the will of the observer, have always been a matter of discussion.

Filatow, in his book, expresses similar ideas, and in making a differential diagnosis between purpura and scurvy chooses to consider some pathologic facts as cases of transition between one and the other disease.⁷

Very recently Tuley, of Louisville, presented at the Section of Diseases of Children of the American Medical Association a clinical sketch in which a case of this nature was described, and the author said that the term purpura hemorrhagica should not be used, as this so-called affection simply became a modified form of scurvy. The same is thought of Griffith, to whom the word purpura cannot have any more clinical meaning than that of jaundice.⁸

In the matter of progressive essential anemia, the same obscurity is observed in spite of what has been advanced with regard to its hematology. Many cases of primary and secondary anemias are confounded with it, and a well-defined limit has not as yet been established between certain curable grave anemias and the essential forms called pernicious, which cannot be considered pernicious simply from the fact of their fatal ending. (I allude to the case described by Elder, which

entirely recovered through the injections of antistreptococcic serum.⁹⁾

The meagre number of recorded cases of progressive pernicious anemia in infancy, some of them of incomplete observation,¹⁰ does a great deal more towards retarding the solving of the problem in regard to the connection there might exist between it and the scurvy in early life.

The only reference I have been able to find in medical literature regarding this topic is the indication made by Heiman in the course of a discussion brought up in the New York Academy of Medicine on the subject of scorbutus. According to Heiman the blood in the said disease offers the characters of progressive pernicious anemia.¹¹

Whatever may be the supposed etiology of scurvy, we cannot help thinking that an alteration of the blood is the first pathogenic link of all manifestations to follow, among which the tendency to hemorrhagic extravasations plays one of the most important rôles.

The progressive character of the symptoms of scurvy when the patient *is not well managed*, its increasing aggravation and its fatal ending with cachectic phenomena in severe cases of delayed intervention, are facts admitted by all observers who actually take an interest in the study of the disease.

Such facts constitute an undeniable proof of the *pernicious* character of scurvy similar to the one which served as well, to qualify as progressive pernicious, a certain type of primary anemia which brings the patient to exhaustion and death in a more or less brief time.

For the moment I feel inclined to accept the existence of a primary alteration of the blood, be that of a chemical or infectious order, to explain the symptoms of scurvy as well as those of progressive pernicious anemia. The physiological activity predominating in the osseous system during early life could account for the subperiosteal localization of the hemorrhages in infancy, as well as the greater frequency of the hemorrhages of the gums when in the course of teething. The extraordinary activity of the process of blood-making at that age should give an explanation to the rapid recovery of patients treated in time, as well as the absence of advanced globular modifications which correspond to the common forms and extreme cases of the progressive pernicious anemia.

A large number of minute and repeated observations are required in order to define infantile scurvy as a form of progressive pernicious anemia peculiar to early life, but at any rate, I take the liberty to call the attention of my colleagues to this new aspect of the subject which I intend to study further.

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Tuberculosis of the Brain in Children.—Dr. Leone Maereto writes (*Riforma medica*) that tuberculosis of the brain is not stated with sufficient elaboration in the text-books on children's diseases, and is clinically often confounded with tumors of the brain. The writer describes two cases of tuberculosis of the brain in children which presented characteristics that are peculiar to this lesion. In both cases there was an hereditary predisposition to tuberculosis. One had tuberculous lymph nodes, the other a chronic bronchitis which remained after convalescence from pertussis. In children, lesions of cerebral vessels, parasitic tumors, or neoplasms properly so called are so rare in the brain that in the presence of severe cerebral symptoms, diffuse or localized, we can make the diagnosis of tuberculosis with safety, if we can exclude injury to the brain. Localization of the lesion is often possible from the character of the paralysis, ophthalmoplegia, etc.

REMARKS ON THE PATHOGENESIS AND PROPHYLAXIS OF ACUTE RHEUMATIC FEVER IN CHILDREN.*

BY HENRY HEIMAN, M.D.,

New York.

Having recently met in practice with a comparatively large number of cases of acute rheumatic fever in children with its complications and sequelæ, I have become so impressed with the importance of this affection from an etiologic, a prognostic and a therapeutic standpoint that I determined to make a study of these matters, with the double purpose of bringing the subject before this section for a general discussion, and also to ascertain the comparative merits of the various theories of its causation, when gauged by the latest tests. The theories now extant to explain the causation of this trouble are so numerous and conflicting, that we are now more than ever in doubt as to the real value of any of them. Climate, meteorologic changes, heredity, bacteria, metabolism, physiology, chemistry and pathology, are all supposed to hold the key to the solution of this medical problem. While each of them is responsible to some extent, there is no doubt to my mind, that one of them must be the predominating causative factor.

Among the more prominent theories is that of Prout¹ who attributes the disease to an excess of lactic acid in the blood. It would be interesting to know how he determined the quantity of this acid, so as to justify this claim, there being no practicable and reliable quantitative test for lactic acid as it occurs in the blood. This is a theory only, for which there is no foundation in fact, for the simple reason that the normal lactic acid equivalent in the human economy is still an unknown quantity.

Haig² in his work on "Uric Acid" ascribes the disease to an excessive formation of uric acid in the blood. Garrod³ and Bartels after repeated trials have never been able to demonstrate to their satisfaction, that in this disease the blood was surcharged with uric acid. In my own cases I was never able to

* Read before the Section on Pediatrics of the New York Academy of Medicine, November 8, 1900.

demonstrate an excess of uric acid in the urine, employing Cook's⁴ modification of Haycraft's centrifuge method.

Maclagan⁵ as early as 1881 claimed that the disease was of miasmatic origin but did not explain how the miasmatic matter produces the special pathologic lesions found in rheumatism. He does not draw the line between etiology and pathology. While I admit that the miasmatic influences have a certain importance from an etiologic standpoint, just as climate, temperature, season of the year and soil have, it would be difficult to explain how or by what avenues the miasm is introduced into the circulation and occasions the joint lesion. The same argument held true for tuberculosis and malaria. Before the discovery of the tubercle bacillus and the malarial organism it was the custom to ascribe these diseases to certain factors which we now regard merely as predisposing influences. There are other theories of causation of this disease, equally well-known, which have had their day, but which have been refuted in the light of our present knowledge, for example: Mitchell's⁶ theory of a spinal-cord lesion, and Canstatt's⁷ theory of a disturbance of the vasomotor system.

The most plausible theory and one based on our present observations is to associate the origin of this disease with the germ theory. This theory of microbic origin is founded on the following facts: Firstly, pathologic evidences based on autopsical findings. Eichhorst⁸ found hemorrhages in the different organs, such as the heart, liver and kidneys. Secondly, examinations of the blood of rheumatic patients during the acute stage, correspond with those of some of the infectious diseases. We find a diminished number of red cells, the hemoglobin diminished 65 per cent. to 75 per cent. and a leucocytosis from 16,000 to 19,000 white cells. Thirdly, certain specific organisms have been found in the secretions; these have been isolated and injected into the blood of animals. It was then found that a joint inflammation with secretion followed in consequence, and in this secretion could be demonstrated the same microorganism. Fourthly, the clinical picture indicates that we are dealing with a constitutional disease with local manifestations. Although the specific organism has never been isolated satisfactorily there are reasonable grounds for believing that the time is not far distant when it will be.

Wassermann⁹ in his latest paper on this subject says he

was able to cultivate and isolate a coccus which, when injected into rabbits, produced multiple arthritis, endocarditis and death; and was able to find the same kind of germ in the blood of the infected rabbit. This experiment refutes the one of Richardson¹⁰ who injected lactic acid into the peritoneal cavities of dogs and cats and was thus able to produce an endocarditis but no joint affection. Of great importance in this connection are the elaborate bacteriologic experiments of Singer¹¹ with the blood, urine, perspiration and joint secretion of rheumatic patients. He summarizes the results of his experiments as follows: In the examination of the blood, out of 60 cases 9 gave positive results; that is to say, he found the staphylococcus pyogenes albus in 15 per cent. of the cases. In the examination of the urine, out of 85 cases 49 gave positive results; that is, 57½ per cent. He made bacteriologic examinations of the joint secretion in 21 instances, with two absolutely positive and two doubtful results. His conclusions were that acute rheumatic fever is after all due to a process of infection, resulting from the circulation of different kinds of pathogenic bacteria in the blood and to the subsequent formation of peripheral metastases.

I think I am not claiming too much when I state my belief that we are dealing here with an attenuated form of a special variety of pyogenic bacteria and that the variety and number of the symptoms will depend upon the site of the lesion; that is to say, the same variety of pathogenic germs may produce a variety of symptoms depending upon the organ, tissue or membrane infected. Thus the diplococcus of pneumonia in the lung will produce a pneumonia, while in the ear an otitis, and in the brain a meningitis, with different and typical clinical pictures in each instance. The crucial test for the demonstration of the bacterial nature of acute rheumatic fever would be a bacteriologic examination of the joint secretion just as a lumbar puncture obtains for meningitis.

Accepting the germ theory of the causation of this disease, the mode of production of the anatomical changes in the joints is explained as follows: The portals of infection are usually the tonsils, the digestive or the respiratory tract. Through these avenues the germs or their toxins find a way to the serous cavities and by predilection the joints. Here they set up an inflammatory process accompanied by the usual by-effects. There is, however, little tendency of the joint effusion to become

purulent, and this is accounted for by the fact that the microbes of acute rheumatic fever are, probably, of a highly attenuated virulence. The germs or their toxins may later find their way into other textures and organs and into the skin. What the means of transportation or metastasis have been, whether through emboli or what not, are not known to-day. We simply know that these germs have been found in the endocardium and the pericardium. There is also reason to believe that the materies morbi of rheumatic fever, namely, the bacteria and their toxins, may find a nidus primarily in parts other than joints and migrate no further. Thus we have them in the endocardium and the cortical cells of the cerebrum; in the former case producing an endocarditis, and in the latter a rheumatic chorea.

There are certain features in the morbid anatomy of this disease, which are almost *sui generis* to children. Thus there is less liability to a joint involvement, and sometimes it may be altogether absent. Sometimes the only evidence of a joint implication is the subjective symptom of pain complained of by the child, the so-called "growing pains." At other times when the joint is involved the anatomical changes are not so severe as in adults, there being less exudation and fewer structural changes of the joint and tissues and therefore less pyrexia. On the other hand, strange to say, there is, in childhood, a greater tendency to metastasis of the bacteria and their toxins leading to an involvement of other textures and serous membranes and even the skin. We therefore have as a frequent accompaniment or a manifestation of the diseased joints, a torticollis, an erythema nodosum, a purpura rheumatica, a chorea, an endocarditis or a pericarditis, or even a myocarditis, or a formation of tendinous nodules. The pleura, in my experience, with children under four years of age, I seldom have found involved.

The complication most frequently present in childhood is an endocarditis. Many cases of cardiac disease found in adult life, originated in this way. In childhood the tendency, if compensatory hypertrophy takes place, is towards a recovery. Whenever dilation without compensatory hypertrophy occurs death usually follows.

A frequent condition found in acute rheumatic fever is a peptonuria. This is probably caused by an abundant destruction of the leucocytes with an absorption of their peptones.

I wish to allude briefly to certain allied affections, to which has been given the title, "rheumatoids." Principal among these are diseases of the joints following gonorrhoea, the exanthematous fevers, erysipelas, certain tropical fevers, typhus, typhoid, and malarial fever, recurrent fever, dysentery, meningitis, pneumonia, bronchiectasis, influenza, diphtheria, pyemia, parotiditis, osteomyelitis, syphilis, tuberculosis, and hemophilia (Pribram¹²). Of course we cannot look upon these rheumatoids as acute rheumatic fevers *per se*, but rather as diseases caused by specific germs or mixed infections. Besides the presence of the specific organisms, there are certain predisposing influences, such as heredity, climate, soil, etc., which are so well known as to require no recapitulation here.

Rheumatic fever is very rare in children under three years of age, although there are some authentic cases reported by Jacobi,¹³ Henoch,¹⁴ Rotch,¹⁵ Koplik,¹⁶ Chapin,¹⁷ Miller,¹⁸ and others, where the disease occurred in children under one year of age. It is well to remember that most cases of joint disease in children under one year of age are really scurvy.

This brings us to the treatment of this disease. We must remember the indications: First, to combat the poison of the disease; second, to alleviate the symptoms; third, to prevent involvements, notably of the heart, and to prevent recurrences. On this point I shall lay particular stress, for it is well known that an attack does not immunize, but on the contrary, it predisposes to subsequent attacks, in which regard it differs from most of the infectious diseases and simulates malaria and tuberculosis.

The first indication to counteract the poison is met best by the salicylates. There are to-day no known drugs which can replace them or their derivatives, such as salol, salipyrin, etc. The salicylates have been regarded by most practitioners as specific. But even with their employment failures to cure or to prevent involvement of other organs occur from time to time.*

In the treatment of this disease by salicylates I have for about one year, followed out a theory that is based on the

* Of great importance in this connection are the experiments of Prudden, reported in the *American Journal of Medical Sciences*, 1882, Vol. LXXIII., p. 64. He found that salicylic acid dissolved in a half per cent. solution of chlorid of sodium, using varying strengths from 1-300 to 1-5000, when brought in contact with the blood of frogs or rabbits caused a change of protoplasm and death of the cell; and retarded the emigration of white cells.

treatment of malaria by quinin. As is well known we prevent relapses of malarial fever by the administration of this drug for a specified period even when the patient is apparently well and cured of his acute attack. That is to say, quinin is administered prophylactically. Just so in acute rheumatic fever, I administer the salicylates prophylactically. Ewart,¹⁹ of London, in the *British Medical Journal*, March, 1900, is the only one who has alluded to this method of treating rheumatism. This last statement, I am able to make after a careful reference to the chapter on rheumatism in most of the text-books and the literature on the subject.

My method of administering the drug is the following: After the acute local and constitutional symptoms have subsided and the little patient is to all intents and purposes apparently cured, I continue the administration of the salicylates in three to five grain doses three times daily, according to age, for one week of each month for about a year or longer. The principle involved in this prophylactic measure is that the bacteria and their toxins may remain dormant in the economy for a long period after the abatement of the acute symptoms, and there is probably no antitoxin produced in the system to immunize it from subsequent attacks, such as we find in a number of the other infectious diseases.

As far as the alleviation of the symptoms is concerned, the measures employed are too well known to make it necessary to more than mention them here: Rest, immobilization of the joint and the local application of heat or cold and the use of drugs as indicated.

The third indication, namely: to prevent involvement of the heart is included in the prophylactic measures spoken of above. It is to be remembered that at times, despite all our energetic treatment, heart complications *will* follow, because we are at a disadvantage in this respect while we can place an affected joint at rest, we cannot put the heart at rest.

I do not cite the particulars of cases treated prophylactically because it is too soon to give results. This I hope to do in the near future.

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Clinical Memorandum.

MALARIAL COMA IN A BOY.

BY E. P. STONE, M.D.,

Surgeon, U. S. Navy.

The family of the patient, whose case is here recorded, resided during the past year in a locality notorious for malarial diseases. In front of his residence during the summer, excavating was in progress. Recently his father and his mother have each suffered from severe malarial fever. An older brother is at present under treatment for the same disease.

Wentworth H., aged three years and eight months. A sturdy, well-developed and well-nourished child, whose general health has, on the whole, been good, but who has, on several occasions, had symptoms alarming to his family in connection with sickness not serious in itself. No history of previous malarial attacks. Bowels moved twice daily. Urinary secretion normal. As seen during several previous days, while in attendance upon his brother, he appeared bright and well.

October 8, 1900, P.M.—Patient found to have a temperature of 102° F. Said to be dull during the day, but has no symptom save fever. Ordered a cathartic and quinin.

October 9th.—Temperature normal. Vomited twice and had a grayish clay colored stool; after which he was better and seemed much brighter. Tongue is clean. Diet of milk and lime water ordered. No medicine.

October 10th.—Awoke this morning without being especially sick, neither was he well, but took some milk with a relish. About 11 A.M. he passed into a comatose condition. At 3 P.M. he was seen by a physician who found the axillary temperature normal; calomel was ordered.

At 5 P.M. I found the child unconscious. On shaking him he would roll his head from side to side and utter a low moan. The pulse was 124. He was absolutely pallid and his lips were cyanotic. Pupils were dilated but reacted to light. Heart and lungs were negative. Abdomen slightly distended. On

palpation over the spleen he reacted as he did to shaking; the spleen was slightly enlarged. He had passed urine in bed twice during the day, apparently a considerable amount.

He was seen in consultation by Dr. S. S. Adams, at 5.45 P.M. There had been no change in above symptoms. Temperature, per rectum, was 100.4° F. On account of the previous history uremic and meningeal coma were excluded and a probable diagnosis of malarial coma was made. He was ordered a bath at 105° F. for ten minutes. Bath was given at 6.10 P.M. While he was in the bath he became less comatose, and after being returned to the blankets he perspired very freely; soon became conscious and asked for food. When seen again at 11 P.M. he appeared tired, but was as bright and intelligent as usual. After coming out of his bath he passed urine freely.

October 11th, A.M.—Temperature, 99.4° F.; pulse, 120. Bright and comfortable. Has some appetite. Bowels move twice daily. Malarial parasite found in specimen of blood taken this morning. Nine grains of quinin given in divided doses.

October 12th, A.M.—Temperature, 100.4° F.; pulse, 124; P.M., temperature, 100.8° F. He was languid to-day, but has no acute symptoms nor return of coma. Has an appetite. Quinin continued.

October 13th, A.M.—Temperature, 101.1° F. Said he felt well, but is really dull and languid. There is still some tenderness over the spleen. Bowels moved by enema. In the afternoon he seemed to have less fever, but as he was asleep at the time of the visit, the temperature was not taken. Said to have been brighter during the day. Quinin given in smaller doses.

October 15th, P.M.—Temperature, 99° F.; pulse, 92. Better in every way. Has a good appetite. Is slightly deaf. Six grains of quinin to be given during the day.

October 16th.—Temperature, 98.2° F. Seems well. Quinin to be gradually reduced.

The boy made complete recovery.

This case is of especial interest in the light of similar cases recently reported by Dr. Acker, of Washington, D. C., in ARCHIVES OF PEDIATRICS for November, 1900.

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LUMBAR PUNCTURE IN CEREBROSPINAL MENINGITIS.

Since the appearance of Quincke's contribution in 1891, advocating the use of lumbar puncture for diagnostic purposes and therapeutically for the relief of excessive intracranial pressure in cases of chronic hydrocephalus, the field of application of this measure has grown steadily wider. It was at first presented as a means of diagnosis and a therapeutic measure in a class of cases not usually amenable to any treatment. Gradually its value in cases other than those of hydrocephalus became recognized and the literature of the subject shows an increasing number of references to lumbar puncture as a therapeutic agent in diseases of a more acute and inflammatory character.

Hand, in an article dealing with the diagnostic and therapeutic value of lumbar puncture states that its therapeutic effect

may be either palliative or curative. In diseases where the pressure of fluid is so great as to endanger life the lowering of this is a palliative procedure that may seem curative. It is in tuberculous meningitis that this result obtains, as it does to a limited extent with cerebral tumors.

It is, however, to Netter's report of 7 cases of epidemic cerebrospinal meningitis treated by lumbar puncture, in connection with warm baths, that attention is directed. He is disposed to regard suppurative cerebrospinal meningitis as offering satisfactory prospects of cure when these means of treatment are undertaken. In his cases lumbar puncture gave a fluid which yielded a purulent deposit that contained the diplococcus of Weichselbaum. The puncture was repeated from once to ten times during the course of the disease. With each succeeding puncture the microorganisms diminished in number and the fluid became less purulent. In 5 of the cases the cure was complete. One case had ankylosis of two joints and 1 had disease of the labyrinth. In the cases that showed the best results the improvement was marked after three or four days.

It is impossible to make the satisfactory results obtained in these few cases a positive guarantee for success in the treatment of meningitis of the suppurative and cerebrospinal type by lumbar puncture, but a disease which has been treated so unsatisfactorily by medicinal agents cannot fail to be benefited by the only measure now in use for the actual removal of some of the microorganisms that cause the inflammation of the meninges.

With this number ARCHIVES OF PEDIATRICS enters upon its eighteenth year. It is a journal devoted to a specialism about which every practitioner should know. All physicians who wish to keep in the front of their profession should read it.

Demoir.



DR. JOHN HENRY FRUITNIGHT.

Dr. John Henry Fruitnight, who died of pneumonia at his home in New York City, on December 18, 1900, was a collaborator of this journal and an active worker in the department of pediatrics.

Born in the City of New York, on November 9, 1851, educated at the public schools and at the College of the City of New York, he received his A. B. in 1872, and the same year he began the study of medicine with Dr. C. A. Leale, and at Bellevue Hospital Medical College. In 1875 he was graduated in medicine, was given the degree of Master of Arts and immediately began the practice of medicine.

He was much interested in obstetrics and his first contributions to the medical journals related to obstetrics and gynecology. Later he gave his attention to pediatrics and his writings during the past ten years were almost entirely on subjects relating to diseases in children. The paper "A Fatal Post-*Otitic Cerebral Abscess with Amnesic Aphasia*," presented to the American Pediatric Society and printed in *ARCHIVES OF PEDIATRICS*, July, 1900, was his last contribution. Dr. Fruitnight's medical writings were usually prepared for societies and were read before being published.

He was one of the authors of Starr's *American Text-Book of the Diseases of Children*, in which he wrote the articles on constipation, peritonitis, ascites and tumors of the omentum.

One of the organizers of the American Pediatric Society he was a regular attendant at the meetings. His papers are to be found in almost every volume of the *Transactions*.

Dr. Fruitnight was a fellow of the New York Academy of Medicine and when the Section on Pediatrics was formed he



DR. JOHN HENRY FRUITNIGHT.


became its first secretary. He was chairman of the Section for 1897 and 1898.

He was a member of various medical societies and served as an officer in many of them. Besides the New York Academy of Medicine and the American Pediatric Society, he was a member of the American Academy of Medicine, of the Medical Society of the County of New York, of the Society of Medical Jurisprudence and of others, both local and national.

He worked zealously for the success of the hospitals of St. John's Guild of which he was, for a number of years, trustee and consulting physician.

In all that he did Dr. Fruitnight was conscientious and painstaking. He had a large practice and his writings were based on the records of his cases and showed careful clinical observation. Quiet and retiring he did not obtrude his opinions, but when he expressed them his views were the result of thoughtful deliberation.

He was an honorable member of the medical profession, and was respected for his sterling integrity by all who knew him.



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Sexual Debility in Man. By F. R. Sturgis, M.D. Formerly Clinical Professor of Venereal Diseases in the Medical Department of the University of the City of New York. Sometime Visiting Surgeon to the Venereal Division of the City (Charity) Hospital, Blackwell's Island; Member of the American Association of Genitourinary Surgeons, etc. New York: E. B. Treat & Co. 1900. Pp. 432. \$3.00.

At first glance it might be thought that a book with the above title would not contain articles in any way related to the diseases of childhood. The author, however, knowing the importance of his subject, has not limited his writing to sexual debility of the adult but enters into a discussion as to the influence of masturbation in infancy and childhood.

In infancy the causes of the habit are probably due to some irritation, either of the sexual organs, the genitourinary tract or of the rectum, and the two most frequent sources of trouble are believed to be the presence of ascarides and phimosis, especially if the latter is tight and adherent. From the recorded cases it will be seen that masturbation may be practiced as early in life as the third month. The author states that masturbation may be followed by nervous symptoms, but he doubts if in the majority of instances where lunatics and epileptics are given to this habit, masturbation is the real cause of their nervous disorders. Usually masturbators get over the habit and do not suffer any irreparable harm.

Such works are generally written by a physician who does not understand his subject and who is unable to separate the psychic from the actual physical disease. Dr. Sturgis' experience is so extended that his opinions express the result of observations on both classes of cases.

The book is recommended as the best of its kind. The volume is well printed and bound. The bibliography is lengthy and the index is complete.

Progressive Medicine, Vol. IV., 1900. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Pp. 428, 69 illustrations. Philadelphia and New York: Lea Brothers & Co. Issued quarterly, \$10.00 per year.

It is not necessary to do more than call attention to the last number of this valuable quarterly as the standard of the present volume equals the others.

The articles relating to the diseases of the alimentary tract are by Dr. Einhorn, who is widely known as an authority. Unfortunately, however, his references to the literature of gastro-enteric disorders in children are incomplete. It would be well to have these important topics elaborated by an editor acquainted with the work of pediatricists, so that the volume would add something to the brief articles edited by Dr. Blackader in Volume I.

The subject of coxa vara is clearly discussed by Bloodgood.

The appearance of this epitome of medical progress is a credit to the editor and publishers.

Suppurative Mastitis in the Newly-Born.—Francis A. Winder relates (*Medical Press and Circular*, December 20, 1899), a series of four cases of suppuration in the breasts of children shortly after birth. Three were girls and one was a boy. Discussing the subject of lactation in children, he says that it may be seen in male as well as in female children, and that it generally occurs very soon after birth. The quantity secreted is very small and tends to disappear spontaneously; it never oozes from the nipple, and it takes some amount of squeezing to cause it to exude, but if it is "drawn" more is secreted to take its place. It is this "drawing" which causes the breast to inflame. There is always a history of interference, squeezing, rubbing, pressing the breast, etc. And finally, it is frequently a unilateral phenomenon. It is more frequently seen in the first-born of families. As to treatment the writer says, "Foment and leave alone."—*Medical Record*.

Society Reports.

THE NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, October 18, 1900.

WILLIAM H. THOMSON, M.D., PRESIDENT.

DR. A. D. BLACKADER, of Montreal, read a paper on
THE ADVANTAGES AND LIMITATIONS OF STERILIZING AND PASTEUR-
IZING MILK.

He assumed that it was desirable that an infant's food should be sterile, and then argued that pasteurization at 140° F. was the preferable method as it destroyed upwards of 99 per cent. of the contained bacteria without producing any marked alteration in the composition of the milk. This was far from being true of milk heated to the boiling-point, and hence the reason for giving the preference to pasteurization.

DR. J. P. CROZER GRIFFITH, of Philadelphia, presented a paper on the

RELATION OF INFANTILE SCURVY TO DIET.

He said that a careful analysis of the statistics of the Collective Investigation of the American Pediatric Society, together with his own experience in the last 16 cases under his observation, had convinced him of certain facts. 1. That the use of proprietary infants' foods was a powerful factor in producing the disease. 2. That the use of food containing unconverted or converted starch had a decided influence in many cases. 3. That the cooking of the milk exerted a positive influence in many cases. This last point had, however, to be accepted with a certain reserve, since in so many instances reported we do not know how the sterilized milk mixture was prepared. A faulty percentage proportion was probably the cause in many of them, and not the sterilization. 4. That there is no one food which can be regarded as the one cause of scurvy. What agrees with one child may cause the disease in another. The individual susceptibility towards a certain diet is a prominent factor never to be forgotten.

He also spoke of the advisability of administering orange juice before making any change in the food.

DR. T. M. ROTCH, of Boston, read a paper on

CEREALS, EMULSIONS AND PROTEIDS.

He stated that the most recent and precise work on this subject had been done during the past summer under his supervision by Dr. Franklin White and Dr. Maynard Ladd; that the results of this work would be fully published later, but that he would briefly state the chief conclusions which he had reached regarding cereals, emulsions and proteids, both from laboratory experiments and clinical experience.

Regarding cereals he stated that it had been shown that decoctions of cereals used as diluents made the coagulum of cow's milk proteids finer than when simple water was used as a diluent. There was no difference in result as to different cereals which were used and the dextrinized starch when used as a diluent was no better than solutions of sugar or plain water.

Regarding emulsions, he said that there was no difference between milk mixtures which were diluted with barley water and those with plain water, nor between those made up with centrifugal or gravity creams. Experiments show that when the emulsion is distributed it arises from a combination of heat with the motion of transit.

He pointed out that it was irrational, if it could possibly be avoided, to add a foreign element, such as starch to the food in the early months of life merely to obtain a finer coagulum when quite as fine, if not finer, a coagulum could be obtained without such addition.

He then stated that the reason why a heavier and more dense coagulum resulted from the same total proteid in cow's milk than in woman's was because in the former the caseinogen from which the resulting coagulum (casein) was formed was five times as great proportionately as in the latter, where on the contrary, the lactalbumin was two-thirds greater than in cow's milk.

When the caseinogen in a milk mixture was made to represent only one-third of the total proteids and the lactalbumin obtained from whey, two-thirds, the resulting coagulum was quite as fine if not finer than where cereals were used and the total proteid in such a mixture resembled so much more

closely the total proteid of woman's milk that it was manifestly unnecessary and irrational to add a cereal for the purpose of its mechanical action.

DR. L. EMMETT HOLT discussed

THE GENERAL PRINCIPLES OF INFANT FEEDING AND THE HOME
MODIFICATION OF MILK.

He too opposed the addition of any foreign elements to the milk of healthy infants, arguing that the physician must be guided by the proportions of the different constituents which exist in good breast-milk; but that no one formula could be made to do duty in all cases, no matter how closely it resembles percentages of fat, sugar and proteids in good average breast-milk. In the proteids particularly, one must begin with a much lower per cent. than is present in breast-milk, gradually raising this as the patient's digestion becomes more and more accustomed to cow's milk. He thought the greatest mistake made was to start with too high percentages, especially of fat and proteids, but that it was equally undesirable and often very injurious to keep an infant for a long time upon very low percentages of proteids.

In ordinary practice, the modifications required for healthy infants could be readily grouped into three classes of formulas:

1. A series in which the fat was three times the proteids, or about that existing in breast-milk. Such formulas were adapted to the first period of infancy, extending from birth to about the end of the third month.

2. A series in which the fat was twice the proteids, which formulas were adapted to the middle period of infancy or from about the end of the third month to the end of the tenth month.

3. Formulas in which the fat and proteids were nearly equal, which were adapted to infants over ten months old.

The first series of formulas could readily be derived from a primary one, which contained 10 per cent. fat and 3.3 per cent. proteids which are the proportions obtained when the upper one-third of average milk is removed from a quart bottle of milk after standing in ice water for four hours or longer.

The second series of formulas are derived from one containing 7 per cent. of fat and 3.5 proteids, which is what is obtained when the upper one-half of bottled milk is removed after standing as above.

The third series are derived from a dilution of whole milk.

The above are sufficient for healthy infants; those with feeble digestion or chronic indigestion require special study, and each case must be considered by itself.

DR. JOSEPH E. WINTERS commented upon the rarity with which breast-fed infants were ill up to the time of weaning, and also upon their good health even under adverse conditions, which was in marked contrast with what was observed among artificially fed infants. The latter, when in tenements or in public institutions, yield a frightful mortality, about 90 per cent. of which is estimated to be the result of faulty feeding. The medical profession was responsible for the persistent and disastrous use of proprietary foods and of methods of infant feeding directly at variance with our present knowledge of the infant's requirements. The enormous difference in the mortality between natural and artificially fed infants was owing to the very extensive use of these cereal foods. The artificial food must contain nothing which is not normally present in human milk. As cow's milk contains too high a percentage of proteid, it must be diluted; but in doing this a deficiency in the fat and milk sugar is created, which must be made good. Dr. Winters said that he had had analyses made to show accurately the composition of a given quantity of the upper-milk after standing sixteen hours. For the first week of life the milk given the infant should contain fat 2, proteid .25, and milk sugar 7 per cent. The proteid should be increased as rapidly as digestion would allow. This meant that in winter a healthy infant should be taking at the end of the fourth month 2 per cent. proteid and in summer 1.5 per cent. Ever since he had begun the use of laboratory milk he had refrained from prescribing cereals, and had met with unvarying success. Where pure, fresh milk could be obtained there was no need of pasteurization.

DR. HENRY DWIGHT CHAPIN favored the addition of cereals, and if the added starch caused indigestion this objection could be easily overcome by the use of dextrinized gruels. The latter is a most effectual attenuant of the curd of cow's milk. Percentage feeding simply dilutes cow's milk with a certain degree of accuracy, but takes no account of the essential difference between the ingredients of cow's and woman's milk. The proteids of milk consist of casein and albumin and possibly of

others. By diluting cow's milk three or four times the albumin is reduced to an inappreciable amount, as cow's milk contains .40 per cent. while woman's milk contains .50 per cent. of this ingredient. With reference to casein, the milk of animals is divided into two classes as to its curding properties: (1) Those milks that form a hard curd with rennet—for example, the ewe, buffalo, goat and cow; (2) milks forming a very soft or no curd with rennet—for example, human milk and that of the ass, mare and mule. Those milks that form hard curds with rennet also form curds with acid; while those milks that do not form curds, or only soft curds with rennet, do not form curds with acids. The toughest curds that can be formed from any milk are the result of the combined action of rennet and acid. Rennet is one of the four known clotting enzymes, the result of whose action is the formation of a semi-gelatinous clot or jelly which undergoes a species of contraction or shrinkage and ultimately becomes semi-fibrous in character. A membrane forms on the curds of cow's milk from which there is a slow exudation of whey. All digestive enzymes act only by contact. Hence the necessity of splitting up the curd of cow's milk so that the digestive juices can act to advantage. Dr. Chapin maintained that this could be accomplished most effectively by the addition of dextrinized gruels. He exhibited two test tubes, one containing milk and water and the other milk and dextrinized gruel. The clot thrown down by rennet and acid in the first was large and compact, in the second looser and more flocculent.

DR. FREEMAN said that a marked difference of opinion still existed as to whether cow's milk should be fed to infants raw, pasteurized or sterilized at steam temperature. The ideal food was mother's milk. This was obtained by the infant fresh, raw and not sterile, but with a few bacteria obtained from the nipple and sometimes from the milk ducts. The ideal substitute food should also be fresh, raw and with few bacteria. Cow's milk, possessing all these qualities, is not obtainable in the market. The ordinary New York milk is twenty-four to forty-eight hours old and contains between five thousand and five million bacteria in each drop and is liable to contain the living germs of tuberculosis, typhoid fever, diphtheria or scarlet fever. It is thus not fresh and moreover contains so great a contamination with living germs that it must be heated before it is fed. A single sterilization of steam temperature does not

destroy all the bacteria and it causes chemical changes in the milk which renders it less nutritious.

Pasteurization at 68° C. (155° F.) for thirty minutes destroys most of the bacteria including those of tuberculosis, typhoid fever and diphtheria and causes practically no chemical change in the milk, not even changing its taste.

Raw milk is unsafe and between boiling, which injures the milk and pasteurization at 68° (155° F.) which does not, we should choose the latter.

DR. LOUIS FISCHER said that the most important point to be considered in the proper management of bottle feeding is to have pure cow's milk. Such milk can only be secured from a reliable dairy in which all modern sanitary laws are so applied that the hygienic condition of the cow's stable is perfect.

The principle of sterilization should be applied to everything in the stable, to the cow, to the milker's hands, and to all utensils used in milking and transportation; exactly as was outlined by Baginsky. Absolute cleanliness should be rigidly enforced.

It must be admitted that the breast milk of a woman is raw. It is neither boiled, sterilized nor pasteurized. We should simply imitate nature in feeding the milk of the cow in the same manner as the infant at the breast receives it from its mother or wet nurse.

There is, however, a decided objection to feeding raw milk owing to the contamination of milk with various pathogenic bacteria. Such risk is reduced to a minimum when all the principles of modern hygienic measures are rigidly enforced. The prolonged use of sterilized or boiled milk will produce scurvy, and when scurvy exists both sterilized and boiled milk must be discontinued to give place to fresh raw milk. It seems more plausible in the face of such clinical experience to commence feeding at once with raw milk rather than risk the development of scurvy and be compelled to discontinue all other forms of feeding excepting raw foods. There is a certain deadness or, to put it differently, absence of freshness in milk that is boiled or sterilized.

The change taking place on boiling is simply due to the coagulation of the globulin or proteid molecule which splits away from the inorganic molecule and thus renders it as to the iron and fluorin, unabsorbable, and as to the phosphatic molecule, unassimilable. This is the change that is so vital and this only

takes place when milk is boiled. It is evident that children require phosphatic and ferric proteids in a living form which is only contained in raw milk. Cheadle says that phosphate of lime is necessary to every tissue. These salts of lime and magnesia are especially called for in the development of the bony structure.

One baby will gain in weight on a mixture on which another will lose weight, thus proving the difference in the assimilation of the same food in various infants. The following must be noted: First, the infant must appear satisfied after taking its bottle; second, there should be no vomiting; third, there should be no colic; fourth, the bowels must move unaided at least once or twice in twenty-four hours, depending upon the age of the infant; fifth, the infant should sleep from four to eight hours at one time during the night; sixth, if an infant thrives it should gain at least six to eight ounces every week; seventh, when a child's weight shows no increase then study the reason and change the food as required.

He agreed with the views expressed by Jacobi, regarding the use of modified laboratory milk. His own experience has been that children fed on laboratory milk were backward in their development for a long time after its use. Children using the milk always looked anemic and their flesh was flabby. Such cases were amongst the wealthy in which the best possible hygienic conditions prevailed. He never had an opportunity to study the effects on infants reared in tenement houses with the poorest hygienic surroundings. The percentage method of feeding has always appeared plausible, but the theory cannot always be put into practice. It would be necessary, if imitating nature, to change the formula for an infant several times a day.

It is a well-known fact that once an emulsion of milk is broken up by centrifuging or other mechanical process as in separating the top milk from the skim milk, that there cannot be again as homogenous an emulsion as prior to this breaking up of the same, and this cannot be made right by the process of sterilization.

DR. G. A. SPALDING said that he had used laboratory milk quite extensively, and had found it thoroughly adaptable to the wants of the individual infant, and that, too, without the addition of cereals.

THE PHILADELPHIA PEDIATRIC SOCIETY.

Stated Meeting, November 13, 1900.

DR. ALFRED STENGEL, PRESIDENT.

DR. DAVID RIESMAN showed

A GIRL AGED ELEVEN YEARS WITH COMPLETE ABSENCE OF SPEECH.

Her parents were healthy, but the mother had sustained a severe fright while pregnant with this child. Her fifteen-year-old brother was at present under treatment for a second attack of chorea, and one other child had died of convulsions. The child was born after prolonged, non-instrumental labor, was very pale at birth, and was unable to take the breast until two months old. At the age of nine months she had a severe attack of whooping-cough, and when two years old, a spasm ascribed to teething. She did not begin to walk until five years old, and was unable to use her hands until seven. She had only recently begun to chew her food properly. Convulsions set in at nine years, and had been frequently repeated since. On one occasion she had had ten in one day. The attacks partook of the character of both petit-mal and grand-mal. There was some sort of aura, indicated by anxiety just before the onset, and an inclination to run to her mother. Before the attacks came on the thumbs, particularly the left, were turned in towards the palms; the attacks, however, began on the right side, but soon became general. Although large and well developed for her age, with a good sized, fairly-well shaped head, she had never spoken an intelligent word, uttering only incoherent sounds, which her mother had learned to interpret quite well. She was useful and obedient and, in the mother's opinion, as intelligent as other children of her age. Her tastes were decidedly boyish. There was a left-sided hemiplegia, but the leg had recovered to a considerable extent. Athetoid movements were present in the left hand. There was a tendency to adduction of the left thumb, giving the hand a decided simian aspect. The adduction of the thumb was particularly marked when the palm was stroked, and appeared then to be of the nature of a reflex. The knee-jerk on the left side was somewhat exaggerated. There was a constant drooling of

saliva, which had excoriated the chin. There was no evidence of syphilis. The term aphasia was considered a questionable one, as in the opinion of certain authors, particularly Sachs, the word could not be employed in the case of an individual who had never spoken. Mutism might be a better term, but the word was ordinarily employed to indicate a functional condition.

The absence of speech in the patient was remarkable, first, because of the evidence of a marked general intelligence, and second, because of the slight motor paralysis. The history, however, showed that the child had not used either arm for six years after birth, and had not walked until five years old. These facts, together with the complete absence of speech (aphasia), made it seem probable that there was in reality a diplegia; and the speaker expressed the opinion that there had been a bilateral lesion, more extensive on the right side, leaving a left-sided hemiplegia, and limiting itself on the left side principally to the speech area. As to the nature of the lesion it was believed to be a meningeal hemorrhage. The cause was in doubt. It might have been the severe labor, the whooping-cough, or the convulsion when two years old; as regards the last, the child had not seemed worse after it. It was not likely that the lesion was acquired in utero, else the child would scarcely have developed physically to the extent to which it had.

DR. HAND agreed as to the probable cause of the condition. He had seen a case several years before which showed distinct differences from the case reported. A boy of seven who exhibited good general intelligence, had no evidence of any paralysis of his limbs, but was completely aphasic. The only history that in any way seemed related to the condition was one of a severe burn of the scalp over the right parietal region by boiling water, the child presenting a scar in this region as the result of the injury. It could not be determined that this had any real causative relation to his aphasia.

Dr. Riesman's case resembled the syndrome called Little's disease, and if it be considered a case of Little's disease it pointed toward a cerebral condition as the origin of that symptom complex.

DR. PEARCE said that the child presented appeared to be intelligent. But some studies which he had made of imbecile children had convinced him that they often exhibited the appear-

ance of intelligence of a much greater degree than they really possess. From a hasty examination of this child, he thought that there was no doubt that the child was fairly intelligent. In this case he thought it indicated a post-natal origin of the condition, probably as stated.

DR. TELLER reported the case of a child which had convulsions, with marked fever, the attack having come on suddenly. After recovery from the acute symptoms there was paralysis of the arm and leg on one side, and of the facial nerve on the other, together with entire aphasia. The paralysis of the face and limbs disappeared, but the child was still wholly unable to talk. The underlying condition was, he believed, congenital syphilis. There was a distinct history of syphilis in the father, and the use of potassium iodid in increasing doses in this child caused such rapid improvement that it seems hard to believe that the primary condition was anything but syphilis, although the immediate cause of the attack was, he believed, hemorrhage.

DR. ALFRED STENDEL exhibited

A CASE OF MENINGITIS, A CASE OF OSTEOARTHRITIS WITH SKIAGRAPHS,
AND A CASE OF ESOPHAGEAL STRICTURE WITH SKIAGRAPHS.

The case of meningitis was that of a six-year-old girl whose history was good except for an early attack of measles. On September 22 the child while at table put her hand to her head, vomited, became stuporous, and went into convulsions, the movements being chiefly right-sided. The temperature rose by night to 102.5° . She was admitted to the Children's Hospital the next day in stupor or coma, it was difficult to say absolutely which. She showed a marked tache-cerebrale, and there were frequent convulsive movements on the right side. (Slight movements of the left side were observed three times.) The convulsions began in the face or upper extremity and extended from there. The temperature ran from 102° to 104° for several days, but rapidly subsided to about 100° , after this declining only very gradually. On the second day after admission lumbar puncture was carried out, and about one ounce of a clear watery fluid was removed. The improvement after this procedure was immediate and very striking. The child fell asleep soon after; she used her right side quite freely, when previously it had scarcely been purposely used at all. She spoke after a day or two while she had been entirely silent previously, and she had

no more convulsions. Since this time the recovery has been continuous and almost complete, though gradual; the only signs which she exhibits at present being a slight deafness (this was probably complete at first), some anemia and some disturbance of vision. In the early part of her attack the child was unquestionably quite blind. At present she seems to have some perception of large objects; when walking about the floor she avoids persons, but is likely to stumble into chairs, etc. She also has some drooping of the eyelids. A curious mental feature in the case is that the child refuses to take anything but milk, and insists that she will not eat until she goes to her home, even spitting out bits of bread that are placed in her milk. The case was shown as an example of the improvement that often follows the use of lumbar puncture, though not necessarily due to the puncture.

The case of osteoarthritis was that of a girl of twelve. Only a very imperfect history could be obtained. There was a history of rheumatism early in life, but the story was a questionable one. About all that could be learned was that when she was three or four years old she had difficulty in walking, the joint involvement, therefore, apparently beginning in the legs; following this there had been progressive involvement of other joints which have attacked the hands only three years before. As exhibited, the child showed typical deformities of arthritis deformans in her hands, the right hand exhibited a marked subluxation of the carpus at the wrist, the metacarpophalangeal joints were flexed, and the interphalangeal joints were in straight extension. The left hand exhibited rather a rare deformity. There was marked adduction of the metacarpus and striking projection of the end of the ulna. The joints of the thumb and little finger showed decided enlargement and angular deformity. There was slight crepitation to be felt in the joints upon movement. The feet showed the characteristic turning in of the big toe, this member being, however, turned under the other toes. The tarsal bones were enlarged; the knees were large and exhibited some crepitation. Skiagraphs taken of the various joints by Dr. Goodspeed did not demonstrate anything satisfactorily. There was, however, in the skiagraph of the knee some evidence of proliferation.

The rarity of this disease in children was spoken of, and the necessity for distinguishing it from cases of chronic rheuma-

tism in childhood, the deformity of which may closely resemble that of arthritis deformans. It is also necessary to exclude the effects of paralysis. The possibility of paralysis in this case had been carefully gone into and completely excluded. One point which was spoken of as important in the diagnosis between rheumatoid arthritis and paralysis was that mentioned by Garrod, who states that the abduction of the metacarpal bones which is so common in osteoarthritis is not seen in the deformities following paralysis.

The case of esophageal stricture was that of a boy of seven, who four weeks before his admission to the hospital had accidentally taken a small amount of lye. His lips were burned at the time, and he vomited and complained of pain. He was given milk but vomited it, and subsequently he has been vomiting almost everything given him. The only evident physical sign which he showed on admission was great emaciation. A small hard-rubber bougie was at once introduced, but met with an impassable obstruction nine inches from the teeth; all forms of bougies were used, but it was found impossible to pass even filiforms. An attempt was then made to use Koenig's method, and the child was induced to swallow a small silver ball about 8 mm. in diameter, attached to a string. The child chewed off the string during the night, and hence the ball could not be withdrawn; the same thing occurred the next night when a ball of the next size was used. An attempt was then made during the day, but the child soon chewed off this string also, and the remainder of the string and the ball was extracted as he was about to swallow the string. The method was therefore given up. The skiagraph which was taken by Dr. Goodspeed after filling the supposed diverticulum with an emulsion containing one-half ounce of bismuth subnitrate exhibited a shadow opposite the fifth interspace of the ribs. This shadow had a somewhat rounded appearance, and was almost unquestionably due to a diverticulum situated at that point. Dr. Goodspeed in his report stated that he had previously had no success with the use of bismuth emulsions for this purpose, as they had always passed through the stricture to such an extent that no satisfactory results were obtained. In this case the results were entirely satisfactory.

DR. PRENDERGAST asked whether a bacteriological examination of the fluid from the case of meningitis was carried out.

DR. STENGEL replied that it was but no sediment could be obtained, and no bacteria were found in the fluid. A guinea-pig was injected with the fluid but the result was negative, the animal being still alive.

DR. RUGH asked whether in the case of osteoarthritis the course was one of steady increase, or whether there were occasional acute exacerbations. He asked the question because he had had a case of this kind in which the large joints were chiefly involved, no small joints excepting those of one thumb showing involvement. There were repeated acute exacerbations of the condition, with swelling and severe pain in the joints. Large doses of the syrup of hydriodic acid brought about complete recovery, the patient being now practically quite well.

DR. D. J. M. MILLER asked Dr. Stengel whether in the first case there was any pain.

DR. STENGEL answered that the child had no pain, and apparently had had none of any consequence. So far as he had been able to obtain any history there had been no acute exacerbations.

DR. ROSENTHAL was much interested in the case of stricture of the esophagus, inasmuch as during the past summer he had received a number of communications from Dr. Francis de Torday, physician to the Stephanie Hospital, in Budapesth, Hungary, requesting data concerning this affection; he presented a paper before the International Medical Congress at Paris, on this subject. During the past summer Dr. Klein, a member of the Philadelphia Pediatric Society, was in Hungary, and was requested to see de Torday. He visited the Stephanie Hospital, and was struck with the number of cases of stricture of the esophagus he saw, fully one-half the children there having this difficulty. The remarkable state of things was due to the fact that among the lower classes soap is an unknown thing, and for the purposes of cleansing lye is universally used, and little children often drink it accidentally.

De Torday's method was something new, and was unusually successful. The method is familiar to the genitourinary surgeons in the treatment of strictures of the urethra, and is as follows: A very small bougie, as small as filiform, is passed; at the upper end of this is a screw joint by means of which a

larger sized instrument is fastened to the first and to this a still larger one and so on. The bougies are pushed into the stomach and curl up there, the size of the instruments used being increased until the stricture is stretched to the normal caliber. The instruments are then withdrawn. The results are said to have been very good, and it is possible that Dr. Stengel might find the method useful in his case.

DR. JOPSON said that he had exhibited to the Society some time ago a child with an esophageal stricture on whom he had performed gastrostomy, and had also attempted to use Koenig's method, having had a set of silver balls made for the purpose. It was impossible, however, to persuade the child to swallow the balls, and as it was only four years of age the method had to be relinquished. In another case in a child, gastrostomy was performed, and the subsequent history of this case has been that the child became practically well of the difficulty in deglutition, swallowed comfortably, and took all of his food through the esophagus though the gastric fistula was still present. His own case had an interesting condition. The girl swallowed well at times, but at other times found it difficult to get in food through the esophagus, and then was of necessity fed through the gastric fistula which, in this case also, was still open. The operation of gastrostomy alone, by the rest which it gives the esophagus, often causes marked improvement.

DR. GRIFFITH stated that the variation in the symptoms seen in these cases was good evidence that the whole train of symptoms cannot be attributed to cicatricial contraction alone. He had repeatedly observed what Dr. Jopson mentioned—that the difficulty in swallowing in esophageal stricture varied greatly from time to time. The cause of this was certainly not relaxation of the stricture, but rather, he thought, inflammatory swelling, or edema, of the mucous membrane.

DR. STENDEL was disposed to think that the variations in ability to swallow were not due entirely to relaxation of the stricture. He would, however, call attention to the fact that both in adults and children the variation in symptoms may at times be attributed to the fact that slight stagnation in the diverticulum has been occurring unnoticed, and finally the fermentative and other changes taking place in the stagnant food irritate the sac and regurgitation occurs. In many cases this

would be the explanation rather than any changes in the structure, such as relaxation during the freedom from symptoms or swelling during the increase of symptoms. As to Koenig's method he thought that the experiences to which Dr. Jopson and he had made allusion must not be taken as conclusive of the unreliability of the method. He was convinced that it had done good in a number of cases; and he did intend to put it aside as unsatisfactory until he had tried it in adults or in children who were more tractable and will permit of a more satisfactory trial.

DR. J. P. CROZER GRIFFITH presented a case of

POSSIBLE CEREBELLAR TUMOR.

He stated that there were a number of possibilities in the case, but no certainty, and that a definite diagnosis had not been reached. The child was six years old. Its previous history showed some diseases of childhood with no known unfavorable results. The child had seemed well until January, 1900. Since this time she was said to have had severe headache daily, to have been restless at night, sleeping badly, and often crying out in her sleep. She was said to have vomited nearly every night, to have lost color, and recently to have been almost unable to walk. After admission to the hospital her vomiting was greatly improved by careful diet. She was able to walk better than the previous history had indicated, but had, at that time, a decidedly staggering gait. The vomiting persisted to some extent, and did not seem to be due to any local irritation of the gastrointestinal tract. The most striking symptom has been the ataxia, which is of the cerebellar type but shows a peculiar variability in degree. At times the child has a typical drunken gait; at other times the ataxia is very slight and scarcely noticeable. The digestive tract seems to be in good condition. The eyes, excepting for marked hypermetropic astigmatism, show nothing. There are no signs of any spinal disease, and the presence of excellent knee jerks seems to exclude Friedreich's ataxia almost absolutely. Hereditary cerebellar ataxia would seem to be excluded by the absence of nystagmus, of oculomotor symptoms, of involvement of the hands and of disorders of sensation. There are no signs of disease of the cerebrum, or of the corpora quadrigemina, therefore the most probable condition seems to be a cerebellar tumor. The symptoms, however, are

not at all distinctive of such conditions, and the variations in the ataxia constitute a strange feature. It was at first thought that the gait might possibly be due to vertigo from gastrointestinal disturbance, and not a real ataxia. So far as can be determined, however, it is ataxia and not vertigo. There is slight Romberg's symptom at times, and besides this the occurrence of such severe vertigo as the result of indigestion is very improbable. The most probable diagnosis is intracranial disease, and probably cerebellar tumor.

DR. PEARCE asked whether there was any history of traumatism.

DR. GRIFFITH said that he had so far been unable to determine such a history. This point was carefully gone into and trauma seemed to be excluded.

DR. HARE inquired if there was an Argyll-Robertson pupil:

DR. GRIFFITH said it was not present.

DR. HARE stated that its absence would seem to exclude any disease of the corpora quadrigemina. The child's gait, and particularly its tendency to go to the left seemed very striking, and while he of course was not justified in making a "snap diagnosis," he should certainly be inclined to believe that Dr. Griffith was right, and that the proper diagnosis was cerebellar tumor. It was the typical gait seen in cerebellar tumor and uncommon in other conditions. He asked whether there was any tubercular history.

DR. GRIFFITH replied there was no history of tuberculosis.

DR. PEARCE suggested the advisability of lumbar puncture as a therapeutic procedure. It was possible that the case might be one of internal hydrocephalus, and even if there was a tumor, tapping and relief of pressure might cause relief of the symptoms.

DR. S. M. HAMILL exhibited a case of

CRETINISM IN A SIX MONTHS OLD CHILD

of Italian parentage. The mother had had two miscarriages and then had given birth to ten children at term. Five of these children were dead from unknown causes. The mother had had a convulsion preceding the birth of this child. The child had been breast-fed from birth. It had always had some cough and a wheezing respiration, but it had never had coryza. When first seen on October 18th it was recognized at a glance to be

a cretin; the broad, low forehead, the thick, protruding tongue, the condition of the skin and the hair, and the local collections of fat were typical. The rectal temperature was slightly sub-normal. The nails were of normal appearance. The thyroid gland was not palpable. Two days after the child was first seen it was given one-half grain of desiccated thyroid gland thrice daily, and in the three weeks in which this treatment had been used the appearance of the child had changed remarkably; there had been a rapid loss of flesh, the local fat deposits had largely disappeared, the skin had become practically normal, and the general appearance of the child's face was nearly that of a normal infant. Photographs were exhibited showing the appearance of the child when first seen.

DR. HARE thought the case was of interest because it seemed to be one in which it was justifiable to attempt transplantation of the thyroid. The operation is an old one, and while it has not always proved successful it has had valuable results in some cases and can be carried out without much danger to the patient. The reason that it seemed advisable in this case was that because of the child's early age and of its social relations it seemed impossible to continue thyroid medication over any very long period, and the only method by which the child could be assured of good health seemed to be thyroid transplantation. It was of course possible that the operation might not be successful or might have to be repeated before it was successful. Nevertheless he thought that repeated attempts were justified.

DR. ARTHUR VAN HARLINGEN reported a

CASE OF PEMPHIGUS

and made some remarks upon the treatment of this affection. The case was that of a boy of five, who, four days before he was seen, had an eruption of small blebs which were at first thought to be varicella, but which had rapidly increased in size and had spread so that a large portion of the surface of all the limbs was involved, the trunk remaining practically free. The child exhibited marked fever, delirium and stupor. There were variations in the temperature from time to time, but no definite relation between the eruption and the height of the fever, except that at times with a new crop of blebs the temperature rose. It was thought that the severe constitutional symptoms

in this case might be due to intoxication from the contents of the blebs. For this reason Dr. Van Harlingen opened the blebs and applied lint soaked in 1.2000 bichlorid solution, and covered this dressing with paraffin paper. This dressing was used on one arm at first, and indifferent dressings were applied to the remainder of the lesions. There was a marked improvement in the general condition within twenty-four hours, and the eruption on the arm, which was treated with bichlorid, showed decided improvement. After a few days this arm was so much improved that a zinc oxid dressing was applied. Bichlorid dressings were then used on the remaining lesions, similar satisfactory results being obtained. Arsenic was not used at any period in the treatment, as it was desired to exclude any favorable effect from this drug. Strychnin and whiskey were used as stimulants while the child was seriously ill. As the skin lesions improved the nervous symptoms grew better; by the thirty-sixth day the temperature had reached normal and the eruption had entirely disappeared. When the eruption had become practically cured salicylated oil inunctions were used for a time. A slight relapse occurred six months later when the child was treated with 1.4000 bichlorid dressings, and the symptoms soon disappeared. It was suggested that the treatment mentioned might be valuable in other forms of bullous eruptions.

DR. SCHAMBERG had during the past year seen two cases of acute pemphigus in children. The first occurred in a boy eight years of age. There was an extensive eruption of blebs over the trunk, arms and legs, accompanied by fever (102° to 103°), restlessness and prostration. Arsenic was advised, and was used in doses of 1 minim of Fowler's solution every two hours, later increased to 2 minims every two hours. He was subsequently informed by the attending physician that he had pushed the dosage to 5 minims every two hours. The boy recovered, although he occasionally has had a slight outbreak of the eruption. In this case he advised a local treatment resembling that described by Dr. Van Harlingen, though a milder antiseptic was chosen. The blebs were incised and a resorcin-zinc oxid lotion applied. The second case occurred in a girl of five. There was in this patient involvement of almost the entire surface of the skin. Upon the trunk there was scarcely an area of healthy skin the size of a half dollar. The extremities were also exten-

sively involved, whilst the face exhibited comparatively few blebs. The child had high fever with severe evidences of intoxication, and died at the end of a week. Arsenic was administered in this case but only in small doses. The gratifying results of treatment in Dr. Van Harlingen's case suggested that grave symptoms due to septic abortion from the blebs might in many cases be prevented by such antiseptic treatment as was advised. In the fatal case to which he had alluded, he believed death to have been due either to the underlying cause of the pemphigus or to the almost complete abolition of skin function. An interesting fact was that in both cases referred to the disease appeared shortly after vaccination.

DR. HARE had recently seen a similar case which also occurred after vaccination, and which was considered by the ignorant parents to be the result of vaccination. The child was living in most unfavorable surroundings, and there is no justification for attributing the eruption to the vaccinia. There were severe laryngeal symptoms in this case, he thought that these might be due to eruption of the larynx. There was a membrane on the pharynx, however, which was thought to be possibly diphtherial, and for which antitoxin was given. There was severe general prostration in this case, with marked evidences of systemic intoxication, and he had never seen a body which was such a mass of sores. Certainly two-thirds of the child's skin surface was covered with sores.

Rapid Cure of Vascular Nevi in Infants.—It is astonishing, Unna states (*Monat. f. Prakt. Dermatologie*), with what ease these arterial angiomata or venous vascular nevi can be cured with prolonged gradual compression if applied in early infancy. Later it has no effect. He accomplishes this compression by painting the surface with a mixture of one part of ichthyol to nine parts collodion, two or three times a day. The brown pellicle that forms compresses the nevus beneath until the rapidly growing surrounding tissues have caught up with the excessive growth of the angioma or nevus.—*The Journal of the American Medical Association*. Vol. xxxiv., No. 17.

Current Literature.

PATHOLOGY.

Bovaird, Jr., D.: Primary Splenomegaly; Endothelial Hyperplasia of the Spleen; Two Cases in Children; Autopsy and Morphological Examination in One. (*American Journal of the Medical Sciences.* Vol. cxx., No. 4.)

The reported cases, which, in the writer's belief, represent a hitherto unrecognized affection, occurred in two sisters, of nonsyphilitic history. The enlargement of the spleen began at the age of three years, and was accompanied by enlargement of the liver and superficial lymph nodes. Examination of the blood showed the condition of simple anemia, and excluded leukemia. The patients were not rachitic. At the age of six years the younger child had not improved, but was attending school. In the older girl the disease lasted thirteen years, when all possibilities of medical treatment having been exhausted without relief, splenectomy was done. Death occurred three hours after operation. The spleen weighed twelve and a half pounds, the body weight being seventy-five pounds. The outer surface of the spleen presented many fibrinous adhesions, which had been divided at the operation. The fibrous coat was thickened markedly and irregularly; on section the spleen, which was unusually resistant, showed firm white or yellowish-white areas as well as areas of apparently normal splenic tissue. At autopsy the mesenteric lymph nodes were found enlarged, pale and flabby; the liver was firm, and showed many white spots like connective tissue on the surface. No other important lesion appeared.

Microscopic examination of the spleen proved that the normal cells of the splenic pulp had disappeared, and the pulp spaces were filled with large endothelial cells, either lying free in the space, or still attached to the walls from which they spring. The walls were often thickened. The Malpighian bodies were almost unchanged. Some spaces were filled and even distended with the large endothelial cells, others were only partly filled, and still others were as small owing to the connective tissue thickening of their walls, that but a single cell lay in

them. There were also giant cells in some places. The white areas (on gross section) were made up of more or less dense connective tissue, and the spleen capsule and trabeculæ were much thickened. In the lymph nodes near the spleen and in the mesenterics the medullary portion showed a change from the normal, in that in places the lymphoid cells had disappeared, and the spaces of the reticulum were filled with large, colorless, irregular cells, like those found in the spleen. The connective tissue of the liver, was increased; the branches of the portal vein containing some of the same large cells, and in the interlobular connective tissue were spaces filled with them. The cells had in no case grown from the branches of the vein in which they were found, nor had they effected a permanent lodgment there. They were not metastases. The condition is not a new growth, but is an endothelial hyperplasia of the spleen and lymph nodes, the process being similiar but greater in degree to that sometimes observed in typhoid fever, tuberculosis, and other infectious diseases. The disease is differentiated from splenic anemia, and is a definite and distinct affection. It was first described by Gaucher as primary splenomegaly or primary epithelioma of the spleen. The symptomology may be summarized as follows: (1) enlargement of the spleen, beginning in childhood, (second to seventh year) show, progressive; (2) enlargement of the liver, secondary to that of the spleen, may be considerable, but never reaches the extent of the splenic affection; (3) single anemia; the only changes observed in the blood are those associated with any chronic enlargement of the spleen; (4) softening of the gums with oozing of blood; (5) epistaxis repeated. Osler has noted the association of this symptom with chronic splenic enlargements; (6) cutaneous hemorrhages and icterus, present in Gaucher's case, not in the writer's; (7) Symptoms referable to the mechanical effect of the splenic enlargement; pain in the abdomen, disturbed function of stomach and bowels, dyspnea, dysuria, cramps in the legs; (8) the case recorded by Picou and Raymond shows that the earlier stages of the disease may be overlooked and the first evidence of the enlargement of the spleen be the effect of its weight; (9) the problem of the clinical differentiation of cases of the type herein reported from splenic anemia must be left to the experience of the future.

Nicholson, Jr., W. R. : Report of a Case of Melena Neonatorum, Due Apparently to an Infection by the Bacillus Pyocyaneus. (*American Journal of the Medical Sciences*. Vol. cxx., No. 4.)

A boy baby was born at term in an apparently healthy state, after a labor of six hours. On the sixteenth day a slight stomatitis developed, followed by bleeding from the mouth, which became so severe that neither mouth nor pharynx could be examined. The hemorrhage apparently came from the whole buccal mucous membrane. The stools were green when the illness began and later contained bright red blood; there was fever on the day before death, which occurred when the child was nineteen days old. At the autopsy a large hemorrhagic effusion was noted about the umbilicus, and some into the peritoneum. There was sclerosis of the pancreas, acute enteritis, commencing cirrhosis of the liver, and a generalized parenchymatous degeneration of all the organs. Bacteriological examination showed the presence of the staphylococcus pyogenes aureus in the heart's blood, spleen, lung, liver and brain; the bacillus lactis aerogenes in the heart's blood, liver, spleen, ileum, peritoneum and bile; and the bacillus pyocyaneus in the bile and liver. All three microorganisms were virulent for guinea-pigs.

Statistics show that the hemorrhagic diathesis, as evidenced by bleeding associated with general symptoms and the clinical picture of an infectious process, is not very rare in the newly-born child. Both syphilis and septic infection by the ordinary pyogenic organisms must be considered as predisposing factors only, in the etiology of these cases.

The author feels a certain dissatisfaction in reporting this case as one of pyocyanic infection because of the triple infection, the absence of *ante-mortem* blood cultures, the localized area in which the bacillus pyocyaneus was found, compared to the distribution of the other two organisms, and its absence from the alimentary tract. Nevertheless he believes the case to be one of true infection with the bacillus pyocyaneus because of the negative history of the first sixteen days of life, followed by an acute illness, the symptoms of which can be explained only by the assumption of an infection; the complete absence of any pathological lesion sufficient to cause death; the presence of the bacillus pyocyaneus in the bile and liver in a condition of virulence, (it can hardly be a harmless inhabitant of the body); and

the association of hemorrhage as a symptom. The last furnishes strong presumptive evidence that the bacillus pyocyaneus was the dominant infection.

The usual sources of infection, both external and internal, could be excluded; and the only remaining possibility was that bacteriological study of the surface of the mother's nipple would have shown this to be the origin of the infection. [It is to be regretted that the writer does not state how long after death the autopsy was performed. The pancreatic sclerosis and the liver cirrhosis are not at all clearly proven by the report of the gross or microscopic findings.]

Class, W. J.: *Scarlatina; Some Further Experiments.* (*Philadelphia Medical Journal.* Vol. v., No. 25.)

A toxin was obtained from a pure culture of the diplococcus scarlatinæ, and increasing doses (from 1 to 5 c.c.) injected into a pig at intervals of sixteen to nineteen days. The reaction, marked after the first dose, was practically nothing after the fourth. The animal was bled and its serum placed in small, sterile bottles, formalin having been added as a preservative. Experiments on guinea-pigs proved that the injection of 1 c.c. of the serum, followed shortly by 0.1 c.c. of a pure culture of the diplococcus, caused no reaction, while the injection of the culture alone caused the animal's death in one or two weeks. In one experiment but 0.5 c.c. of serum was injected, and a very virulent culture, obtained from the liver of one of the guinea-pigs, was used. The animal died, probably owing to the fact that the dose of the serum was too small and the culture so virulent.

Dr. Class reiterates his faith in the diplococcus scarlatinæ as the cause of scarlatina, and will use the serum in the first suitable case which presents itself. The hope is expressed that it may prove practicable to utilize cows or calves for the production of the serum and so obviate the inconveniences of using swine.

MEDICINE.

Roehler, Rud.: *Impetigo.* (*Allg. Med. Cent. Zeit.* No. 89, 1900.)

He urges the necessity of careful treatment of impetigo on account of the frequent occurrence of staphylococcus infection in other localities. In cases where impetigo has been allowed to run on, staphylococcus infection of the impetiginous lesion

always occurs, and the cocci are often taken up by the circulation and carried to other parts.

He reports the following cases: One of suppuration of the deep pelvic lymph nodes following a spot of impetigo situated on the foot. Secondary infection of the pelvic nodes was preceded by two or three days by a fall. The second case, a boy of six years, had a primary lesion on the thumb, which was followed by painful enlargement of the axillary lymph nodes on that side. Three days later the patient was seized with chill, fever and pain; an osteomyelitis of the knee and femur was diagnosed. Operation was impossible, as the child died two hours after admission to the hospital, five days from the beginning of the fever. *Post-mortem* examination showed inflammatory foci in the lungs, myocardium and kidneys; seropurulent pleurisy, pericarditis, recent osteomyelitis of the knee and femur; staphylococci were found present in all foci, as well as in the axillary lymph nodes.

In the third case reported by Roehler the impetigo was situated in the left corner of the mouth and followed by an abscess of the submaxillary lymph nodes on that side; two weeks later by a metastatic purulent synovitis of the left knee. His treatment of impetigo consists in the removal of the crusts, after which he dusts salicylic acid on the raw surface and applies an ointment composed of zinc and lanolin containing from 2 to 5 per cent. of salicylic acid. In the cases of children whose legs or bodies are covered with the eruption, he orders daily baths for fifteen minutes, after which the ointment is applied. These children are kept in bed for a few days to guard against further spreading of the infection through the friction of their clothes.

The trauma mentioned in two of these cases, according to the author's opinions, enters into the causation of the secondary lesions only by determining their localization.

Stembo, L. : On the Diagnostic and Prognostic Importance of Secondary Swelling of the Lymph Nodes in Scarlet Fever. (*Deutsche Med. Wochenschrift.* No. 22. 1900.)

With reference to the observation of Leichtenstern, that concomitant with the nephritis of scarlet fever, renewed swelling of the spleen and lymph nodes takes place, the author has confirmed that observation during an epidemic of scarlet fever in Wilna, lasting from September, 1897, to January, 1899, and

states that the swelling of the nodes accompanied by a slight rise in temperature precedes the nephritis by one or two days. The degree of involvement of the lymph nodes and the intensity of the inflammation of the kidneys seemed to be proportionate.

Nobécourt and Bertherand: Two Cases of Typhoid Fever in Nurslings Eleven and Fourteen Months Old. (*Rev. Mens. des. Mal. de. l'Enf.* Vol. xviii., No. 11.)

The rarity of typhoid fever in children under two years of age may possibly be explained by the difficulty of making the diagnosis in young infants. This difficulty becomes obviated by the use of Widal's serum test. Two babies of eleven and fourteen months respectively presented the symptoms of tuberculosis rather than of typhoid; but the serum of the younger, who died, gave a positive reaction with a typhoid bacillus culture in a dilution of 1 to 150; and the second case reacted with a dilution of 1 to 200. In both cases the positive result was obtained at the first examination, made four days after admission.

Passini, Fritz: On Babinski's Toe Reflex. (*Wiener Klin. Wochenschr.* No. 41. 1900.)

The reflex, described in 1898 by Babinski, viz.: Reflex flexion of the great toe when the sole of the foot is tickled, excepting cases of organic lesion of the pyramidal tracts when extension takes place, has been a subject of investigation by many observers. The examination of a large number of cases at the Wiener Allgemeine Poliklinik confirms Babinski's observation that extension is present in all cases of organic disease involving the pyramidal tracts. The cases examined included cerebral diplegias, monoplegias, congenital hydrocephalus, with spastic paresis of the lower extremities, and the compression paralysis due to caries of the vertebræ.

Of great interest was the condition found in tubercular meningitis where reflex extension and flexion were found alternating on succeeding days. This fact was probably due to circulatory disturbance in the region of the pyramidal tracts. Physiologically the extension type of this reflex is found in infants under one year of age, due to imperfect development of the pyramidal tracts at birth. Careful examination by Passini shows that the flexion type takes the place of the extension type during the last three months of the first year, if the children are normally developed; later than this in poorly developed children,

as for instance, in a baby of fourteen months, weighing not more than a five months old infant, while, on the other hand, in a remarkably robust baby of five months the flexion type was fully developed.

Kalischer's explanation of the change of the reflex type towards the end of the first year, that it is due to change of function of the foot, developing from an organ of apprehension into one of locomotion, Passini considers erroneous, as the change in the reflex precedes walking.

Hutinel, V. : The Heredity of Tuberculosis. (*Arch. de Méd. des. Enf.* Vol. iii., No. 11.)

It is generally admitted that tuberculosis has a considerable hereditary influence, and that the germ itself or a predisposition may be transmitted. The transmission of the bacillus tuberculosis at the time of conception has never been proven, but a fetus may become infected in utero by the mother. Congenital tuberculosis is an indisputable fact, and has not only been noted in still-born infants, but in viable and well-developed babies. It plays a part in the propagation of phthisis, though a very restricted one. Anatomic examination of the initial lesion in cases of infantile tuberculosis proves the greater frequency of post-partum infection. The frequency of tuberculosis among children of tuberculous families is partly due to an hereditary predisposition. Many cases occurring in youth or adult life are the result of the lighting up of latent lesions acquired by contagion at an early age. Hereditary tuberculosis may be very grave, the child being exposed to contagion and resisting it badly, or there may be an attenuated form of the disease, as if the child were immune up to a certain point. This may be explained by assuming the inheritance of a predisposition to tuberculosis together with a special state of resistance.

Hand, Jr., Alfred : A Critical Summary of the Literature on the Diagnostic and Therapeutic Value of Lumbar Puncture. (*The American Journal of the Medical Sciences.* Vol. cxx., No. 4.)

A study of the literature since Quincke's work appeared in 1891, seems to justify the conclusions that lumbar puncture has a wider field as a diagnostic aid than as a therapeutic means; that as an aid to diagnosis it is of value only when examination of the fluid gives positive results, it being unsafe to draw conclusions from negative results, and that therapeutically it is of value

in epidemic cerebrospinal meningitis to bring about recovery, in tuberculous meningitis to promote comfort, and in other conditions of excessive pressure to favor recovery by removing a condition immediately dangerous to life.

Glogner, M.: On Immunity from Malaria. (*Virchow's Archiv.* Vol. cxlii., No. 2.)

A study of malaria occurring among the inmates of an orphan asylum in the Dutch East Indies shows that one attack not only does not bring about an immunity, but that an increased predisposition is caused, and each new infection is accompanied by a larger number of relapses. Reinfection occurred in from six to thirty-three months, and the largest number of relapses noted was thirteen (both in a second and third infection). A natural immunity exists among a certain number of children and adults, native-born and European. But physicians who practise in the tropics cannot agree with R. Koch that the existence of an acquired immunity has been proven.

Ballin: On the Treatment of the Umbilicus by Martin's Method. (*Centralblatt für Gynækologie.* No. 20. 1900.)

This method has been tested in Winckel's Clinic where it was decided that its principal advantage lay in the shortness of the stump, reducing, of course, the amount of moisture retained in it, hastening drying and the formation of the line of demarcation. The author does not recognize any danger of the ligature cutting through the stump, as mentioned by Ahlfeld, provided a sufficiently thick, braided silk ligature has been used. He considers the application of the ligature so near the union of skin and cord as objectionable, on the grounds that it might act in this place as an infecting foreign body and cause putrefaction of the stump. The employment of a red hot curling iron he regards as distinctly improper and not entirely devoid of danger.

Hutchinson, J.: Generalized Vaccinia Eruption After Vaccination. (*The Polyclinic.* Vol. iii., No. 7.)

A girl of three months was vaccinated successfully without unusual features. An eruption began on the eighth day and first appeared on the forehead. In the main the eruption was a patchy erythema, but in many places it looked like an ill-developed urticaria. It was nowhere vesicular or pustular. About

the hips it was almost papular and was dusky. There was no material fever, but the baby was irritated by the eruption. There was no continuity of the dermatitis with that which surrounded the vaccination and its presence probably revealed a certain degree of urticarious susceptibility in the baby.

SURGERY.

Young, James K.: The Treatment of Rachitic Deformities. (*International Medical Magazine.* Vol. ix., No. 7.)

The tendency of rickets is toward recovery with persistence of deformities. Whether or not such deformities are ever outgrown is somewhat of a disputed question. The writer has never witnessed an instance of such spontaneous recovery from deformities in city practice.

Although considered a medical disease the numerous deformities give it a surgical character. This two-fold aspect of rickets has sometimes led to serious blunders. Thus, the writer knew of a case in which subperiosteal hemorrhage of the tibia was mistaken for sarcoma, and as a result of this mistaken diagnosis the leg was amputated.

The deformities caused by rickets include: coxa vara, knock-knee, bow-legs and anterior bowing of the diaphysis.

Coxa vara requires subtrochanteric osteotomy, with subsequent correction of deformity and the wearing of a plaster-cast for six weeks.

Knock-knee necessitates a Macewen osteotomy above the knee-joint, with slight overcorrection of deformity, and perhaps the wearing of apparatus for a year to prevent return.

Bow-legs demands osteotomy or osteoclasia as the most prominent point of the bent femur or tibia and fibula. In very young children the bones may sometimes be straightened by the hands alone. Slight overcorrection is always necessary.

In *anterior* bowing of the tibia after fracture or division of the bone, the over-riding of the fragments may be prevented by simply dividing the tendo Achillis.

But if all these deformities are seen at an early stage of rickets, when they are not simply sequelæ, but represent the malady itself, they do not require operation, for orthopedic apparatus is then generally equal to the surgical exigencies of the disease.

Patel: A Curious Case of Appendicitis. (*L'Écho Médical du Nord.* Vol. iv., No. 42.)

The patient was a boy of eleven years who had had repeated attacks of indigestion, with severe colic. The present illness began suddenly with vomiting, and did not improve as usual, after purgatives. The abdomen became much distended, but not painful. McBurney's point was not tender; pulse and respiration were rapid; the temperature ranged from 37.2° to 37.9° C. After three days the tympanites began to diminish, and tenderness appeared just above the symphysis pubis in the median line. Rectal examination showed the presence of an inflammatory tumor as large as a mandarin between the bladder and the rectum, and inclining toward the left. Nine days after the onset the left iliac fossa was so painful that palpation was impossible. A diagnosis of appendicitis with probable left-sided abscess was made, and an unusually severe attack of pain was thought to be caused by perforation of the appendix. Operation was done, 200 grams of fetid pus evacuated, and the intestines about the pus cavity found to be matted together by adhesions. Much pus came from the wound for two days, and on the third 300 grams of blood were passed per rectum. About the tenth day after operation an induration was noted in the right iliac fossa, and the swelling and tenderness in the median line had greatly diminished. Recovery was complete in six weeks. The child had probably had repeated attacks of appendicular colic, with the formation of adhesions between the appendix and a loop of small intestine. These adhesions gradually drew the appendix to the left side, and a grave attack of appendicitis developed, with abscess formation in the left iliac fossa. The appendix perforated, discharging both into the abscess cavity and into the rectum. Finally, the inflammation having subsided, the cecum returned to its normal place on the right side.

Cases in which appendicitis occurred on the left side are rare, and very fatal.

Lovett, R. W.: **The Mechanics of Lateral Curvature of the Spine.** (*The Boston Medical and Surgical Journal.* Vol. cxlii., No. 24.)

In a paper, which the author states is a preliminary one, he gives the following conclusions, the results of experiments made with great care at the Harvard Medical School:

Torsion and side flexion of the spine are parts of one com-

pound movement and neither exists to any extent alone. Lateral deviation of any part of the spinal column is therefore necessarily associated with torsion (rotation) at the seat of the deviation. In flexed positions bending is associated with torsion in one direction, in extended positions by torsion in the opposite direction. In this it follows simply the mechanical law governing flexible rods which rotate in general in the same way in corresponding positions. From the kind of torsion observed in scoliosis it is obvious that the deformity originates in the flexed position of the spine. The correction of the rotation would therefore seem to be logically made by throwing the spine into extended positions and in taking side bendings from extended positions.

Sitting in the flexed position by school children is likely to be harmful, and sitting in a twisted position of necessity induces lateral deviation temporarily. The immediate cause of lateral deviation is, as a rule, to be found in some asymmetry of development or posture which leads to an oblique direction of superincumbent weight, causing the spine to deviate from the middle line.

Adams, Charles: A Case of Vesical Hernia in a Child.
(*The Clinical Review.* Vol. xii., No. 4.)

A male baby was admitted to the hospital with a right inguinal hernia. On examination there was found to be a long, ovoid tumor, smooth and regular in outline, in the inguinal canal and scrotum. The tumor was distinct from the testicle, increased in size and tension when the baby cried and could be reduced with ease. Neither translucency nor fluctuation could be demonstrated.

During the operation an incision which should have exposed the sac, instead of so doing opened a cavity from which urine escaped. Careful examination showed that the hernia consisted entirely of a finger-shaped diverticulum of the bladder with exceedingly thin walls. The bladder was firmly adherent to the cord and canal from whence it was carefully dissected up to the internal ring through which it came, below and to the inner side of the cord. No peritoneal covering was to be recognized. The vesical diverticulum was cut away, the opening into the bladder closed by continuous suture, including the muscular coats only, and the viscus replaced within the ring. The internal ring and upper part of the canal were sutured with kan-

garoo tendon, the fascia and integument with cat-gut. In view of the possibility of leakage from the bladder a few strands of silkworm gut were used for drainage. There was no leakage, the drain was removed on the fourth day. Aseptic wound healing followed. The diverticulum when distended, as when the baby was crying, must have been as large as an adult thumb; after removal it would cover the end of the forefinger to the first joint. The wall was too thin at the site of the incision to admit of suturing and return of the diverticulum to its proper position within the abdominal walls, so it was deemed best to remove it entirely and suture the normal bladder wall. The error in diagnosis in this case was hardly to be avoided, in the absence of any symptom indicating involvement of the bladder. Foyer and Dieffenbach are quoted, but it is stated that there is little to be found upon this subject in the text-books more than bare reference to the fact that the bladder is sometimes found in hernial sacs. When vesical symptoms co-exist with a hernia the surgeon's suspicions should be aroused and an attempt made by the use of vesical injection or the sound to perfect the diagnosis.

In operating also the surgeon must be mindful of the possible presence of the bladder in the hernial sac and avoid opening it. If discovered, it should be dissected away from its attachments and reduced when practicable.

HYGIENE AND THERAPEUTICS.

Crandall, Floyd M.: *The Use of Opium in the Summer Diarrheas of Children.* (*International Medical Magazine.* Vol. ix., No. 7.)

The frequent abuse of opium in pediatric practice is no valid argument against its discriminate employment in the same field of activity.

To use opium with intelligence and skill, we must understand its full physiologic action. The drug can both check peristalsis and diminish intestinal secretions. But this would often interfere with free intestinal drainage, and thus lock up toxic and decomposing materials in the bowel. Hence opium can only be indicated when the discharges are more copious than is necessary to secure drainage, and when, in addition, severe pain is present and exhaustion threatened.

Opium, therefore, finds its chief use in pediatric practice in true cholera infantum and choleraic diarrhea. The totality of the indications for opium in intestinal affections is stated by the author as follows: 1. Very frequent motions accompanied by pain. 2. Extremely frequent, large and watery movements. 3. Dysenteric diarrhea (after the administration of a saline or castor oil). 4. In late stages of diarrhea, with small, frequent, nagging passages. 5. When the passages consist largely of undigested food and the bowels act as soon as food is taken into the stomach.

The contraindications have reference chiefly to the likelihood of interference with salutary intestinal drainage. They are: 1. During the early stages of acute diarrhea. 2. When passages are infrequent and of bad odor. 3. In presence of high temperature or cerebral symptoms. 4. When the use of the drug is followed by elevation of temperature or increasing offensiveness of passages.

Opiates should always be administered alone, and as a rule at intervals of three or four hours.

The best preparations are paregoric and the deodorized tincture of opium. The single dose of paregoric is as follows: At three months, 2 minims; at one year, 8 minims; five years, 30 minims. Other remedies, like the deodorized tincture and Dover's powder, are given in a corresponding scale, beginning with 1-12 of a minim or grain respectively for an infant at the age of three months.

Jemma: Contribution to the Study of the Toxic Action of the Milk from Tuberculous Animals. . (*Rev. Mens. des Mal. de l'Enf.* Vol. xviii., No. 11.)

It is well known that not the tubercle bacilli themselves, but their toxins alone, when contained in milk, may cause grave lesions in persons consuming such milk. Sterilization does not prevent this danger, because the toxins resist, unchanged, a long exposure to 100° C.

Young rabbits were fed on sterilized milk to which a tubercle bacillus culture, heated at 100° C. for fifteen minutes, had been added. Others were fed on sterilized milk without the tubercle bacilli, and still others were fed by the mother. In both these cases the animals flourished, while those which had been given the milk containing dead tubercle bacilli gained but little

in weight, some dying within fifteen to twenty days in a state of advanced cachexia, and others dying later of most marked marasmus. The autopsies showed a mild enteritis and fatty degeneration of the liver.

These experiments show that the use of milk containing dead tubercle bacilli, even when the milk has been heated at 100° C., is dangerous for infants, especially when the milk from the same tuberculous cow is used for a long time. It is erroneous to believe that boiling or sterilizing obviates the dangers of using the milk from tuberculous animals. All cows reacting characteristically to tuberculin injections should be excluded from supplying milk for feeding purposes.

Mettetal: The Value of Tuberculin in the Diagnosis of Tuberculosis in Early Infancy. (*Arch. de Méd des Enf.* Vol. iii., No. 10.)

Only one or two injections of tuberculin are necessary for diagnostic purposes; more are ineffectual and may prove dangerous. The tuberculin should be freshly prepared and strict antisepsis observed in the injections, which should be deeply made into the abdominal wall, thigh or gluteal region. The child should be kept in bed afterward, and the temperature taken every two hours until all fever has disappeared. A rise of from one to two degrees Centigrade within twenty-four hours after the injection is a positive reaction for tuberculosis. A dose of one-tenth of a milligramme will cause the reaction in infants, and between the limits of four and twenty-four months the age of the child does not influence the intensity of the reaction. Tuberculin should not be used in those cases in which the temperature ranges beyond 36.5° C. to 38° C., or at least until the temperature has been normal for several days. No accidents resulted from the use of tuberculin in 74 cases of young children. The reaction began from three to six hours after the injections were made (in the morning). The rise of the temperature is pathognomonic, being regular, rapid and without oscillation until the highest point (between 39° and 40° C.) is reached, where it remains for two or three hours, then falls slowly and irregularly; or the descent may be rapid. A second rise may occur, but it is irregular and does not exceed 38.5° C. The entire reaction lasts about twenty-four hours and is particularly intense in tuberculosis of the bones, meninges and peritoneum;

while in that of the lungs, pleura and intestines, as well as in general miliary tuberculosis, it is more mild.

The reaction is accompanied by an increase in the number of white blood corpuscles, which may be tripled or quadrupled during the febrile stage, and diminish the next day, to be normal on the second day. The red cells may be slightly diminished in number and in volume.

When the normal dose is not exceeded, and the patient is not hyperpyretic, the use of tuberculin is without any danger. It is especially in the early stages of tuberculosis that it is useful.

Chapin, H. D. : Substitute Infant Feeding. (*The Journal of the American Medical Association.* Vol. xxxv., No. 2.)

The article is similar to those recently written by the author whose aim it is to secure clean, fresh milk for the home modification necessary to make it a suitable food for infants. The prompt and rapid aeration of milk with proper cooling are matters of importance. There is practically no bacterial growth when milk is kept below 50° F.

When milk is delivered in bottles which have been filled at the dairy, there is a good quantity of cream from the "deep setting" that has taken place.

By the use of a dipper devised by the author, it is possible to separate the cream and mix it in any proportion desirable. The fat in the first 9 ounces from the top of the milk averages from 9.2 per cent. to 14.6 per cent. according to the richness of the milk. The cream may be diluted to get the proportion of fat desired.

As a diluent dextrinized gruels are found useful.

If the milk is clean and has been kept cool it is necessary to pasteurize it, but in the summer time when it is impossible to keep milk below 60° F. it is best to have it pasteurized.

The character of the stools that indicate the need for a withdrawal of milk for a time is described and suggestions are made of articles suitable for temporary use in infant feeding.

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Original Communications.

HEMORRHAGE INTO THE SUPRARENAL CAPSULE IN STILL-BORN CHILDREN AND INFANTS; REPORT OF A CASE SHOWING RUPTURE OF THE SAC AND ESCAPE OF BLOOD INTO THE PERIRENAL TISSUES AND THE PERITONEAL CAVITY.*

BY S. McC. HAMILL,

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Congestion of the various viscera in the new-born is common. This is especially true of the abdominal viscera. The extensive experiences of Mattei¹ and Spencer² in making autopsies on still-born children and infants led them to believe that some degree of congestion of the suprarenal gland is practically always present in the newly born. Macroscopically the border line between slight interstitial hemorrhage and marked congestion is narrow, and where a microscopic examination is not made it is probable that congestion is frequently mistaken for hemorrhage. Spencer, recognizing this fact, defined his cases as follows: As cases of congestion those in which the medulla of the organ assumes a deep red or brownish-red color encroaching upon the cortex, and as hemorrhage those in which there are distinct hemorrhagic spots in the tissue of the organ, or where the walls are separated by a wide line of deep black color, or where the organ is converted into a sac containing liquid or clotted blood. Normally, in the new-born, the gland should show on section a narrow yellowish-gray cortex and a reddish-brown medulla. Between the opposed surfaces of the medulla

* Read by title before the American Pediatric Society, Washington, D. C., May 1, 2, 3, 1900.

NOTE.—Through the kindness of Dr. Richard C. Norris I was privileged to make the autopsy on this case and to report it.

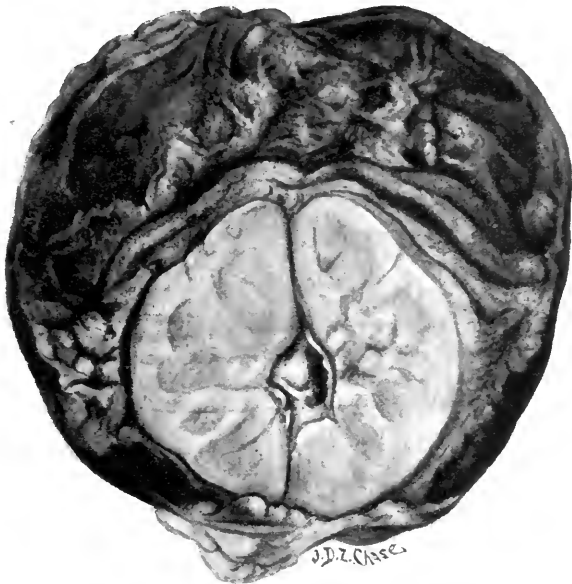
there is a fine red line. This line is much more marked and the medulla of a deeper brown color in the new-born than in adults or older children. The dark red rounded spot in the intermedullary line, marking the central vein, is also more distinct, and unless one bears in mind the presence of this vein and the fact that several such veins may sometimes exist, it is possible from the macroscopic appearance alone to mistake the normal condition for one of limited hemorrhage. Before entering further into the study of the subject I desire to present a complete report of one case and to make brief reference to two other cases which have come under my notice.

CASE I.—The mother of the infant was a healthy woman, aged twenty-seven years. She denied syphilis and showed no evidences of the disease. This was her first pregnancy, the labor was normal, easy and not prolonged. Her husband had deserted her, and she was unable to give any information regarding his antecedent or present condition. The infant, a male child, was born at 8 P. M., on the 6th of January, 1900. He seemed perfectly normal at birth and so continued until the evening of the second day, when suddenly he became pale and his temperature was found to be 103° F. His fever continued until his death. He performed his functions normally and took his nourishment well. He had a slight reddish papular eruption over the upper chest and back, and over the flexor surfaces of the arms. He cried for several hours following the onset of the pallor as if in pain. He became cyanosed and his respirations rapid and labored several hours before death, which occurred suddenly at 1 A. M., on January the 10th.

The autopsy was made about twelve hours later. There was some bluish *post-mortem* discoloration in dependent portions, and some yellowness of the skin and conjunctivæ. Rigor mortis was marked. The cord looked healthy. On opening the abdomen blood exuded, and about six (6) ounces of dark-colored, partially clotted blood was found in the peritoneal cavity. The clotting was especially marked in the right upper quadrant along the under surface of the liver. The umbilical vein was free. The liver extended about one and one-half inches below the xyphoid cartilage and one inch below the margin of the ribs in the right mid-clavicular line. There was some congestion of the omentum and mesentery. On pushing aside the intestines there was found in the region of the right

kidney a mass the size of a duck's egg and having the appearance of a kidney very much distended with blood. It measured 8 centimeters in length by 4 centimeters in width. It adhered slightly to the under surface of the liver. The portions of the ascending and transverse colon which passed over the mass were closely adherent to it. The sac ruptured during its removal, with the escape of a considerable quantity of dark colored and partially clotted blood.

On section the mass proved to be a hemorrhage into the right suprarenal capsule, with rupture into the perirenal tissue almost completely surrounding the kidney. The latter was



CASE I.—EXTENSIVE HEMORRHAGE INTO THE RIGHT SUPRARENAL GLAND AND PERIRENAL TISSUES COMPRESSING THE KIDNEY. THE ONLY PORTION OF THE GLAND IN WHICH THERE WAS ANY OF THE NORMAL TISSUE REMAINING WAS IN THE THINNED AND GREATLY INFILTRATED CORTEX.

greatly compressed and pushed downward. It measured about 4 centimeters in length by $2\frac{1}{2}$ in width and was very pale on section. The suprarenal gland consisted of a sac with walls about 2 mm. in thickness, and was entirely filled with blood, the greater portion of which was clotted. There was some liquid blood occupying about one-third of the sac on its upper and inner portion. The walls of the cavity containing this were ragged and covered with shreds of fibrin. The balance of the sac was filled with an exceedingly firm organized clot,

which had unquestionably existed prior to birth. The portion of the liver and diaphragm to which the upper portion of the mass was adherent were removed with it; just anterior to the margin of this adhesion there was a slit in the sac, which was evidently the point at which rupture had occurred, resulting in a fatal secondary hemorrhage into the peritoneal cavity. The hemorrhage had also penetrated the peritoneal covering of the diaphragm and infiltrated the muscular tissue to some extent. The rupture into the perirenal tissues had evidently antedated the peritoneal rupture, as was evidenced by the firmness of the clot. The left suprarenal gland was normal; the left kidney showed very beautiful uric acid infarcts but was otherwise normal. The spleen and liver were slightly congested but showed no hemorrhages. The ureters were normal and the bladder empty. The pancreas, stomach and intestines were normal and the hepatic duct was patulous. The thymus was normal. The lungs were slightly congested along the lower border. There were no hemorrhages into any of the thoracic organs and no abnormal degree of congestion. In examining the heart the right auricle was found to contain a few jelly clots. The left auricle and both ventricles were empty, the valves and muscle were normal. The brain and cord were not examined. There were no hemorrhages into the muscular tissue. Cultures made from the heart-blood, kidney, liver, spleen and umbilical cord remained sterile.

The microscopic examination was kindly made for me by Dr. C. Y. White, Assistant Director of the Pepper Laboratory of Clinical Medicine, and is as follows:

“*Suprarenal.*—Its capsule is thickened and in many places its fibers are separated by extravasated blood. In the interspaces there are many free brownish granules, and in some of the cells (chiefly leucocytes) there are areas showing round cell infiltration. The cortex is the only recognizable part of the gland; in many places directly under the capsule it shows round cell infiltration. The trabeculæ of the gland are swollen and seem to have undergone hyaline degeneration. The cells of the gland are indistinct, swollen and homogeneous. The nuclei are pale with very little structure visible. Rarely is there seen a cell showing the usual fatty appearance of the normal cell as it appears in the adult. Between the few remaining cells and separating them from each other there is marked evidence of hemorrhage in the form of irregular masses of granules, some of

which are free, some in the cells. It is not improbable that they are in part due to the formalin fixation. Only in one section and in a very limited area did this pigment give the iron reaction. There were a few hematoidin crystals here and there throughout the gland. The portion of the diaphragm to which the gland was attached showed the same granules described above between the bundles of muscle fibers and in places throughout the fibers. The adhesions connecting the gland with the muscle showed marked extravasation of blood and the presence of granules.

"*The liver* shows slight fatty infiltration with some evidence of fatty degeneration of the cells, and probably a little more connective tissue than is normal.

"*The kidney* shows cloudy swelling, in some places going on to desquamation of the lining cells of the tubules. The cellular tissues between the suprarenal and the kidney show marked extravasation of blood."

CASE II.—An infant born at term after a long, natural labor, was apparently normal at birth. On the third day its temperature became elevated and continued up, reaching 104.2° F. on the day of death, the ninth day. At the autopsy there was noted a papular eruption over the neck, shoulders and arms. Both suprarenals showed slight hemorrhage into the cortex. There was present some congestion of the pyramids of the kidneys; congestion of the spleen and of the bases of both lungs; some enlargement and congestion of the bronchial glands; an enlarged liver, yellowish in appearance, microscopically showing fatty infiltration and degeneration; extensive hematoma over the right posterior parietal, and right upper occipital regions, and a subperiosteal hemorrhage, the size of a half-dollar, in the mid-occipital region. Cultures made from the liver, kidneys, spleen, suprarenals and heart-blood remained sterile.

CASE III.—An infant dying on the fifteenth day showed at the autopsy, scattered over almost the entire body, small reddish papules, which in some areas were pustular. On the flexor surfaces of the arms there was a purpuric eruption. Over the lower lumbar region, slightly to the left of the vertebral column, there was a healthy-looking wound, which had been caused by the removal of a congenital tumor. The infant had double club-foot; its liver was enlarged and yellowish; the suprarenals a little enlarged, showing on section a central sac containing a small amount of brownish, grumous material having the appearance of altered blood. The walls of the sac were

smooth; there was no hemorrhage into the cortex. The right lung was slightly congested at the base. Cultures made from the heart-blood showed a pure growth of a short, somewhat oval, rather thick bacillus, which responded to the various tests for the colon bacillus. A microscopic examination of the gland was unfortunately not made in this case, but the appearance of the contents of the central sac was so suggestive that it was considered a case of hemorrhage.

A very extended and careful search of the literature has enabled me to discover references to 87 additional cases. Of this number 19 are merely referred to, 8 by Mattei, 3 infants and 5 still-born, and 11 by Still. In many others the reports are meager and in the vast majority they are incomplete. The fact that as many as 44 of these 87 cases came under the observation of three men, Spencer 23 in 105 autopsies, Mattei, 15 in 61 autopsies and Riesman 6 in a smaller number, would seem to indicate that the position taken by Spencer and Mattei that congestion of some degree is almost always present, and that *hemorrhage into this organ is common*, is probably correct. The three cases communicated by myself were observed in 9 autopsies made during the past winter on infants dying within the first few days of life, a fact which is further evidence in support of this view. Instances of extensive hemorrhage existing as practically the only lesion, destroying nearly all the tissues of the capsule forming a large blood-cyst with rupture into the peritoneal cavity, and causing death from loss of blood, conditions which existed in the first of my cases, are not common. Tuley, Milroy, Prudden, Hodenpyl, Droubaix and Hervey have reported cases of this description. Several others (among them Mattei, Spencer and Parrot) have reported cases in which there was rupture with slight escape of blood into the peritoneum and perirenal tissues, but in each of these there was extensive hemorrhage and congestion of other organs, the suprarenal lesion being but a small part of the general process.

ETIOLOGY.

Many opinions have been expressed regarding the cause of hemorrhage into the suprarenal gland. Milroy^{*} has suggested that owing to the congenital weakness of the veins any undue venous obstruction results in rupture of the vessels and escape of blood into the tissues of the gland. A practically similar view

has been expressed by Bissell.⁴ Still⁵ considers the condition traumatic in some still-born children and in those dying a few days after birth. In a yet larger proportion he believes it due to asphyxia (delayed respiration at birth producing intense venous congestion and consequent hemorrhage into the naturally lax and highly vascular tissue of the suprarenal gland). After the fifth day it is probably due to some change in the walls of the vessels, such as acute fatty degeneration. In later cases he considers a toxic cause possible. Lewes⁶ agrees with Still in believing that the morbid condition of the vessel walls is responsible for the hemorrhage in some instances. Mattei⁷ believed that the firm contraction of the uterine muscles and the resistance of the parts traversed led to compression of the inferior vena cava between the relatively large liver and the vertebral column, thus damming back the blood into the soft non-resistant tissues of the suprarenal gland. In some instances this resulted in congestion only, in others the vessels ruptured and hemorrhage occurred. Under normal conditions these causes acted sufficiently to induce congestion, and when the uterine contractions were excessive or the resistance of the parts was unduly great, hemorrhage resulted. Spencer,² whose experience in making autopsies on still-born children has been very extensive, considers the normal delicacy of the walls of the fetal blood-vessels the one essential factor of hemorrhage into the suprarenal gland or into any of the viscera. He thinks it possible that syphilis, by further weakening the vessels, may increase the liability to hemorrhage. Asphyxia livida, while not a potent factor in itself, will in the presence of other causes increase the severity of the hemorrhage, and it is not impossible that a vasomotor influence may be exerted upon the vessels, as the result of injury to the central nervous system, which may contribute something to the production of hemorrhage. He believed, however, that mechanical squeezing of blood into the part during the process of labor and external violence, such as pressure of the hand in making traction, rupturing the vessels at the part pressed upon, are much more commonly responsible than any form of asphyxia. In most of his cases some sort of interference was necessary to complete the labor, the majority being delivered by the lower pole. From this he concludes that delivery by the lower pole, especially when traction is used, greatly predisposes to hemorrhage into the suprarenal gland. He found

no evidence to show that infection was responsible for the condition in still-born children. He does, however, believe that such a cause is sometimes active in young children. Rayer⁷ agrees with Spencer in considering fragility of the veins essential to the production of suprarenal hemorrhage, but in addition he lays stress upon the want of firmness of the medullary substance. Parrot⁸ attributes congestion and hemorrhage of these organs to their abundant blood supply, their intimate relation to the inferior vena cava, and as a final factor, the circulatory troubles so common during fetal life and during labor. Fiedler⁹ considered traumatism and disturbed nutrition the principal causes. In his two cases, included in the subjoined series, there was marked fatty degeneration of the suprarenals, especially of the medullary portion, to which condition he attributed the hemorrhage. Merkel¹⁰ thinks that syphilis acts as a causative factor, and in commenting on the two cases reported by Fiedler suggests that possibly they were of syphilitic origin. Duckworth¹¹ considers acute inflammation of the tissues and convulsive seizures sometimes active. Hutinel¹² believes that congestion and hemorrhage are produced in the following manner: The glands are made up of a very rich venous network. These veins terminate in a large principal trunk, emptying on the left side into the renal vein and on the right directly into the vena cava. In case of venous engorgement or thrombosis of either the renal vein or the inferior vena cava, the blood is dammed back into the capsule causing either congestion or hemorrhage. Droubaix¹³ confirms this view and also supports the views expressed by Mattei. Demelin,¹⁴ in discussing the etiology of hemorrhage in the new-born, of which hemorrhage into the suprarenal capsule is sometimes a part, suggests the following causes: (1) Traumatism; (2) circulatory troubles in connection with the establishment of the pulmonary function; (3) infections and dyscrasias. The traumatic factors are usually the obstetrical operations, especially delivery by the breech, traction, and the frictions and flagellations used to resuscitate the apparently dead-born. The circulatory troubles are usually favored by congenital weakness of the vessels which makes it difficult for them to resist the sudden tension they experience at the moment the infant begins to breathe. Townsend,¹⁵ as causes of hemorrhage in the new-born, recites those given by Demelin, and mentions further hemophilia, plethora, debility, retention of

meconium and too early ligation of the cord, a cause also mentioned by von Kirvisch,¹⁶; but he considers as much more common than all these some form of infection, such as syphilis, the acute infectious diseases or septicemia from infection of the cord. He quotes Klebs and Eppinger¹⁷ as having isolated a microorganism in some cases of hemorrhage in the new-born which they called "mona hemorrhagica," and he relates von Ritter's experience in the Prague Foundling Asylum Hospital in which he succeeded in practically exterminating the condition which had formerly been prevalent by the establishment of newer and larger wards. Gaertner¹⁸ has contributed further evidence in support of an infectious origin by isolating a bacillus which somewhat resembled the colon bacillus, but which could be readily differentiated from it. He was able to cause visceral hemorrhages in dogs by introducing this organism into the peritoneal cavity and to recover it from the blood of the animals. There has also been abundant experimental evidence adduced in support of the infectious origin of hemorrhage in the new-born, and of hemorrhage into the suprarenal gland in particular: Thus, Roux and Yersin¹⁹ by injecting diphtheria bacilli under the skin of rabbits, guinea-pigs, and pigeons induced general dilatation of the vessels, congestion of the intestines and kidneys, and almost constantly in guinea-pigs, congestion of the suprarenal glands. Langlois and Charrin²⁰ recognizing the important role which the suprarenal glands play in the chemistry of the body concluded that they were probably seriously affected by the various infections. In order to confirm this opinion they made a careful study of a guinea-pig dying from an acute pyocyanic infection. They noted that the suprarenals were increased in size, that they were deeply congested and their normal pigment increased. Microscopically the central zone was engorged with blood, the vessels dilated and in some areas there was hemorrhage. The cells contained numerous colored granules which did not exist normally. Cultures made from the organ showed the bacillus pyocyanus. They also demonstrated that the condition was a true intoxication in inducing it by injecting the soluble bacterial products, as well as by injecting the bacillus. Pilliet²¹ confirmed the toxic nature of the lesion by securing exactly similar results from the subcutaneous injection of the essence of cloves into rabbits and guinea-pigs. Roger,²² by inoculating guinea-pigs with a virulent culture of

Friedlander's bacillus found that at the end of from twenty-four to thirty-six hours the suprarenal glands were enlarged, ecchymosed, and sometimes the organ was entirely filled with a bloody effusion. On section the parenchyma seemed transformed into a bloody mass, only a few small areas in the periphery of the organ remaining intact. He agrees with Langlois and Charrin in making the soluble bacterial toxins responsible for the bleeding. Orłowski²⁸ considers the various varieties of hemorrhages in the new-born to be due chiefly to syphilis and other infectious conditions, the most common agents being the streptococcus, the staphylococcus and the colon bacillus, the main point of entry of the organism being a poorly tied umbilical cord.

In summing up the various views expressed we find the following list of causes: (1) Weakness of the vessel walls, normal or abnormal; (2) traumatism, especially during labor from pressure of the hands in making traction in delivery by the lower pole, and from the frictions and flaggellations used to resuscitate the apparently dead-born; (3) asphyxia from delay in the establishment of respiration at birth; (4) acute fatty degeneration of the vessel walls; (5) fatty degeneration of the tissues of the gland; (6) firm contraction of the uterine muscles, the resistance of the parts traversed, and consequent compression of the inferior vena cava between the liver and the vertebral column, thereby producing congestion and hemorrhage into the non-resistant tissues of the suprarenal gland; (7) convulsions; (8) syphilis; (9) central vasomotor influence from cerebral lesions; (10) mechanical squeezing of blood into the part during the process of labor; (11) too early ligation of the cord; (12) arrest of the circulation through the umbilical artery from the compression of the cord or separation of the placenta; (13) thrombosis of the renal vein or inferior vena cava; (14) infection.

The consensus of opinion seems to be against syphilis as a very active factor. It was not seen in any of the cases here reported. It is probable that this condition, together with the influence of hemorrhage and other brain lesions acting upon the vasomotor center, if they act at all, act only as predisposing factors. Thromboses of the renal vein or inferior vena cava seem to have been of infectious origin in the cases in which they were noted, so that the last two causes mentioned may practically be classed as one. We have left, therefore, eleven causes,

any one of which may at sometime be in part or entirely responsible for the production of hemorrhage into the suprarenal gland.

The position of Spencer, and those who support him, that the fundamental element in the production of suprarenal hemorrhage is the weakness, normal or abnormal, of the vessel walls, must be accepted without question. Traumatism is doubtless the sole cause of the condition in some instances, and a contributive factor in a large majority of the cases. Where other causes may have acted to induce congestion the occurrence of injury to the gland or parts adjacent to it is liable to produce hemorrhage, and in the series of cases attached there are many instances of this course of events. Asphyxia has been very infrequently noted in the cases here reported, and as Spencer has suggested it is probably a factor of no great moment. It should be borne in mind, however, that asphyxia produces increase in the blood pressure, and anything which acts to elevate the pressure in the delicate vessels of the new-born will necessarily increase the tendency to bleeding. Microscopic examinations have shown no instances of fatty degeneration of the vessel walls, but in two cases reported by Fiedler (XVI and XVII) there was marked fatty degeneration of all the other tissues of the gland. The view expressed by Mattei, that firm contraction of the uterine muscles and the resistance of the parts compress the inferior vena cava between the liver and the vertebral column, thereby producing congestion and hemorrhage into the non-resistant tissues of the suprarenal gland seems to be reasonable. In case XV these conditions were present associated with a cord wrapped once about the neck.

These factors probably contribute something to the occurrence of hemorrhage in the majority of cases. Convulsions were noted in five of the cases (XII, XIV, LIX, LXX and LXXVII). It is impossible to indicate the amount they contribute, but it is easy to understand how in the presence of severe congestion a violent convulsive seizure might give rise to hemorrhage into the suprarenal gland as well as into other organs. It has been demonstrated by Spencer that mechanical squeezing of blood into the abdominal viscera and especially the suprarenal gland, during labor is liable to occur in delivery by the lower pole. Too early ligation of the cord has not been noted in the collected cases, but compression of the cord as the

result of prolapse has been recorded once (Case XII) and as the result of the cord passing around the neck, three times, (XV, XXXVIII and LIII). An infectious origin for the condition has received fairly definite support by positive bacteriological findings in four cases observed by Riesman (XXVI, XXVII, XXVIII and XXXI), in which the staphylococcus aureus and albus were grown in pure culture from the blood and tissues. In some other instances (Cases I, II, III, XIX, XXIX, XXX, LXI and LXVII) the evidence is strongly in favor of an infectious origin, and it is not improbable that some form of infection is at the bottom of the trouble in still other cases. In Case No. I, for instance, notwithstanding the negative bacteriological examination, the presence of a mild papular skin eruption during life and the discovery of marked cloudy swelling of the kidney and fatty infiltration of the liver with some beginning fatty degeneration of the cells have led to the conclusion that this case was probably due to some form of infection. It should be remembered, however, that these changes might be dependent upon some toxin bearing no etiological relationship to the suprarenal hemorrhage, which fact makes a definite statement as to the etiology impossible. The results here obtained, together with the positive findings of Klebs and Eppinger, and Gaertner in cases of hemorrhage in the new-born, and the abundant experimental evidence of the power of bacteria to produce hemorrhage into the suprarenal capsule would make the existence of such a cause as this unquestionable, and I am inclined to believe that if complete histological and bacteriological studies had been made in other cases that striking evidence of a toxic origin would have been found. If such a course be applied to all future investigations it will doubtless be shown that this is not only a possible but by far the most common cause.

The act of vomiting seems to have been responsible for hemorrhage into the right suprarenal gland in an apparently healthy twelve and a half hour old infant under the care of Milroy (Case V); there was no other lesion found. It is probable that congestion of the gland had existed previously. Severe paroxysms of pertussis were held responsible for the hemorrhage in a two months old infant observed by Duckworth (Case LXXII), and Still found a hemorrhage into the left suprarenal in a case of miliary tuberculosis in a fourteen months old infant (Case LXXIII, in which there were tubercles present in the

suprarenal gland). Churton (Case LXXV) reports a case of hemorrhage into both suprarenals in a child dying as the result of surface burns. The hemorrhage in this later case may have been due to the action of some retained toxic product, to vasomotor disturbance from reflex excitation or to embolism.

To summarize briefly: The most common causes in still-born children are probably prolonged and difficult labors, those requiring manipulation, and especially those requiring delivery by the breech. In some infants dying within a few days of birth the lesion may still be attributable to injuries inflicted during labor, but in a vast majority of these, some form of infection is responsible, while in practically all cases dying after the tenth day some form of infection produces the condition. The other causes mentioned act alone occasionally and frequently contribute something toward the fatal termination.

Classification.—Still makes the following classification of these cases: (1) Those in which death occurs within a few hours or days of birth, never later than the sixth day; (2) those in which death occurs later and the suprarenal lesion is a complication of some disease, usually of the respiratory tract; (3) those in which after an acute illness of two or three days, usually with a purpuric or bullous eruption, death occurs, and the suprarenal lesion seems to be a part of the fatal disease. The following classification having some relationship to the probable etiology of the condition at different periods of its occurrence would seem more appropriate: (1) Those in which death occurs before or during labor (still-born), due chiefly to traumatism from manipulation; (2) those in which it occurs between birth and the detachment of the stump, due chiefly to infection through the cord, and (3) those dying after detachment of the stump, usually of an infectious or toxic origin.

Dividing the 90 cases forming the basis of this paper according to this classification, it is noted that 28 were observed in still-born children, 27 between the date of birth and the sloughing of the cord and 11 during the third period. Of the remaining 24 cases in which the date of birth is not definitely indicated, it seems probable that 11 would fall under the second classification and 2 under the third. In the others it is impossible to reach any conclusion. This finding establishes the fact that the vast majority of cases occur either before or during labor or within the first few days of life.

PATHOLOGICAL ANATOMY.

The hemorrhage may be unilateral or bilateral. In the 65 cases in which its location is mentioned it was unilateral 25 times, on the right side 15, on the left 9, not stated once; and bilateral 43 times, being greater on the right side 5 times and greater on the left twice. In the 36 remaining instances the side of greater prominence is not indicated. These findings would seem to confirm the view long since expressed that the lesion is more common on the right side than on the left. The explanation made by Mattei to account for this is that this gland is more liable to congestion or hemorrhage on account of the direct emptying of its capacious veins into the inferior vena cava, and its greater liability to pressure in consequence of its anatomical position, lying as it does between the liver in front and the vertebral column behind.

To the naked eye the glands present a varied appearance. Where the hemorrhage is large there may be a tumor the size of a duck's egg occupying the region of the suprarenal gland, having a reddish-brown or black color with a smooth, glistening surface, its general appearance suggesting an enlarged hemorrhagic kidney. After rupture into the peritoneum, as is apt to occur where the gland is much distended, there will be found, usually on the upper anterior surface of the mass just below its point of contact with the diaphragm, a small, slit-like opening. The overlying colon and duodenum on the right side, or the descending colon, spleen, pancreas or stomach on the left may be adherent to the sac. The size of the gland depends on the extent of the hemorrhage, and the external appearance on the extent and location. If the organ is well distended, the cortical substance thin and yet intact, the normal yellowish tinge will be somewhat reddened. Where the hemorrhage is small and central, aside from moderate enlargement the gland may appear normal. Occasionally, as in case LVII, it may be hemorrhagic in only one portion of the organ, giving it an irregular, more or less lobulated or club-like appearance. In one instance there was an isolated hemorrhage about the size of a nickel immediately beneath the fibrous capsule. Occasionally small ecchymotic areas are scattered over the surface of the gland. On section it is seen that in the vast majority of cases the hemorrhage is mainly into the medullary portion. Usually its tissues are

entirely infiltrated and frequently completely destroyed, leaving a large cavity, the walls of which are formed by a flattened and infiltrated cortex, and sometimes, as in my own case, there may be scarcely any of the cortical tissues recognizable. The sac is usually filled with dark liquid or clotted blood; the clot may be organized in parts, grayish in color, and in striking contrast with the deep red of its more recent portions, producing a more or less mottled appearance. After the blood escapes the walls of the cavity show a ragged appearance, due to the adherence of particles of clot and shreds of fibrin. Where the hemorrhage is small and recent the walls are smoother. As in some cases the hemorrhage appears in the medulla in the form of scattered areas (Cases LIV and LXV), so also one occasionally finds a number of small blood cavities distributed here and there throughout the gland (Case XXXVII). Section has in several instances given the appearance of a small cyst containing grumous-looking material, having the appearance of altered blood, and in such cases, without a microscopic examination, the condition is liable to be considered a *post-mortem* change. Hemorrhage is rarely limited to the cortex, and when it is it occurs in the form of scattered ecchymotic areas, usually visible on the surface of the gland. Rupture into the peritoneum, the perirenal or post-peritoneal tissues is quite common, having occurred in 11 of the cases. Occasionally the peritoneal hemorrhage is very abundant. In one instance rupture occurred into the substance of the liver, the hemorrhage slitting up Glisson's capsule for a considerable distance, and in Case No. 1 the hemorrhage penetrated into the tissues of the diaphragm. Hemorrhage into the cellular tissues surrounding the gland and kidney sometimes occurs irrespective of rupture. Thrombosis of the renal vein and the inferior vena cava has been noted in several instances. Pathological changes other than hemorrhages have been recorded in 2 cases reported by Fiedler, and in a case reported by Still, a case of miliary tuberculosis in a fourteen-months old infant, there were one or two gray tubercles in the substance of the gland.

PATHOLOGICAL HISTOLOGY.

Microscopical studies have been made in very few of the cases, but four times in infants dying within the first few days of life, and three times in infants of fifteen months or older. In 2 cases reported by Fiedler (XVI and XVII) there was found,

in addition to the evidences of hemorrhage, extreme fatty degeneration of all the tissues, the vessel walls alone remaining free. It is recorded that no fat-free cells were found. In Droubaix's case (XII) it was merely noted that the vessels were obstructed by blood from the periphery toward the center. The cortical substance was nearly preserved in all of the sections, there being only a few isolated areas of infiltration as the medulla was approached. In Still's case (LXXIII) the medulla was infiltrated with extravasated blood corpuscles but there was no disintegration of the tissues. The hemorrhage was nowhere circumscribed. The cortex showed enlargement of the small blood-vessels and some extravasation of blood, but less than in the medulla. Andrew's case (LXXIV) showed a uniform diffuse extravasation of blood, the normal tissue elements being diminished in number. In Garrod and Drysdale's case (LXXIX) the stroma was fairly well preserved, the cells enclosed in its meshes had largely disappeared, being replaced by effused blood, some of the individual spaces being entirely filled by red blood corpuscles. In some areas the cells were present in considerable number, the nuclei staining well, but the cell substance being practically destroyed. The microscopic examination made in my first case has been given above in detail, and probably expresses the microscopic findings as definitely as any description that could be given. As a matter of fact, the results of the microscopic examination, in the event of uncomplicated hemorrhage, will vary according to the degree, location and age of the hemorrhage. Aside from this difference it will be practically the same in all cases. The special advantage of a histological study lies in the possible discovery of some pathological condition, either in the suprarenal or some of the other organs, which may throw light upon the etiology. In my own case, as pointed out above, the histological findings entirely altered the view which had been taken regarding the cause of the hemorrhage.

SYMPTOMATOLOGY.

There have been no symptoms in the cases reviewed which seem in any way related to the lesion. In Case No. 1, the child was normal until the evening of the second day. It was then seized with sudden pallor, elevation of temperature, restlessness, crying as if in pain, and shortly before death with

cyanosis and rapid, labored respiration. Symptoms of collapse were noted in several of the cases in which rupture had occurred. In Case VIII a dirty color of the skin had been noted before death.

DIAGNOSIS.

In cases in which the hemorrhage is small, and especially if limited to a single capsule, it is probable that symptoms and signs would be absent. Rayner has suggested that the presence of a gland large enough to be palpated, in the absence of symptoms suggesting lesions of other organs, might lead to the suspicion of a suprarenal hemorrhage. Sudden symptoms of collapse without evidence of hemorrhage into other organs, especially if a tumor has been located in the suprarenal region, might suggest the possibility of this condition. In the opinion of the majority of observers, however, the lesion is considered impossible of recognition in the cases occurring shortly after birth.

The case of Wainwright (LXI) would suggest that the lesser degrees of hemorrhage sometimes go on to organization without softening. His case occurred in an infant dying at the age of two months of bronchopneumonia. The autopsy showed the remains of an old hemorrhage into the medulla of one suprarenal. The cortex was normal to the naked eye and nearly so microscopically. Similar cases probably occur with greater frequency than statistics indicate, and it is highly probable that they lead to changes in the gland which seriously interfere with its important function. Neusser²⁴ has pointed out that hemorrhage may lead to cystic or fibrous change in the suprarenal gland, and as marked fibrosis of the gland is sometimes the nature of the lesion in Addison's disease it is not unreasonable to suppose that it may sometimes have had its origin in hemorrhage at an earlier period. Through reduction of the vitality of the gland it would be rendered more susceptible to infection by the bacillus tuberculosis and it is well-known that in a fairly large proportion of cases of Addison's disease this lesion is associated. The relationship between hemorrhage and the various new growths which affect these glands is rendered uncertain by our lack of knowledge of their etiology, but there has been no evidence adduced to confirm the suspicion that such an association might exist.

The immediate effect upon the economy is dependent upon the degree of hemorrhage. In the milder non-infectious forms, as has been intimated, it is probably nil. These organs play a very important role in the chemistry of the body. Evidence of this exists in the fact that rapid death follows either their removal or the ligation of their vessels. The exact nature of their function is not definitely determined, but it is probably in part excretory, and certainly in part secretory. In any event the probable effect of a large destructive bilateral hemorrhage would be to produce a cessation of its function and lead to a rapidly fatal autointoxication. Where hemorrhage into the gland is extreme and it is much distended, rupture into the post-peritoneal or perirenal tissues or into the peritoneum may occur and give rise to sudden death. This termination has been noted several times in the attached cases. Mattei quotes Lobstein as saying that where the volume of the hemorrhage into the suprarenal gland is large sufficient pressure may be made upon the semi-lunar ganglia and solar plexus (situated between the crura of the diaphragm and supported by the vertebral column) to cause death. Since the solar plexus is the central point from which the nerves supplying the abdominal viscera converge and diverge, it is evident that any shock or irritation of this plexus may result in the paralysis of organs whose functions are essential to life. Brown-Sequard observed arrest of the heart's action in consequence of the bruising of one or the other semi-lunar ganglia, especially the right, and Mattei has noted the same result in the rabbit. It has been suggested by Stengel that in the light of our knowledge of the influence of the suprarenal gland upon blood pressure, in some cases of hemorrhage in which the lesion has not been sufficient to entirely destroy the circulation of the gland, there may escape into the general circulation a sufficient amount of suprarenal substance to elevate the blood pressure and thereby give rise to widely disseminated hemorrhages such as are induced by the increased blood pressure in cases of asphyxia. This may account for the widely distributed ecchymoses present in some of the recorded cases.

(To be concluded in the March number.)

THE PATHOGENESIS AND TREATMENT OF RICKETS.*

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Practitioners are well acquainted with that modified variety of rickets which is frequently observed among children of the well-to-do. In these cases the manifestations can apparently develop in the absence of those exciting causes (bad food and hygiene) usually associated with the dyscrasia.

The symptoms occur chiefly, though not exclusively, among bottle-fed infants, and the following description is applicable to the majority of cases. At birth the infant is strong and healthy, takes its food well, and its weekly increase in weight is decidedly above normal. By the fifth month the child is unduly fat, often exceedingly firm, and presents no symptoms other than a tendency to free perspiration and restlessness at night. At about six months there may be slight diarrhea with recurrent attacks of general catarrh; the infant takes cold easily, and in severe cases convulsions sometimes occur. The teeth do not appear until the fourteenth month, or later, and the child may not walk until the second year. Even then there is an obvious lack of support to the joints from the lax ligaments and feeble muscles. Obstinate constipation is common, and the only usual symptom of rickets not present is that obtrusive bony deformity which characterizes a more serious case. Examination will generally prove, however, that there is some craniotabes and slight beading of the ribs. It seems impossible that such an undoubted case of rickets, in a child of well-to-do parents, differs in essence and pathogenesis from that found among the children of the poor. Yet the etiological factors which can explain the disease in the one case can play no obvious part in the other. Any theory of the causation of rickets, in order to be completely satisfactory, must embrace the etiological conditions common to both varieties.

A bacterial origin may exist in the two forms, but the means best calculated to effect a cure in each case are not such as are likely to be curative in a microbic disease.

* Abstracted from the original article.

The prevalence of rickets among infants reared on artificial food, or condensed milk, has naturally led to the inference that the prolonged heating of the food is in some way connected with the determination of the disease. If such be the case, it is practically certain that the proteid element of the food, and not the sugar or fat, undergo deterioration. Consequently, an infant fed on a diet of this kind is subsisting almost exclusively on carbohydrates, for the percentage of fat is so notoriously low that, for practical purposes, it may be neglected.

Although infants almost invariably develop symptoms of rickets when exclusively fed on preserved foods, they are by no means immune when such preparations merely supplement an otherwise adequate milk diet. Any theory, therefore, which recognizes deficiency of some element (proteid, fat, antiscorbutic element) in these preparations is insufficient, and it seems more logical to assume that they may, with equal reason, contain an element directly noxious to the organism.

A strong argument, however, against this latter view is the clinical evidence afforded by Dr. Cheadle, who proved that, in infants fed on artificial foods with serious deficiency of fat, rickets could be cured by the addition of cream, without in any other way altering the quality or quantity of the food. To harmonize this evidence with that afforded by cases of rickets in which there is no deficiency of fat, one must assume that without a certain proportion of the latter metabolism cannot be maintained at a physiological standard.

Hence, with deficiency of fat, among other difficulties, the organism experiences difficulty in metabolizing carbohydrates to their normal end products—carbonic acid and water—or fails in its attempt to lay them on in the form of fat, which is not only an essential but a most important element of a physiological dietary, and cannot be permanently replaced by any known substitute. The want of fat may thus, more or less directly, determine the production of rickets; but the want of any other essential elements (calcium salts, for instance), will have much the same effect. But the want of fat or of any other element will not explain the causation of all, nor, perhaps, of most cases of rickets.

On theoretical grounds it has been thought possible that the formation of lactic acid in the system may have some causal connection with the symptoms. This view has met with little

favor, because it is known that an acid of this nature cannot exist free in the alkaline circulating media, and because there is no special reason why such a body should be generated in excess. It has been assumed that the decomposition of carbohydrates in the bowel is the most probable source of the acid in those cases in which it is demonstrable in the system; and that, owing to its ready oxidation, it can always be excreted in the form of its normal seed products (carbonic acid and water) without damage to the tissues.

A variety of experiments have been made in man and on the lower animals to determine the effect of lactic acid when absorbed either from the bowel or from hypodermic injection. When administered in small doses to man, it appears first to possess hypnotic properties, and subsequently to produce free perspiration and a condition of the muscles which is practically that of fatigue. If the dose is increased, there may be signs of nerve irritation; but more serious symptoms do not supervene, at least with safe doses, owing to the means which the system possesses for disposing of the acid. But in certain conditions, as has been shown by Dr. B. Forster,¹ through failure of the oxidative and excretory powers, even small doses of lactic acid can produce symptoms which are indistinguishable from those of acute rheumatism. In animals the results have been less convincing,² but Sir B. W. Richardson claimed that it was possible to produce inflammation of the mitral valves in dogs by injecting lactic acid into the peritoneal cavity, and Heitmann and Baginsky produced rickets in young animals by mixing lactic acid with their food.

On the other hand, lactic acid has not been proved to exist in great excess in the tissues or fluids of children who died from rickets, although some is always present; while investigations in this direction has not been systematically pursued,—lactic acid has frequently been found in excess in the blood and tissues of patients who suffered from diseases associated with defective oxidation, such as leucocythemia, osteomalacia, rheumatism, etc.

With regard to the formation of lactic acid in the system, its origin is doubtless widespread. It is known that muscles can generate it as a product of metabolism, and that all protoplasmic activity is, under certain conditions, associated with its formation. But since protoplasm is built up of all the sub-

stances regarded as food stuffs, it follows that all such materials are possible sources of lactic acid, carbohydrates usually contributing the largest share.³ The blood is another possible source of the acid, owing to the presence of a sugar splitting ferment in it (Spitzer); finally lactic acid may be absorbed directly from the alimentary tract, when produced there in excess. Therefore, we may conclude that under normal circumstances lactic acid is freely generated in the body, but it is so easily oxidized and absorbed that excess is seldom demonstrable. The experiments of Araki⁴ and Irisawa⁵ afford most important evidence, and it seems remarkable that they have not before been quoted in this connection.

Briefly stated, the results of their investigations, conducted in Hoppe-Seyler's laboratory, show that want of oxygen from any cause will in the presence of carbohydrates determine an excessive production of lactic acid in the system. If the oxygen supply is reduced to a minimum, the power of dealing with food material may be still further hampered and sugar itself appear in the urine; when the food supply fails, as in starvation, no excess of lactic acid is generated, nor does sugar appear in the urine. From this it follows that the amount of lactic acid produced is determined by the ratio between the food supply and the oxygen tension. With a constant supply of oxygen, the greater the storage of carbohydrates in the system, the more acid will be produced. Thus in individuals fed on an excessive carbohydrate diet one would expect an increased production of the acid, and an intensification of the symptoms associated with its presence.

Hygienic conditions and opportunities for exercise will be the chief factors in controlling the supply of available oxygen, and the nature and amount of the food will determine its demand. If the supply equals the demand rickets will not be produced; if shortage in the supply occurs there will be evidence of the disease. The rachitic manifestations above referred to occur in infants who are proverbially overfed, usually by "thickening" a more than sufficient milk diet with one of the proprietary foods. I have taken from my note-book 5 cases of rickets of this type, and have calculated the amounts of the different elements in the food, from data obtained from the mother or nurse—assuming that the milk, cream, etc., were of average quality. The infants were first seen at ages varying

from six to nine months, when some were taking still larger amounts than appear in the table.

	Nature of Food	Total quantity of Food	Total Carbohy- drate	Total Fat	Total Proteid
Physiological require- ments (approximate) for infants of 3 months	Modified milk	31.5 ozs.	2.205 ozs.	1.26 ozs.	.63 ozs.
CASE 1. 14 weeks old	Diluted condens- ed milk with cream	40 ozs.	5 ozs.	1.5 ozs.	.9 ozs.
CASE 2. 12 weeks old	Diluted condens- ed milk with meat-juice	36 ozs.	4 ozs.	.8 ozs.	1 oz.
CASE 3. 16 weeks old	Diluted milk and Proprietary food	48 ozs.	3.7 ozs.	1.29 ozs.	1.32 ozs.
CASE 4. 18 weeks old	Diluted milk and Proprietary food	54 ozs.	4.2 ozs.	1.61 ozs.	1.7 ozs.
CASE 5. 17 weeks old	Diluted milk and Proprietary food	48 ozs.	4.3 ozs.	1.9 ozs.	1.8 ozs.
Food made according to recipe of ven- ders of Proprietary food for infant of 3 months	Diluted milk and Proprietary food	80 ozs.	5.5 ozs.	2.247 ozs.	2.96 ozs.

These cases are neither picked nor extreme. For the sake of comparison, I supply the quantities which may be regarded as the physiological requirements of an infant of similar age, and give the details recommended by the venders of what is probably the most popular proprietary food in Great Britain. These latter figures may possibly explain the causal relationship between rickets and patent foods.

The cases quoted were, with one exception, fat, phlegmatic infants. They are all carefully looked after, in excellent hygienic surroundings; but all developed distinct symptoms of rickets, which rapidly improved when the amount of food was reduced, without any other material change in the treatment. (A small quantity of cream was added in Case 2.)

How does an infant, thus grossly and manifestly overfed, dispose of the excess which is beyond its physiological requirements? Vomiting and diarrhea effect this object. But patent and predigested foods are so bland and diffusible, that in most cases they can be absorbed without disturbance to digestion; particularly when they contain large percentages of carbohydrates.

Immediately after a meal the carbohydrates (it is with these food products that I propose chiefly to deal), will be rapidly stored up in the form of glycogen in the liver, muscles, and other tissues. In infants excess of sugar is seldom disposed of by the kidneys, owing probably to the capacity of growing tissues to use the supply in other ways—such as the deposition of the fat. Infants fed on excessive diets (especially carbohydrates), become fat and heavy.

As long, however, as they can thus dispose of the excess, they appear to be more or less free from symptoms. This metamorphosis in itself implies a certain degree of vitality, and it is certainly a physiological measure to protect the organism from the effects of excessive ingestion. Infants, who can thus defend themselves, defer the onset of symptoms beyond the age at which they appear in thinner patients. The danger zone is, however, reached with the physiological limit of fat deposition, and then (perhaps the seventh or eighth month), serious symptoms supervene. Carbohydrates can now no longer be converted into fat, nor readily removed by the kidneys in the form of dextrose. The organism must therefore have recourse to oxidation, and should the oxygen supply be equal to the emergency metabolism will convert carbohydrates into their normal seed products. But should the oxygen supply fail, incomplete metabolites, of the nature of lactic acid, will be formed instead.

Lactic acid thus generated in excess will be neutralized by the alkaline salts (probably phosphates) in the blood, and carried in the circulation to be further oxydized in the organs chiefly concerned in this process: Skin, mucous membranes,

liver, spleen, and probably thymus gland. As long as these are able to meet the strain the infant may evince no serious symptom; but should the co-operation of the skin fail, through chill or other cause, the strain thrown on the internal organs would become correspondingly intensified. Lactic acid would with difficulty be removed from the site of its production, and the alkalinity of the blood by accumulation of lactate and allied bodies would almost be reduced to zero.

Carbonic acid might also accumulate in excess in the tissues and intensify the symptoms, although it is improbable that it can ever reach that degree of saturation, which Wachs-muth¹⁰ has suggested as the sole cause of rickets. The tissues will become partially paralyzed by the products of their own metabolism, and the epiphyses of bone, centres of enormous protoplasmic activity, in their plea for oxygen and carbonic acid carriers, will become hyperemic and present those conditions which Kassowitz has shown are essential to the perverted ossification of rickets. Moreover the reduced alkalinity of the blood, or even acidity of the tissue juices, may create a demand for bases at the expense of salts already, or about to be deposited in the cartilage. The liver and mucous membranes will participate in the general disturbance; finally, the nervous system may break down under the combined strain of temperature and toxic irritation, and convulsive phenomena develop. The more chronic effects of lactic acid poisoning are evidenced by catarrhs, skin affections, muscular debility, and proliferation of cells in fibrous structures.

Such is a brief description of the symptoms which may arise in an infant saturated with carbohydrates. It may be argued that such a theory of rickets does not harmonize with all the known etiological factors, but it must be remembered that by excess of carbohydrates *absolute* excess is not necessarily implied; *relative* excess, that is, relative to the powers of the organism to oxydize, is the essential condition. Infants of low vitality, with feeble powers of metabolism, may find the physiological dietary of a healthy infant excessive, and the same may apply to children living under different hygienic conditions. Breast-fed infants, no less than those who are hand reared, may be overfed; and, if weak stimuli to oxidation are combined with feeble vitality, the one class of feeding may confer no greater degree of immunity than the other. Diarrhea,

nature's first defence against excessive absorption, if long continued, is generally associated with emaciation and marasmus rather than with the typical symptoms of rickets; for this reason fermentable food stuffs, which require digestion before they can be absorbed, are probably less potent factors in the production of rickets than the soluble carbohydrates present in most patent foods.

The treatment of rickets, both prophylactic and remedial, may chiefly be considered from the point of view of alimentation and hygiene. The food must be adapted to the physiological requirements of the infant, and each case considered on its own merits. Every measure which evokes protoplasmic activity and encourages respiration and circulation, will help to dispose of circulating nutriment in the manner most beneficial to the organism as a whole. In this connection the importance of muscular exercise should not be forgotten. The rachitic infant is suffering from oxygen hunger, hence all measures which encourage respiration (cold douches, rapid movements through the air, light clothing, low temperatures) will quicken vital processes. For acute and urgent symptoms (convulsions and laryngismus) inhalations of oxygen are obviously indicated. I have only once been able to test the value of oxygen in such an emergency, but the results are gratifying. Any means which will induce the infant to breathe freely and deeply, will have a similar if less striking result, especially when combined with cardiac stimulants. The hygienic and alimentary treatment of rickets is so eminently satisfactory, that recourse to drugs is seldom necessary; but phosphates, phosphorus and cod-liver oil are medicaments of proved value.

On theoretical grounds I believe that salicylates are strongly indicated, and for the same reason that they are of value in rheumatism. The small experience I have had with these drugs in cases of rickets materially supports this view. Alkalies may rationally be prescribed for the neutralization of acid products of metabolism, and to act as carbonic acid carriers.

CONCLUSIONS.

1. The symptoms of rickets are such as can be explained by the presence of an excess of lactic and similar acids in the system.

2. Excess of lactic acid can be generated when the food supply (carbohydratic chiefly) is relatively excessive, or when the available oxygen is relatively deficient.

3. Infants fed on excessive diets can develop symptoms of rickets although no element necessary for metabolism is absent from the food.

4. Such cases can be cured by reducing the food to normal proportions without in any other way altering the treatment.

5. The cause of rickets in these cases, and probably in all cases, is excess of some element, and that element probably carbohydrate.

In conclusion, I must tender my best thanks to Dr. Pembury and Dr. Colbeck for their assistance and advice in preparing this paper, and to Dr. Cheadle for his valuable criticisms and encouragement.

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Vomiting of Children.—A. Nil Filatow states (*Annals of Gynecology and Pediatrics*. Vol. xiii., No. 5, from *Diagnostic et Semeiologie des Maladies l'Enfance*) that children vomit more frequently than adults, and more easily the younger they are. In the first months vomiting is often caused by an excessive supply of food. This is really a regurgitation. Milk which is regurgitated can in no way be distinguished from that which is vomited. If it happens that the milk is not coagulated when it is vomited a considerable time, say twenty minutes after nursing, we have to do with a pathological condition of the gastric juice: lack of acidity or ferment of the gastric juice. The same is true if the vomited milk is mixed with a noticeable amount of mucus, or if the vomited material contains not only milk but also glairy liquid and bile.

THE CARE OF CHILDREN WITH MITRAL LESIONS.*

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The constant presence in St. Mary's Free Hospital for Children of children with a heart lesion, and the supervision of several of these cases in private practice, have served to keep steadily before me the problems presented by such conditions and to formulate certain principles in the care of these children.

In the hospital our cases of heart disease fall readily into three classes: 1. Cases of heart murmur or murmurs without cardiac symptoms—meaning thereby disturbances of circulation; 2. Cases of heart murmur with cardiac symptoms; 3. Cases of pericarditis, acute and chronic. I purpose in this paper to ignore the last class, the questions involved being of a somewhat different character, and to confine the discussion to the cases of the first class, viz. : those of heart murmur without indications of impairment of the circulation.

These cases without cardiac symptoms other than a murmur make up the largest part of our cardiac cases at St. Mary's Hospital, and in private practice they are not rare. They come under observation with a history that the child, varying in age from five to fourteen years (the latter being the hospital limit), has not seemed well of late; a physician has been consulted, who in the course of his examination has found a murmur, which has led him to announce that the child has heart disease. The parents are alarmed, regarding the child to be seriously ill and it is brought to the hospital for treatment. Here there is sometimes elicited a history of rheumatic attacks with arthritis; sometimes one simply of muscular pains; rarely, at the hospital, a history of febrile attacks only, or of attacks of tonsillitis. It is not infrequent that the ailment for which the child is admitted is something which has no connection with the heart lesion. Often there is no history of previous illness.

We most frequently find a thin, white-faced child, with decayed teeth, inflamed gums exuding a nasty discharge, not

* Read before New York Clinical Society, November 23, 1900.

unlikely with chronically inflamed tonsils or adenoids, or both. There may be chorea, or the history of attacks of chorea; if not chorea, there is apt to be a story of fretfulness, violent attacks of temper, or restless and disturbed sleep, or some evidence of one of the many ways in which a poorly nourished child will show indications of nervous fatigue. The appetite may be sufficient, the digestion apparently good and the condition of the bowels and kidneys normal.

Upon physical examination the apex beat of the heart may be found in the fifth interspace, or it may be in the sixth interspace; then it will be nearer the axillary line. Palpation will perhaps discover some thrill. Percussion may show the heart to be enlarged. Auscultation reveals a systolic murmur, perhaps loudest at the apex; heard distinctly all over the cardiac region, transmitted to the left and heard clearly in the interscapular space. Indications of other than mitral regurgitant disease I have rarely found (and at this time I wish to ignore them). The heart's action is likely to be weak and the rhythm may be irregular both in force and time.

There is no enlargement of liver or spleen, no ascites, no edema of extremities, no clubbing of fingers or toes. There is decided diminution in the amount of hemoglobin, varying from 60 per cent. down. Some of the children complain of pain in the region of the heart; but since they have heard their condition discussed and know they have heart disease and that something is expected of them, their statement of the existence of pain is to be questioned. It is rare in private practice to have pain complained of. Some cases have a slight continued fever, a few have dyspnea and are unable to lie down.

The conclusion of the examination usually is, that we have to do with an anemic child with a diseased mitral valve, indications of other than mitral disease, as I have already said, being rare.

A considerable proportion of the hospital cases are admitted as cases of chorea, in which the systolic murmur is found to be present. When the choreic movements have ceased, the child remains as a patient with a valvular lesion. Some children admitted for other reasons are found to have a cardiac murmur when auscultation is practised as a matter of routine. In private practice I have found such an unsuspected murmur in the general examination, no concomitant symptoms being pres-

ent. Cases in private practice are not different in any essential way from the hospital cases.

While in the ordinary case as it comes under observation there may be no especial indication of dilatation, or muscular degeneration, or failure to develop a compensatory hypertrophy, yet one cannot but fear such an outcome, especially if the child continues to live uncared for; and indeed such is a common outcome in the children who, in their tenement-house home, are compelled to do hard work on insufficient and improper food. Some of these, who are members of the first class, return to us as ordinary cases of advanced dilatation or failing compensation. I have also seen children seriously, fatally ill with such a condition in whom the signs of failure of power in the heart were only extreme pallor, dyspnea, prostration and death. One must be on guard not to be deceived by the wonderful power which the system of the child has of accommodating itself to grave conditions and so overlook symptoms which indicate serious mischief.

The sound heard in these cases is, in my opinion, due mainly to an organic change. There can, however, be little doubt but that certain states of the blood, or heart muscle will permit of murmurs; one can frequently hear such in the course of many severe febrile conditions; but I do not think such sounds are transmitted, nor are they heard distinctly in the back. It seems as though sometimes in chorea the heart muscle contracts as irregularly as do the voluntary muscles, and possibly in some of these such contraction will permit of regurgitation of blood. It is also possible that under strong mental or emotional disturbance a temporary dilatation will occur.

Are such children, as these I have attempted to describe, to be regarded as in a serious condition because they have a mitral regurgitant murmur? Is the outlook for them serious? Must they be regarded as invalids? Should they be debarred from active plays or exercise? How should we advise that they should live?

The answers to these questions are dependent upon environment, upon the care which the individual can command, upon the natural recuperative power of the individual, as well as upon the persistence of the cause. Conditions being favorable, the outlook is good. The ordinary course which an inflammation of the endocardium of the mitral valve tends to pursue

is not unlike that anticipated in the ordinary adult, except that one must remember that the child is growing and that its heart must not only grow in proper proportion, but must also keep up a compensating hypertrophy, so that it really is called upon for an extraordinary development. If the general nutrition of the child and its heart muscle fail, the outlook necessarily becomes grave, for then we have also from feeble heart action an additional failure in general nutrition; it is here in the matter of nutrition that we find the most important indication for treatment.

ETIOLOGY.—Whether or not we succeed in obtaining a history bearing upon it, I think that practically we can always assume the cause of endocarditis to be the rheumatic poison. Whether we believe what we call rheumatism to be a poison caused by faulty metabolism or a toxin produced by some germ growth in the blood, or the germ itself absorbed in the blood (all the requisite conditions for either theory are apt to be present in these children), the determining factor is apt to be exposure. The rheumatic poison is most likely present and active; certainly its effect on the endocardium and blood are present. The rheumatic poison may, besides attacking the endocardium, manifest itself as an arthritis, as muscular rheumatism, not infrequently as a tonsillitis, sometimes as a cause of febrile attacks with no lesion discoverable at the time; in this way some of the cases in private practice may be explained, such febrile attacks being the only illness elicited in the history. I believe that if we watch our cases of tonsillitis more carefully, not at the time of the acute attack only, but for weeks subsequent, we shall see that in some individuals the poison of what we call rheumatism gives rise to an endocarditis.

TREATMENT.—The problem presented for treatment then is this: We have a growing, developing child who has become affected by the rheumatic poison, in whom this poison has caused an inflammation of the endocardium; the rheumatic poison and the endocarditis have caused anemia and faulty nutrition throughout the system, which interfere with the development of a compensating hypertrophy of the heart muscle; or, if the compensatory hypertrophy has been achieved, the anemia causes a subsequent degeneration or dilatation.

Evidently the two great indications for treatment are to overcome the cause, the rheumatic poisoning, and to increase nutrition.

If there are indications that the heart is not doing its work properly, if the rheumatic poison is active, or if the nervous system is irritable, it is best to put the child to bed and to keep it there until all such conditions are passed. In the hospital this is our unvarying practice. A stay in bed serves to protect the child from making undue effort while there is an active change going on in the endocardium, or cardiac muscle; and to rest it physically and nervously; it also serves to cause those about the child to regard it as not well and so not to demand too much of it. The prolonged quiet enables the heart muscle to regain its tone and enables the nervous system to become more stable. It is surprising how much is accomplished by rest in bed without any medication. In private practice, when a murmur is discovered, questioning will probably elicit the fact that the child has tantrums or is irritable and fretful, conditions which frequently accompany heart disease. Rest in bed does much for such children. There can be no limit set to the duration of the stay in bed; it must be until we can be reasonably sure that the activity of the rheumatic poison has subsided, and until the heart has an opportunity to recover itself, and for long afterwards the slightest indication of overwork should mean another period of rest in bed.

It will be found that often the rheumatic poison is still active, and indeed, even if there are no indications of it, it will be wise to administer steadily some one of the salicylates. I use salicylate of soda, salicin, salol, and, in private practice, strontium salicylate. Of these I have found the last and salicin least irritating to the stomach. This is an important matter, since it is wise to keep up the use of the remedy over a period perhaps of weeks, or intermittently for months. Some years ago I found a published formula devised by Dr. Solis Cohen, of Philadelphia, which I have found most useful. It contains in each drachm $7\frac{1}{2}$ grains of sodium salicylate, $7\frac{1}{2}$ m. of the tinct. of chlorid of iron and a little oil of wintergreen.

℞. Sod. Salicyl.....	℥ ss;
Tr. Ferri. Chlor.....	℥ ss;
Ac. Citric.....	gr. x.;
Glycerin.....	℥ iss.
Ol. Gauthl.....	gtt viii.
Liq. Ammon. Citrat.....	ad ℥ iv.

Dissolve the sod. salicyl. and acid citric in the liq. ammon. cit. To the glycerin add tr. ferri. chlor. Mix the two solutions; then add ol. gauthl,

If properly compounded it makes a clear, dark red mixture which many of the children at St. Mary's Free Hospital have taken after each meal for periods of months. I am guided in the continued use of the salicylates by the temperature and the complaint of pain in joints and muscles, and even without symptoms, I am disposed to keep up its use for a long time. The alkalies it has not been my custom to use. Inasmuch as the rheumatic poison and the salicylates probably cause anemia I think the iron in the mixture just mentioned is a valuable addition. Iron, if not given in this mixture, should be administered in some form.

In the belief that in some cases the original poisoning may have occurred through the gums or throat, decayed teeth are filled and roots are extracted; chronically inflamed tonsils and adenoid growths are removed; the effort is made to put the mouth and throat in as clean and healthy condition as is possible.

The great indication of care and treatment is to improve nutrition, for unless the heart muscle receives and appropriates the proper nourishment all efforts will fail. With this end in view we feed the children as generously as possible. The appetite is stimulated by tonics and restoratives, for which purpose we use, iron, quinin, arsenic, strychnin, and as aids in nutrition, cod-liver oil, olive oil, marrow, whisky and wine. Meat is an important element in the diet. The hospital child is much more satisfactory in the matter of appetite than is the one in private practice, whom it is most difficult to feed sufficiently. I am convinced that many children suffer in the way of insufficient nutrition—the poor, because they cannot buy the food, and when they do get it they do not cook it properly; the rich, because the children are apt to be capricious in their appetite and will not eat. Many of these children do better in this respect when kept in bed. After a few weeks of rest in bed and generous feeding, the activity of the poison having subsided, the impulse of the heart will be found to be stronger, the hemoglobin will have increased, the child will have put on flesh and will have got over in great measure its nervous irritability. We use massage if it is feasible; but in the hospital it rarely is. We gradually allow the child to be up in a chair, and then some freedom of movement about the ward is permitted. The child is allowed to enter into play, or some of the light work about

the ward; for when I am satisfied that the exciting cause of the trouble has disappeared, and the heart muscle is properly nourished, I think it best to gradually accustom it to increased effort. As the individual gets further and further from the time when the endocarditis was active, I think we should allow increase of freedom, both in and especially out-of-doors, some one being on the watch to prevent or stop excessive strain or exercise. I do not think it wise or necessary to forbid participation in the ordinary games of childhood, for certainly the more natural the life of the child can be, the better will all its functions be carried on—all this, of course, within bounds. Where I have been sure that the child was under the care of a person of good judgment, I have assented to running and bicycle riding on a level and for short distances, believing that active exercise in the open air is the best tonic for the heart muscle. Up to a certain period it is best to keep the child in ignorance of its condition and even later to make light of it, for these children are more apt than are others to become hysterical.

The best guide that the plan carried out is bringing about the proper result is the general appearance and feeling of the individual; overdoing causes a pallor which is a danger signal and indicates further rest in bed. If we find that the child gains in color and flesh, gets tired less easily, is interested and eager for its play, and sleeps well, we have the best assurance that matters are going well.

The hospital children suffer for want of air, it being most difficult to secure for them out-of-door exercise. In the summer months this is obviated by a stay at the summer home at Norwalk, and some of the cases we are able to send to an adjacent hospital at Peekskill. The improvement which follows a few weeks in the country is extraordinary.

What we should aim to secure is a heart of healthy muscle capable of doing its work; if this can be secured it matters little what kind of noise the heart may make in doing its duty. If we find that any individual child is growing physically and developing properly, I think we can feel that the plan pursued is the proper one.

I have no doubt that special exercises under a careful and competent instructor are helpful; the difficulty is to find the person of good sense and judgment.

Some special conditions may demand particular care; thus

many of these children are poor sleepers, many are excessively irritable, some have chorea. As sleep producers I give warm baths at bed-time, malt preparations, codein, heroin, bromids. The coal tar derivatives I do not use, if it be possible to avoid them, since I believe they tend to cause anemia and so interfere with nutrition.

The irritability, fretfulness and choreic movements are due to nervous fatigue and faulty nutrition of the nerve elements in children having naturally unstable nervous organizations—the nutrition of the control centers is insufficient. If these children are kept in bed and their feeding is pushed while they are given tonics, the disturbed nervous system soon shows the benefit, and in a few weeks they are practically well. One drug which I am fond of using in this condition is asafetida. It seems as though the long recognized association of chorea and rheumatism can be explained by the anemia caused by the rheumatic poison and consequent faulty nutrition of the centers controlling muscular movements. At St. Mary's our ordinary chorea patients get well under the plan of treatment suggested, and while they improve in this way their hearts also improve.

To go back to the question of prognosis—if a child with a mitral valve allowing leakage—as shown by a regurgitant murmur, can be watched and somewhat restrained; if it can be kept in bed until the rheumatic poison and the active stages of endocarditis are past and then permitted abundant out-of-door, mild exercise with a generous diet consisting largely of meat, for such a child, I believe, the outlook, so far as long life and usefulness are concerned, is excellent.

As examples of proper and improper care, I wish briefly to detail histories of two cases in private practice.

About fourteen years ago in listening to the chest of a boy of about six years, I found a loud systolic apex murmur. The boy had been under constant care since his birth. There had never been any illness so far as was known which could account for an attack of endocarditis. Inasmuch as the boy seemed well no especial care was deemed necessary. He had scarlet fever in due time and had no complication; he went to school as any normal boy might do; he rode horseback and the bicycle, though he did not grow and develop rapidly; as years went by he seemed to grow in vigor and strength, and against advice, he took to riding his wheel inordinately—that is, he would

cover 100 miles some days. Though he had become rheumatic, he would bathe at Bar Harbor, where the water is cold, contrary to orders. Still all this he bore, and appeared to be well. When he was about sixteen he was dared to go up the fire-escape hand over hand, and this he did. It used him up so that he had dyspnea and some pain in his chest. He was put to bed and kept there for some weeks. He seemed to recover, but shortly contracted measles, developed pneumonia and died, his heart evidently not being up to the excessive strain put upon it. There has never been any doubt in my mind but that this boy, with any ordinary, reasonable amount of physical exercise, might be still living.

Another case which I have watched is this: About five years ago a girl of eight years had what appeared to be an ordinary attack of tonsillitis. It was, however, different from ordinary, as for several nights, when she seemed to be over the acuteness of the illness, she was very restless and talkative in her sleep. She seemed to recover, and yet for some months had occasional fever. It happened then that she was put in charge of a nurse who was antagonistic, and this caused frequent outbursts of temper, violent and prolonged. The child and nurse were parted after two or three weeks, but very soon it was noticed that the child's left shoulder drooped and she was disinclined to use the left arm and leg; she evidently felt weak. Within a few days choreic movements began on the left side. She was found to have a loud apex systolic murmur which was transmitted to the left and could be heard in the back. A stay in bed, the administration of sodium salicylate, salicin, iron, arsenic, forced feeding and malt soon stopped the chorea, and then gradually the child improved. The more she was kept in bed the better her temper; it was clear that nervous fatigue caused some of her tantrums. During the following summer she took salicin persistently; she was given her freedom in running about out-of-doors; gradually she began to grow and improve in all ways. During the spring months of two years following the attack of chorea, while she was going to school, there seemed to be a return of the nervous fatigue, as shown by irritability, fretfulness and some chorea. By keeping her in bed for a few days, giving her her breakfast in bed, and so gradually leading up to her regular life, she has gone on

without further trouble and to-day is as healthy a looking child as one can see. She runs, roller-skates, and rides a wheel. She still has a loud mitral regurgitant murmur, but I can find no enlargement of the heart. The aim has been to protect her from further rheumatic attacks and to push nutrition, and in this sentence I believe is summed up the whole management of this class of cases.

Tubercular Poison.—Angelo Maffucci (*Rivista Critica di Clinica Med.* No. 12) thus sums up his conclusions in regard to the transmission of the tubercular poison from parents to child: 1. The tubercular poison is more often transmitted than the bacillus. 2. The poison may be transmitted in the ovum, spermatozoön, or through the placenta. 3. The children of two tuberculous parents are most affected by the tubercular intoxication. 4. Embryonal intoxication is manifested as defective development, abortion, premature birth, death, and cachexia in extrauterine life. 5. The embryonal tissues not only oppose the development of the tubercle bacillus, but may even destroy it, and in so doing generate a toxic product which becomes fixed in the embryonal tissues. 6. Chicks born from infected eggs possess a greater resistance to the tubercle bacillus, and may even destroy it—a power not possessed by the chick or the adult fowl in which the tubercle bacillus is injected. 7. The children of tuberculous parents are not more susceptible to the tuberculous virus than those of healthy parents, and the greater frequency of tuberculosis among them must be laid to the charge of familiar contact, and to the possibility of a germ having been transmitted from embryonal life, and not to a specific hereditary disposition. 8. Hereditary tubercular intoxication can be largely overcome under good hygienic conditions. 9. The whole problem of these experimental researches shows that the prophylaxis and cure of hereditary tuberculosis is solved by rigorously enforced hygienic measures, by removing the child from the infected surroundings and placing it under the most advantageous conditions for health.—*The American Journal of Obstetrics.* May, 1900.

ARCHIVES OF PEDIATRICS.

FEBRUARY, 1901.

EDITED BY

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THE BACTERIOLOGY OF PERTUSSIS.

During the past three decades the etiology of pertussis has been the subject of numerous bacteriological investigations. The earliest of these may be relegated to the domain of medical history, having no scientific value, because they ante-date the introduction of accurate cultural methods. Of those made between the years 1883 and 1896 (a middle period, as it were), the most important is by Afanassjew, who examined the sputum of ten pertussis patients and cultivated a short bacillus which he looked upon as the specific cause of the disease. This view was confirmed by Ssemtschenko and by Wendt. Ritter's investigations led him to the belief that a diplococcus is the cause of pertussis; and this he maintained in spite of all contradictions.

Finally, in 1897, Czaplewski and Hensel published the result of their work, describing a small, poled rod, recalling the influenza bacillus morphologically, but differing from it in certain important cultural details. They consider it very possible that the bacillus which Burger found and pictured in 1883, but which he did not attempt to cultivate, is the same as the one they studied. Scarcely one week later than Czaplewski's article that of Koplik appeared, giving in detail the morphology and biology of a short bacillus which he thought was identical with the one described by Afanassjew ten years before. Koplik noted the fact that the bacilli were most readily isolated during the early, uncomplicated stage of pertussis, before the onset of bronchitis or pneumonia, when streptococci or diplococci are apt to obscure and overgrow them. Czaplewski and Hensel gave further details of their work in a later article, and found Koplik's bacillus to be nearly identical with theirs. Zusch calls attention to the fact that the Czaplewski-Hensel bacilli are most numerous and in a state of almost pure culture during the catarrhal stage, when the contagious period is at its height.

Walsh (1900) found the Czaplewski-Hensel bacillus in the sputum during life, and once in the trachea at autopsy. An especially interesting feature of Walsh's paper is the attempt at serum therapy. Since one attack of pertussis grants an almost perfect immunity, it was thought probable that the serum of persons who had had an attack might contain an antitoxin. Using his own serum (having had pertussis at the age of five), injections were given to seven patients. A marked improvement followed in all cases, the whoop ceasing for two or three days; at the end of that time it returned in all but one case, in which it had permanently disappeared. The question is suggested whether larger and repeated doses are necessary, and further experiments in this direction are certainly indicated.

The latest work was done by Luzzatto during an epidemic of whooping-cough at Graz. He cultivated the bacillus described by Koplik, and classified it as one of the influenza group. From

the pseudoinfluenza bacillus it is readily distinguishable by its morphology, and from the influenza bacillus itself by its mode of growth on the ordinary media. Positive proof that this bacillus is the cause of pertussis is lacking so long as its differentiation from forms found in other diseases is impossible (it was present in a case of putrid bronchitis and bronchiectasis) and its specific character has not been established by means of animal experiments; these have hitherto been unsuccessful.

The exact bacterium of pertussis is, as yet, by no means established. While the protozoon described by various authors (Henke, Deichler, Kurloff, Behla) may be discarded, and the cocci found by others may be considered as some one of the forms of streptococcus frequently present on the respiratory mucous membrane, the weight of evidence at present points toward a bacillus of the influenza group as being the probable specific cause of the disease.

Arteriosclerosis of Myocardium.—G. Berghinz (*Gazetta degli Ospedali*). An infant, eighteen months old, died suddenly in the midst of apparent health, with sudden, paroxysmal dyspnea, accompanied by a spasmodic cough and intense cyanosis, with transient symptoms of edema of the lung, but no fever nor renal symptoms, nor indications of convulsions, laryngeal spasm nor of the habitus thymicus. The autopsy disclosed the typical lesions of congenital syphilides, localized chiefly on the myocardium in the form of arteriosclerosis of the heart. No syphilitic history on the part of the parents could be learned. The same syndrome and lesions were observed in a similar case in which the syphilitic antecedents of the father were proved beyond question. The *Cbl. f. Kindhk.* for June contains a summary of twenty-two cases of hereditary syphilis affecting the automatic ganglia of the heart, showing the possibility of interstitial myocarditis from proliferation of the connective tissue of perivascular origin, as in observations described above.—*The Journal of the American Medical Association*. Vol. xxxv., No. 4.

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Medical Diseases of Infancy and Childhood. By Dawson Williams, M.D., Physician to the East London Hospital for Children. New (2d) edition revised with additions. By F. S. Churchill, A.B., M.D., Instructor in Diseases of Children, Rush Medical College. Pp. 538, illustrated. Philadelphia and New York: Lea Brothers & Co. \$3.50.

When the first edition of Dr. Williams' book was reviewed in these pages it was stated that there were some defects which were particularly noticeable, as for instance the chapters on infant feeding were inadequate and needed extension. In the new edition edited by Dr. Churchill, there are many additions to this important section, and also to other chapters. The whole subject of infant feeding has been extended by bracketed addenda written by the American editor. These deal with the composition of breast milk, the control of breast milk, cream mixtures, milk laboratories, home modification and regulations of diet. The work of Rotch is followed and his scientific investigations are recorded. They compare most favorably with the proprietary foods mentioned by name in the original text.

To the chapter on acute specific infectious diseases the editor has added a description of Koplik's spots with colored plates illustrating their appearance.

The diplococcus described by Class as being present in scarlet fever is mentioned without comment as to its certain presence in scarlet fever.

Lumbar puncture is conceded to be a valuable diagnostic aid in cerebrospinal meningitis, but there is no consideration of its therapeutic value.

The chapter on cretinism is lengthened by reports of American cases with half-tone reproductions from photographs showing the results of treatment by thyroid extract.

Among other additions by the American editor may be noted paragraphs on the normal blood in early life, immunization with diphtheria antitoxin and the use of tuberculin.

The new edition conforms to the U. S. Pharmacopeia and the prescriptions are thus made more practical for use in this country.

An author who is not always emphatic in his statements is at a disadvantage when his work is edited to show a more positive view than might be acceptable to him. Dr. Churchill has given himself a proper position by stating the American views on subjects that are important and if he does not always agree with the text it is because he makes use of the observations of American pediatricians, which are somewhat different from those quoted by English authorities.

The book is a satisfactory one and the American editor has added to its value. As it is readable and concise it should have a large sale.

Society Reports.

THE NEW YORK ACADEMY OF MEDICINE—SECTION ON PEDIATRICS.

Stated Meeting, November 8, 1900.

THOMAS S. SOUTHWORTH, M.D., CHAIRMAN.

PYELONEPHRITIS IN A CHILD; NEPHRECTOMY AND RECOVERY.

DR. LOUIS FISCHER reported this case, and exhibited the patient. (See p. 13.)

DR. A. JACOBI said that besides others Dr. Holt had pointed out the fact that pyelitis is not so rare in children as is commonly supposed. It was known that nephritis is not unusual among the newly born, and that uric acid infarcts of the kidney are often met with in these infants between the third and twenty-second days of life.

ENLARGED THYMUS.

DR. HENRY HEIMAN presented a male child, three and a half months old, who had a peculiar whining cry and had frequent short attacks of cyanosis. Examination showed an increased area of dulness over the thymus.

DR. A. JACOBI, after an examination of the baby, said that he hesitated to attribute all the symptoms to the enlargement of the thymus. In percussing for an enlarged thymus it should be remembered that this examination was greatly facilitated by placing the little one in the prone position. In this infant auscultation revealed a systolic murmur at the second rib, but he did not care to express an opinion concerning the significance of this murmur without repeated examination.

DR. C. G. KERLEY said that in two cases of sudden death in convulsions, that had come under his observation, the autopsy had shown the presence of a greatly enlarged thymus.

DR. E. LIBMAN said that he had made autopsies on 4 cases presenting enlargement of the thymus. Two of these cases had presented an edema of the thymus following extensive burns.

REPORT OF A CASE OF INFANTILE SCURVY WITH SOME UNUSUAL FEATURES.

DR. FRANCIS J. MURRAY reported this case, which occurred in an infant that had been breast-fed for three months or more, and after that had received a mixture of thick barley gruel with good cow's milk. The symptoms had first developed shortly after an attack of pneumonia, but they had lasted about one month before he had seen the child. Examination at that time had shown nothing distinctive about the gums, and the child was well nourished. The mother had been told to continue the same diet, only adding expressed beef-juice. He had not seen the baby for one week, and had then found the gums of a dark purple, and the seat of blebs. The only change made was to give orange juice freely. In three days the child was almost well. The case was reported to show the effect of change of diet in a child that had been previously fed on good food and was at the time in a good state of nutrition.

DR. KERLEY said that he had had 24 cases of scurvy, and more than half of them had developed this disorder while on a good diet. The reason for its development in such cases was to be found in malassimilation.

DR. WALTER LESTER CARR remarked that this report was useful as showing the marked influence exercised by orange juice over scurvy as the baby had at once improved when it was administered and without other change in the diet.

REMARKS ON THE PATHOGENESIS AND PROPHYLAXIS OF ACUTE RHEUMATIC FEVER IN CHILDREN.

DR. HENRY HEIMAN read this paper. (See p. 31.)

DR. A. JACOBI commented on the trend of modern opinion in the direction of microbic theory of rheumatism. It was not improbable that staphylococci and streptococci, and perhaps other microorganisms were concerned in the production of "rheumatism." There was good reason for believing that these germs gain entrance through the throat in many instances. Charcot had pointed out that trauma was a cause of acute rheumatism, and Verneuil had noted that it developed often after contusions and fractures. When as a result of a trauma the circulation of a part is impeded, the cocci in the blood are not eliminated as they are under normal conditions, and may remain fixed. This seemed to explain

the frequency with which the joints, or rather the periarticular tissue, are affected by rheumatism, and also why the lower extremities are affected in 75 per cent. of the cases of acute rheumatism. The same thing occurs in tuberculosis. As a matter of prophylaxis large tonsils should be excised and adenoids removed. It was not always necessary to scrape them away, for the smaller adenoids would often disappear if the nasal passages were regularly washed out twice daily with normal saline solution. This irrigation removes the mucus which is a nidus for microorganisms. Again, anemia, especially of the body surface, should be controlled by cool baths and frictions, and by remedies directed to improving the quality of the blood.

DR. JAMES J. WALSH said that most of the so-called rheumatic complications were now looked upon as probably secondary, and hence the importance of cleansing the digestive tract as well as the nasal passages. Opinion in Europe at the present time was in favor of using the salicylates for relieving the symptoms of rheumatism, but not for treating the rheumatism itself. Certainly the salicylates cannot act merely as antiseptics, for other and more potent antiseptics do not possess the power of the salicylates to relieve the symptoms of acute rheumatism. They relieve the pain and fever, but do not seem to shorten the duration of the disease. Immobilization of the affected joints was not to be commended because of the consequent interference with the circulation of the parts.

DR. E. LIBMAN was inclined to believe there was a good deal in the lactic acid theory of the origin of rheumatism, and that when the specific organism of rheumatism is discovered it will be found that it is capable of producing a large quantity of acid. It was now known that nearly all bacteria produce acid in the presence of sugar, and that there is normally in the human body 1-10 per cent. of glucose. It was well known among clinicians that alkalies do more than other remedies towards preventing the cardiac complications of acute articular rheumatism. Recurrent attacks of rheumatism he believed were not due to new infections, but to outbreaks in the body of the causative agents left there from the previous attack. For this reason he was disposed to accept the view of the reader of the paper regarding prophylactic treatment.

DR. A. JACOBI said he felt sure that he had prevented many attacks of rheumatism, and the complicating endocarditis by instructing his patients to keep the salicylates in their homes and take them on the first sign of rheumatism. He had employed the old alkaline treatment in the early years of his treatment, and was of the opinion that it could not prevent a disease of the heart before the rather specific action of the salicylate of sodium became available.

DR. N. OPPENHEIM said that many so-called predispositions were probably only states in which the blood contains micro-organisms. Trauma may enable these organisms to find lodgment.

DR. KERLEY considered the salicylates too dangerous to be recommended indiscriminately, though they were useful where an endocarditis had already developed. The cool spinal douche had proved a useful measure in his hands.

DR. HEIMAN, speaking of the action of the salicylates, pointed out that Prudden had shown that they are poisonous to the protoplasm of cells and prevent the migration of the white cells. Unfortunately cases of nephritis do not stand the salicylates well, probably they are retained in the system, and are then split up into carbolic acid.

Epidemic of Pneumococcus Septicemia in Nurslings.—Lesage (*Bu. des. Soc. Méd. des Hôp. de Paris*, March, 1900) says: 16 nurslings at the Trousseau Hospital, last August, were affected with a sudden acute septicemia, fever 41 C., with violent dyspnea and evidences of general infection. All died except 1, and the epidemic died out in five days, from lack of further subjects. No lesions of any importance were found, but the bronchi were filled with an intense culture of pneumococci. Similar epidemics have been observed with streptococci, but Lesage has never found the pneumococcus pure before. There was slight diarrhea in a few cases.—*The Journal of the American Medical Association*. Vol. xxxiv., No. 16.

THE PHILADELPHIA PEDIATRIC SOCIETY.

Stated Meeting, December 11, 1900.

DR. ALFRED STENGEL, PRESIDENT.

DRS. CHARLES H. FRAZIER and A. L. NEWHALL exhibited a patient upon whom had been performed

A PLASTIC OPERATION TO REPAIR A DEFECT UPON THE PALMAR SURFACE OF THE HAND.

The patient was a colored boy, ten years of age, whose left hand had been severely burned two years ago. The contractures of the cicatrix had caused no little disability. The thumb was so adducted and the fingers so flexed that the patient could not open his hand to grasp an object. Furthermore, the development of the affected hand had evidently been partially arrested by the cicatrix as the unaffected hand was already very much larger.

The first step of the operation consisted in excising the cicatrix; its removal left a defect to be repaired over an area corresponding in size to the palm of the hand. Rather than resort to skin grafting or to the use of a pedicled flap from the chest or abdomen, the following plan was executed: Two parallel incisions one and one-half inches apart, and as long as the width of the palm, were made over the buttock through the skin and subcutaneous fat. The tissue between the parallel incisions was dissected free from the underlying structures, thus a flap was fashioned, two sides of which were free and two attached. The hand was pronated and slipped in under the flap in such a way that the raw surface in the palm of the hand was in perfect apposition with the under surface of the flap. Sutures were introduced approximating the edges of the defect to the edges of the flap. A heavy plaster dressing including the trunk was applied in order to immobilize the parts and ensure absolute rest. The wound was dressed at the end of the first week, and at the end of the second, or on the fourteenth day, the hitherto unattached sides of the flap were severed and the edges united by sutures to the corresponding sides of the defect. By this time an anastomotic circulation had been established thus assuring sufficient nutrition. Primary union took place through-

out. At present the child can completely flex and extend the fingers and thumb so that the results may be said to be in every way satisfactory. There is a considerable pad of adipose tissue in the flap, which in no way interferes with motion and will no doubt in course of time, become absorbed.

DR. C. F. JUDSON exhibited

A CASE OF SPASTIC PARAPLEGIA FOLLOWING TRAUMATISM,

which occurred in a child five years of age. The father had died of diabetes, and the six other children in the family had begun to walk only when about two years old, otherwise the family history was entirely without interest. There was an absence of any family history of paralysis early in life. This child had had some infantile atrophy but had recovered from it, and had begun to walk when eighteen months old. It had had typhoid fever, measles and chicken-pox some years before, but never had convulsions. In January, 1900, while standing on a chair, the child fell to the floor and became unconscious and remained so for ten minutes. There was general muscular rigidity and dilatation of the pupils, according to the mother's statement. There was no evidence of any injury to the head, and no visible hemorrhage from the scalp, eyes, ears or mouth. The child recovered after a few moments and seemed perfectly well throughout the remainder of the evening. Speech was wholly unaffected. The next day it was well, excepting for some clumsiness in the leg movements; this increased slowly, and five months later there was said to have been distinct rigidity of the legs. By September the gait had become decidedly spastic, and in October, when admitted to the hospital, the child could not walk or stand unassisted. When aided in walking its gait was typically spastic, the toes catching against the floor, the knee jerks were much exaggerated, ankle clonus was present, but Babinsky's reflex was absent. The muscles were well preserved and vigorous. Coordination, the sense of locality, muscular sense and heat and cold sense were good; the tactile sense was at first below par, and the pain sense delayed, but, upon recent examination, both these senses seemed normal. There was no involvement of the bladder or rectum, and the electrical reactions were normal. The mental condition was unaffected. There was no distinct evidence of rickets, and the child was well nourished. It was considered to be a degeneration of the lateral pyramidal tracts

following traumatism, since there was no evidence of injury to or disease of the vertebral column. Since there was at one time some sensory disturbance it was believed to be probable that there was a transverse myelitis following either slight fracture, dislocation, or a punctiform hemorrhage into the thoracic area of the cord. There was no family history that would point to hereditary spastic paralysis, and there were no cerebral symptoms to indicate a cerebral palsy. The child had been treated by prolonged warm baths, iodids, and rest in bed, and had improved considerably, the ankle clonus having disappeared and the spasticity having become much less. The child can now stand alone, and with little difficulty walk alone.

DR. GRIFFITH said that in spite of the fact that it has been carefully looked for he could not get rid of the thought that there was possibly Pott's disease present. The child has the symptoms of compression myelitis, and the fact that it has grown better is suggestive of the compression being due possibly to Pott's disease which is improving. It would be interesting to know whether there are any reactions of degeneration. It is not at all impossible that it is due to a chronic meningitis. Hemorrhage could be excluded because of the very slow onset.

DR. JUDSON replied that the electric reactions had not given the reactions of degeneration. He thought Pott's disease had so far as possible been excluded. There were absolutely no sensory symptoms, and there had been none at any time excepting a doubtful reduction of the tactile and pain senses upon admission to the hospital. There are no points of tenderness along the back; pressure upon the spine, tapping over the spine, and the passage of very hot objects along the spine caused absolutely no distress. There was no deformity of any kind, the child can jump to the ground without pain, and all other tests for the presence of Pott's disease are entirely negative.

DR. ALFRED STENGEL exhibited four cases of

ACUTE ANTERIOR POLIOMYELITIS IN YOUNG CHILDREN

between the ages of eighteen months and two years. The cases were of interest because of the fact that the paralysis had from the beginning been of very limited extent. There was possibly an exception to this in one case, as the history stated that in the very beginning the child had been unable to move the other

limbs, but the history was in many points a very unreliable one, and was probably untrustworthy in this point also, as there had been no evidence of any involvement of the other limbs since the child had been in the hospital. Entire limitation to one limb in the early stages is unusual. After some time had passed it is not uncommon to find the paralysis practically limited to one member, but there is usually in the early stages more or less involvement of some of the other limbs. Three of the children showed paralysis of one leg, the other paralysis of the left shoulder, arm and forearm alone. The latter case at first sight suggested Erb's upper arm paralysis, but this was soon excluded by the discovery that the lower arm was quite as much affected as the upper. There was severe atrophy of the deltoid muscle, and marked atrophy of the upper and lower arm muscles, with some wasting of the pectorals. The deltoid and the muscles of the upper and lower arm showed no reaction even to the strongest faradic current. There was some history of pain at the onset of the attack, but the history was very questionable. Excepting for this localized paralysis the child was entirely well. Another case was of a good deal of interest because while the right leg was paralyzed and flaccid there was some rigidity in the left leg, and pain upon movement of this member. The knee jerk on the right was entirely absent, and that on the left was much reduced. The left leg had usually been kept flexed and somewhat rigid, but the rigidity had recently almost disappeared and at times had been entirely absent, apparently depending considerably upon the volition of the child. The response to faradism in the right leg was entirely gone but was active in all the muscles of the left leg. There was some suspicion of neuritis in this case because of the signs in the left leg, but the pain was dependent upon movement. There was never any tenderness over the nerve trunks, and the paralysis was too widespread, complete and sudden to be readily explained by the assumption of neuritis. All the children had given a history of the usual onset of anterior poliomyelitis, with fever, gastric disturbance, and symptoms of a general infection. The course of the disease had been marked by complete palsy of the affected parts and entire absence of sensory symptoms. In discussing the cases with Dr. Spiller and other neurologists, it was noted that all had recently seen a large number of cases of anterior poliomyelitis, and it was suggested by Dr. Spiller that perhaps the disease is now endemic in Philadelphia.

DR. PETER had recently seen a case similar to one of Dr. Stengel's cases. The child's left leg was injured, and paralysis came on immediately after the injury, without fever, vomiting, or other general disturbance; it was thought probable by the family physician that the case was one of injury to the great sciatic nerve. The condition of the child now, however, is typical of acute anterior poliomyelitis. It exhibits marked atrophy of the muscles of the left leg and complete palsy. In connection with the suggestion that the disease is now endemic he would say that he has recently had an unusually large number of cases under his care at the St. Christopher's and Medico-Chirurgical Hospitals.

DR. D. M. J. MILLER said that Dr. Stengel spoke only of the reaction to faradism in his cases, but he would like to ask him about the effect of the galvanic current. It seemed to him that the case which shows paralysis of the arm and shoulder was open to question, and may be a neuritis. A localized paralysis of the arm does occur in acute anterior poliomyelitis, but is rare, and he thought it worth while to determine the effect of galvanism in attempting to exclude neuritis.

DR. WESTCOTT stated that the suggestion that acute anterior poliomyelitis may be endemic at present reminded him that he saw recently, in his service at the Methodist Hospital, a typical case of this affection in a young man of twenty years of age. The occurrence in an adult of a disease so peculiarly one of childhood, seemed to bear out the idea that the disease may be unusually prevalent at the present time.

DR. STENDEL replied to Dr. Miller's question by stating that the hospital does not possess a galvanic battery, and he had not yet been able to try the reaction to galvanism. There was, however, not the least response to the strongest faradic current, and this he took to be presumptive evidence of the presence of reactions of degeneration. The mere reduction of faradic irritability would, of course, not indicate this necessarily, but usually when the response to faradism is entirely lost we may safely say that reactions of degeneration are present.

DR. J. P. CROZER GRIFFITH exhibited

A CASE OF GYROSPASMUS

in a colored child of one year. She was slightly rachitic but her general health was good.

DR. ESHNER agreed with Dr. Griffith in the statement that these cases are not common, but he thought that they are hardly so rare as the remarks would indicate. In the out-patient service at the Orthopedic Hospital he gives several cases each year. He thought that examination of the reports of these cases would show that rickets was always noted as present, also the disease is practically never seen after the second year. The first two years of life are those in which active rickets is most commonly seen, and it is probable that the disease is closely related to rickets, or at any rate dependent upon some marked nutritional disturbance.

DR. D. J. M. MILLER said he had reported 3 cases of this affection (ARCHIVES OF PEDIATRICS, 1900), and in going over the literature collected altogether 78 cases. In the first place he would direct attention to the fact that the name "nodding" spasm is an incorrect one, since the movements are not spasmodic but are usually distinctly rhythmic. As to the etiology there is practically always some distinct nutritional disturbance, and most commonly this is rickets; 50 per cent. of the 78 cases showed distinct signs of rickets. There is often also a history of a recent attack of illness; measles particularly is noted as having preceded the attack in 7 cases, 1 of them being one of his own cases. Henoeh thought that there was a close relation between this affection and the eruption of the teeth, and it is worthy of note that 67 of the 78 cases occurred between the sixth and eighteenth months of life, the period during which most of the teeth appear. The effect of teething, however, is probably only a predisposing one. Raudnitz has particularly directed attention to the fact that nystagmus is seen in all cases at some time during their course. The course is always favorable, being as a rule two or three months in duration, after which time the "nodding" spontaneously ceases. Raudnitz investigated the homes of many of his cases, and found that the houses were poorly lighted and that there were other opportunities for eye-strain, and he claims also that the movements cease when the eyes are closed. He is very positive in attributing the affection of eye-strain. Dr. Miller looked carefully for any possibility of eye-strain, or factors which might produce eye-strain, in his 3 cases, and was unable to discover any such. The treatment by bromids and antispasmodics, usually recommended, is not necessary, attention to hygiene and roborant measures being all that is required.

DR. L. C. PETER exhibited a

CASE OF LARYNGEAL HABIT SPASM

in a boy of fourteen, who had six attacks of chorea during the last four years. The symptom developed three months ago during an attack of chorea and consisted in a vocal sound about the pitch of the natural voice, repeated every few minutes particularly under excitement. A laryngoscopic examination showed the vocal cords normal in size and color, but occasionally suddenly drawn together in spasm, held for a moment, and suddenly relaxed explosively, when the click was heard. The phenomenon ceased during sleep and was not present while conversing.

It was regarded as a habit spasm and not a symptom of chorea, because habit spasms frequently occur in choreic subjects, and because the phenomenon is a bilateral coordinate movement, whereas the movements of chorea are always incoordinate, and affect individual muscles rather than physiological groups; and also because the condition has improved under suggestive therapeutics and now can partly be controlled by the patient.

DR. S. RUSH KETCHAM and DR. L. C. PETER exhibited a case of

TUMOR OF THE CEREBELLUM

in a boy of seven years. The child was to all appearances healthy until he was twenty-two months old, when he first began to walk. He never walked well, but staggered and fell without apparent cause. About the same time he developed vertical nystagmus in both eyes and after several years lost vision in the right eye, had severe head pains, vomited, and became awkward in the use of his hands. He had a typical titubating gait, static ataxia, increased reflexes, incoordination of hands and choked disk in both eyes. There was no convulsions, no vertigo, and the touch, pain and temperature senses were normal.

There was a vague history of tuberculosis in the family, but the child's appearance was excellent and did not suggest a tubercular soil. Because of the child's excellent general health, aside from the symptoms of new growth, and the slow progress of the symptoms, the neoplasm was thought to be a glioma.

DR. KRAUSS said that the second child shown was originally brought to the eye clinic of St. Christopher's Hospital for what the family considered to be near-sightedness. There was at that time in the right eye a vision of movements only, at 10 cm., and the light field of the right eye was greatly contracted. In the left eye there was a vision of 5-15. The fields could not be satisfactorily taken. At a later examination he found the arteries almost obliterated and the veins much narrowed. At this last examination he found the vision in the right eye nil, and in the left eye vision for finger movements only, barely more than light perception.

DR. ESHNER wished to make a point concerning the nomenclature. In the first case it seemed to him that "tic" is a preferable name to "habit-spasm" or "habit-chorea." The condition is not really a habit in the proper sense of this term, and he believes it has nothing to do with chorea. He thought this is at present the generally accepted belief. A distinct difference from real chorea is the fact that the same movement is repeated many times; and while he had seen a good many cases of chorea he had never seen laryngeal movements in a true instance of this affection. To be sure arsenic may do good in these cases, as it has in the one reported, but he did not think the effect could be compared with the almost specific effect seen in real chorea. The influence seems rather to be that of a general tonic. In the second case, he would suggest that the atactic movements of the hands are not impossibly due to the poor vision.

DR. PETER said that as to the last suggestion he would say that some time ago when vision was present the atactic movements were much more marked when the eyes were covered, which indicates that the present poor vision does at least increase the appearance of ataxia.

DR. JAY F. SCHAMBERG and DR. H. B. KEECH reported

A CASE OF ACUTE FATAL PEMPHIGUS.

The patient was a girl of five who developed an outbreak of blebs ten days after being vaccinated. The eruption, which began on the shoulder of the vaccinated arm, spread rapidly in successive crops, and soon involved the entire trunk and parts of the face and extremities. At the end of ten days the patient developed diarrhea with green stools, sank rapidly and died three

days after her admission to St. Christopher's Hospital. The febrile movement during the time the patient was under hospital observation fluctuated between 101° and 103°. Smear preparations of the fluid of recent blebs contained numerous micrococci, these when grown upon culture media proved to be the staphylococcus aureus and albus. They were not regarded as bearing a causative relation to the disease. The authors look upon acute pemphigus as a disease of infectious origin, and believe that in the case reported the infection may have gained entrance to the system through carelessness in treating the vaccine wound. No autopsy could be obtained.

DR. R. A. CLEEMANN reported

THIRTY-FIVE CASES OF DIPHTHERIA SEEN IN PRIVATE PRACTICE
TREATED BY ANTITOXIN.

His method of giving the remedy was in his early experience, to administer an initial dose of about 1,000 units, repeating the dose the next day if the result seemed unsatisfactory; he now gives an initial dose of 2,000 units, rarely finding it necessary to give a second dose. The results have been extremely satisfactory, only four deaths occurring. One of these deaths occurred six hours after the administration of the antitoxin, and another two hours after the antitoxin was given. Both of these were in extremely severe laryngeal cases which were practically moribund when first seen. As it is not claimed that the antitoxin could avert death in so short a time it seems unfair to include these in the reports on the effects of antitoxin. In a third case the child, an infant of eighteen months, had improved considerably, but died after a sudden violent attack of gastrointestinal disturbance. The case occurred in the middle of August, and it seemed highly probable that this child really died of cholera infantum rather than of diphtheria. The other fatal case was one of the earlier cases treated, and received only 1,000 units of antitoxin. Ten of the 35 cases showed laryngeal involvement; 2 of these, as mentioned, were fatal soon after first seen, and the remaining 8 recovered, 3 of them after intubation had been undertaken. Urticaria was seen in only 2 cases after the use of the antitoxin. Paralysis was observed in but one instance. Dr. Cleemann particularly spoke of the remarkable change in the course of the laryngeal cases since antitoxin has been introduced. In earlier years he had grown accustomed to the belief that a

child with severe laryngeal involvement in diphtheria would almost inevitably die. Since he has used antitoxin he has almost come to believe that these cases will usually recover. A summary of the cases in tabular form follows:

No. of Case	Age	Days Sick Before Injection	Amount Injected	When Well	When Died	Operation	Laryngeal Cases	Remarks
1	3y	4	{ 500 700	3d			Larynx	
2	4y	5	{ 1000 1000	2d			Larynx	
3	3½y	3	{ 1000 1000 1000	6h			Larynx	Urticaria
4	5½y		{ 1000 1000	4h				
5	1½y	6	800		2d			Cholera Infantum
6	1½y	4	1000		6h		Larynx	
7	6y	2	1000	4h			Larynx	
8	9y	1	{ 1000 1000	5h			.	
9	5y	1½	2000	6h				
10	4y	1	{ 1000 1000	5h				2 Attacks
11	4y	½	{ 1000 1000	3d				
12	6y	½	2000	3d				
13	5y	¼	2000	5h				
14	4y	¼	3000	6h				
15	2y	¼	1000	3d				
16	3y	¾	1500	2d				
17	5y	2	2000	5h				
18	1½y	1	1000		4th d			Fracture of Thigh
19	4½y	2	2000	5th		Intubation	Larynx	
20	10y	2	2000	7th				
21	8y	1	2000	5th				
22	2½y	1	2000	5th				
23	2y	4	2000	2d				
24	4½y	½	2000	5th				
25	6y	(?)	{ 2000 1000	7th		Intubation	Larynx	
26	6y	½	2000	3d				
27	6y	1	2000	4th				
28	5y	(?)	1000		2h		Larynx	
29	6y	1	1000	2d				
30	5y	3	2000	2d				
31	8y	¼	2000	2d				Urticaria
32	3y	3½	2000	12th		Intubation	Larynx	
33	5y	1½	1000	5th				
34	3y	2	{ 1000 1000	6th				
35	2½y	(?)	5000	3d			Larynx	Paralysis

DR. J. E. TALLY said that in looking over his own records he saw notes of 27 cases treated with antitoxin, which demonstrate the importance of giving the remedy early. In 24 of these antitoxin was given before the fourth day, and usually before the third day, and in none of these cases was there a fatal issue; 4 of them were extremely severe; 15 were moderately severe, and 5 were so mild that in the days preceding the general use of cultures from the throat they would hardly have been considered to be diphtheria. The 3 cases which were given antitoxin after the fourth day all ended fatally, a sufficient indication, he thought, that it is essential to give the remedy as early as possible. Of the total number of cases only 1 exhibited a rash after the use of the antitoxin.

DR. JOPSON said that there has been a good deal of discussion lately of the proper method of administering antitoxin, and particularly of the proper initial dosage. Dr. Musser, for instance, recently described his method as the use of small doses, about 500 units, frequently repeated. He thought the value of Dr. Cleemann's method of beginning with a large dose, about 2,000 units, is demonstrated by the very satisfactory results which he has seen, particularly in his laryngeal cases. In cases of this kind it is essential that a strong blow should be struck at once, with the idea in view that we must so far as possible limit the laryngeal involvement in its early stages if we are to have successful results. Even though antitoxin is given in large doses in the early stages it will not infrequently be necessary to intubate, even if the membrane is cast off or is very limited in extent, because a great deal of stenosis in these cases is due to submucous swelling. There has also been considerable discussion as to the propriety of doing intubation in private practice. Laryngeal cases of diphtheria that need intubation are most commonly seen in the poorer classes where it might be thought proper after treatment and nursing would be very difficult to carry out, and particularly on the continent of Europe there has been a general impression that the child should be removed to a hospital before the operation could be safely done. It has been abundantly proven, however, that inability to remove the child to the hospital is certainly no contraindication to intubation. The successful results in Dr. Cleemann's three cases, as in many others, demonstrate that intubation can usually be successfully practiced in private.

DR. SEILIKOVITCH reported a case as

ONE PROBABLY OF ANGIONEUROTIC EDEMA IN A RHEUMATIC AND SCORBUTIC SUBJECT.

The child was a male two years of age which was breast-fed for nine months. The mother developed influenza, pneumonia and typhoid fever during her fifth month of pregnancy, and was in bed for about five months. The child showed first a circumscribed edematous swelling of the dorsal surfaces of the hands. After a considerable time the knees swelled, the neck became stiff, the feet edematous, and very sensitive, especially upon movement. The axillary and inguinal glands became enlarged, the face was pale, the expression apathetic, the bowels were loose. The urinary examination was negative, the appetite remained good. There was no bleeding from the gums and there were no ecchymoses. The lungs were normal; the heart was normal excepting for some weakness of the sounds and the spleen and liver showed no change. The temperature oscillated between 100° and 102.8° . The child was ill for eight months, and the disease terminated fatally. Four days before death the temperature dropped to normal, and after a temporary improvement severe jaundice came on, the case ending with profuse hemorrhage from the mouth, the blood apparently coming from the lungs. The edematous condition of the hands persisted until death.

DR. GRIFFITH admitted that the case was to him an entire puzzle. He had never been able to dismiss the thought of a nephritis without albuminuria, a condition which certainly occurs with some frequency and which seemed to him to be the most satisfactory explanation in this case. Dr. Seilikovitch's suggestion that it was a scurvy was a very rational one, and in most points is very satisfactory, but the fact that there was no improvement in the symptoms and that a fatal pulmonary hemorrhage occurred in spite of antiscorbutic treatment is certainly a point of considerable importance against the possibility of its being scurvy.

Current Literature.

SURGERY.

Giddings, W. P. : A Case of Volvulus Complicated by Peritonitis; Operation ; Recovery. (*Boston Medical and Surgical Journal.* Vol. cxliii., No. 7.)

A boy aged fifteen years had a fall while at play, and soon afterward developed pain over the abdomen. The next day this symptom had become so severe that the diagnosis of intestinal obstruction, probably from impaction was made. Medical treatment was continued without success for over twenty-four hours, and up to the time when peritonitis began to manifest its presence. On the following day laparotomy was performed under favorable surroundings. Upon opening the abdomen a quart of bloody fluid escaped. Intestines freely coated with lymph but no adhesions had formed. After taking out half the intestines a twist was found. The mesentery was not redundant, as is usually the case in volvulus. The twist was readily reduced and the bowels replaced. The boy made a rapid and smooth recovery. The promptness and thoroughness with which the patient recovered are ascribed by Giddings to his custom in such cases of flushing the peritoneal cavity with the saline solution; at least a pint being left within.

Wallace, Jas. R. : Suppurative Peritonitis; Spontaneous Evacuation; Recovery. (*Lancet.* No. 4010.)

A four-year-old English girl, residing in India, was attacked by a subacute intestinal affection, characterized by meteorism, abdominal tenderness and fetid, slimy movements, with occasional diarrhea. The child was cachetic and had moderate rise of temperature. Under the simple remedies apparently indicated, the child seemed to have nearly recovered when a relapse occurred of such severity that a diagnosis was made of peritonitis, probably tuberculous in character. The presence of peritoneal transudation, with likelihood of suppuration, led to the performance of laparotomy. But before the operation could be performed, and in connection with the preparation of the integument, an attempt to detach some adherent dressing was followed by spontaneous escape of pus through the abdominal

wall. No less than twenty-four ounces escaped, under considerable pressure. The pus was perfectly healthy, and the operator contented himself with completing its evacuation by gentle pressure from without. The point of escape was above the umbilicus. No attempt was made to interfere with the peritoneal cavity or the rupture, the only treatment being a simple external application of iodoform covered with boric wool and iodoform gauze.

The child was discharged cured on the seventeenth day following the rupture, her general condition having also undergone a complete change for the better.

Wallace regards this experience as demonstrating that under ordinary conditions laparotomy and aseptic irrigation are the best means of filling the indications in tuberculous peritonitis, his own case being, of course, wholly exceptional.

Bell, W. Blair: Acute Infantile Intussusception, with Special Reference to Treatment by Primary Laparotomy. (*Edinburgh Medical Journal.* No. 541.)

The disease is fairly common, and has a death-rate of 70 per cent. This most serious disease is essentially curable by operation.

The operative mortality is heavy—52 per cent.—but this result may generally be traced, with great probability, to time lost in attempts to reduce the intussusception by manipulation and injections. In every case, before operation, opium should be given to quiet the bowel, and always in the form of suppositories. No ingesta of any sort are allowed. After peristalsis is arrested, $\frac{1}{60}$ of a grain of strychnin may be given hypodermically, while a nutrient suppository or a little brandy may be administered by the rectum.

The incision should be made as nearly as possible over the tumor, and need not be over two inches in length. The invagination should be reduced by combined bimanual pressure.

The younger the child, the more serious is the prognosis. As a rule the patient has already had his vitality lessened by the sickness and starvation which result from the disease, and this necessarily prejudices the prognosis.

In the case of an irreducible intussusception, it is necessary to do a more extended operation. If adhesions are present they are freed, after which the intussusception is reduced by

pressure from below, and the incision is then closed with a Lembert suture. The operation of enterectomy does not appear to have any justification save in cases of gangrene or extreme congestion. If much collapse is present the peritoneal cavity should be flushed with hot saline solution. More brandy and strychnin should be given the patient and heat applied to the body.

Perhaps the after treatment is the most difficult of all, as the infant may have been without food for at least twenty-four hours, and it would seem to be justifiable to give him some kind of nourishment at once. If the fasting has not been of long standing—less than twenty-four hours—a little hot water and brandy will suffice for the first ten or twelve hours; after which—provided that no vomiting has occurred—small quantities of warm milk and barley water, equal parts, may be given at short intervals.

Where the infant has first had a prolonged period of illness and starvation, and has then been submitted to a protracted operation—perhaps an enterectomy—it will be necessary to begin to feed him at once in addition to the systematic use of stimulants.

Porter, John Lincoln: Congenital Dislocation of the Shoulder. (*New York Medical Journal.* Vol. lxxii., No. 7.)

This lesion occurs with such infrequency that in one set of statistics congenital hip dislocation outnumbered it in a ratio of 18 to 1. The author has succeeded in finding records of but 29 cases in literature.

He reports a personal instance of this affection in a boy aged four months. The deformity was first noted when the infant was three days old. As there had been a hurried forceps delivery at the birth, it was at first believed that the luxation was traumatic. Measurements of the bones of the two sides showed the presence of the asymmetry which accompanies congenital dislocation.

The results of treatment have been rather unsatisfactory, and there is a suspicion that in some of the successful results the lesion was not congenital but traumatic. Of cases presumably congenital, there has been one good result attained by the bloodless method (intermittent traction) and three or four others by cutting operations.

Murphy, J. W.: **Acute Mastoiditis Following Infectious Diseases.** (*Columbus Medical Journal.* Vol. xxiv., No. 7.)

The author prefers the "internal Wilde" incision to secure free drainage of the tympanum. The pain caused by this operation requires an anesthetic. Free bleeding is encouraged by the warm douche. Leeches are applied when there is pain directly over the mastoid cells.

In regard to the relative superiority of hot and cold applications, he finds that hot air is usually better borne by children, although exceptions occur in which cold in the form of the Leiter's coil affords greater relief. In efficacy the two appear to be about the same. Poultices are contraindicated, and antiseptic douches appear to have no control over the progress of the infection.

Whatever the plan of treatment pursued, if the disease is not checked after thirty-six hours, the mastoid cells should be opened by the procedure of Schwartze.

The results of this form of intervention in acute mastoiditis are extremely satisfactory and the risk encountered is very slight.

Bezold: **Three Cases of Intercranial Complications of Acute Otitis Media.** (*Munch. Med. Wochenschr.* No. 22. 1900.)

In the first case there occurred undoubted symptoms of sinus phlebitis, pyemia and metastatic foci in the lungs, during the fourth week after the onset of an acute purulent otitis media involving a heretofore sound ear. At the operation, the entire sinus down to the gulf of the internal jugular vein, was found filled with fluid pus and masses of thrombi. The patient was cured after ligating the jugular vein and opening and cleaning the sinus.

In the second case otitis media followed an attack of facial erysipelas. There was also an abscess in the areolar tissues of the neck, extending downward from the mastoid process. As sinus phlebitis was also suspected in this case, the jugular vein was ligated and the sinus exposed, but as no pathological changes were present it was decided not to open the latter. This patient was also cured.

Acute inflammation of the middle ear appeared in the third case. The membrana tympani was not perforated, but an abscess of the brain developed in the course of the disease. This was situated at the posterior end of the temporal lobe.

After this abscess had been opened and drained, the patient recovered.

Cotton, F. J. : Recurrent Luxation of the Ulnar Nerve. (*Boston Medical and Surgical Journal.* Vol. cxliii., No. 5.)

Of 3 cases of this affection reported by the author, 2 occurred in children. In both instances the accident was apparently due to a fall. A girl of eleven years struck upon her elbow, and thereafter motion of the arm became painful. Whenever the elbow was flexed the ulnar nerve slipped out of place. Cotton believes that the luxation was of long standing, and that attention was first directed to it after the injury to the elbow. There was further a history of a fracture at or near the same elbow when the child was but two years old. In the present experience, the symptoms due to the fall—pain and sensitiveness—soon subsided under rest, but the ulnar nerve was still dislocated whenever the arm was flexed.

In the other case, the nerve was not completely dislocated, and did not pain beyond the condyle. The patient, a boy aged ten, was seen but once.

MEDICINE.

Bondurant, E. D. : Acute Anterior Poliomyelitis. (*Medical News.* No. 1440.)

The author has made a special study of this affection as it occurs in Alabama, having sent out letters of inquiry to practitioners throughout the State. He had already reported an epidemic which occurred in 1896, and which affected 15 patients, some of whom were adults. Negroes were attacked equally with whites, and there were no contemporary cases of cerebrospinal meningitis.

In response to the circular letter, four practitioners reported some 15 or more cases. These examples, together with the epidemic already mentioned, and a few personal cases of the author, apparently constitute the bulk of the material recorded throughout the State. It becomes evident, therefore, that the disease is one which is of extremely rare occurrence.

The symptoms and diagnosis, as based upon these cases, are in part as follows: Some cases begin without prodromes, while others have a short period of malaise, an initial chill, etc.

The disease proper is characterized by a sudden, sharp rise of temperature, gastrointestinal disturbance, restlessness and in some cases convulsions. After a few days of this syndrome, the child is seen to have lost the use of its lower extremities. The bladder and bowel retain their functions.

Some of the cases, were, however, atypical. There were absolutely no symptoms of general intoxication, the motor palsy appearing *démbléé*. In other instances, there were brain-complications, such as mental confusion, coma and general convulsions, which complex of symptoms closely simulated cerebrospinal meningitis until the appearance of the paralysis excluded the latter affection.

Some adults who appeared to suffer from acute anterior poliomyelitis made complete recoveries; this termination discredited the diagnosis, which should doubtless have been malarial neuritis, a disease known to end in recovery, and one, moreover, which seldom attacks children. One child recovered, but suffered a relapse eighteen months later, which was followed by permanent paralysis.

Forchheimer, F. : Acute Dilatation of the Heart in Influenza of Children. (*Jacobi Festschrift.*)

When dilatation of the heart passes beyond physiological limits, insufficiency of the myocardium begins to be noted, with manifestations varying much with the individual. The child differs from the adults in often possessing the ability to recuperate after a period of myocardial insufficiency, and without the coincident development of compensatory hypertrophy.

The disproportionate degree of dyspnea often witnessed in influenza, and manifested by great frequency of respiration (rather than by cyanosis and action of the accessory muscles), is most certainly not myocardial in origin, for it is of short duration and never appears to pass into the graver condition about to be described. The syndrome of acute dilatation is made up of faintness or syncope, slow pulse, arrhythmia or intermittence and by impending acute heart failure. Sometimes angina pectoris is superadded. This cardiac complication may prove fatal. The rationale of acute dilatation in influenza, as in other acute infectious diseases, is not known. We are unable to state positively whether the toxin of the disease acts upon the myocardium directly, or only through the medium of the cardiac nerves.

The author describes 4 cases of the affection under consideration. One patient, a girl aged twelve years, had influenza-bronchitis with high temperature, (105° F.), and an incessant cough. Upon the fifth day of the infection, she was found in collapse; cyanotic; respiration, 65; pulse, 70, weak and intermittent. The area of cardiac dulness was plainly increased after a paroxysm of coughing; the right side alone showing evidence of dilatation. Tricuspid murmurs were also noted, and these too were intensified by coughing. The patient was under treatment for five months, but made a complete recovery. Codein was given in large quantities to control the cough and thus avert impending cardiac collapse.

The other cases also recovered, after more or less extended periods of cardiac dilatation.

Labbé, M.: Epiphyseal Separation in Newly-Born Syphilitic Infants. (*La Presse Médicale.* 1900. No. 78.)

In congenital syphilis separation of the epiphyses of one or more of the long bones is not uncommon, occurring in about 5 per cent. of the cases. The onset is insidious, and may or may not follow traumatism, however slight. Loss of function in the extremity affected, with pain on motion, are the earliest symptoms; tumefaction about the epiphysis is apparent, and also the mobility of the separated portion. The humerus is affected with especial frequency, usually at its upper end. The muscles respond normally to electricity. The lesion is a syphilitic ostitis, and an inflammatory zone between the diaphysis and epiphysis explains the subsequent separation. Recovery is possible under good hygienic conditions and mercurial treatment.

Functional impotence of the extremities in syphilitic infants is thus better explained than by the assumption of a central or peripheral nerve lesion.

Sobel, Jacob: Vaccination Eruptions. (*Medical News.* No. 1439.)

He deals chiefly with generalized eruptions among which he has noted the following varieties: erythema, urticaria, papular, vesicular and pustular eruptions; erythema multiforme, morbilliform and scarlatiniform rashes, and bullous or pemphigoid eruptions. Roughly speaking, the proportion of these

cases of generalized eruptions to the total number of vaccinations may be recorded as 2 per cent., the total proportion of all complications being 14 per cent. The most common variety of these generalized eruptions is undoubtedly urticaria, which is usually met with at about the ninth or tenth post-vaccination day. Impetigo contagiosa was not infrequently seen as a complication of urticaria, and its presence was accounted for by autoinoculation incidental to scratching.

Measles and rōtheln were closely simulated on several occasions by vaccinal rashes. The latter was especially hard to differentiate. The vesicular type was of particular interest because of the simulation—often remarkable—of chicken-pox. The scarlatiniform rash occurs but rarely and is readily differentiated from true scarlatina, since it is a rash and nothing more. Erythema multiforme frequently developed after vaccination, and in one case was purpuric. Other types of vaccinal eruption noted were devoid of special interest, save that in a case with pemphigoid lesions, considerable pyrexia was present (103.5°).

Sheffield, Herman B. : Vulvovaginitis in Children.
(*New York Medical Journal.* No. 1131.)

The author insists upon the widely spread existence of this affection, its severity, its manifold nature, the indifference with which it is regarded by the profession at large, and its essential curability, if a correct diagnosis based upon microscopical examination, is made. The simplest variety is due to want of cleanliness or to irritation caused by the passage or decomposition of the urine. Vulvovaginitis from masturbation or other form of mechanical violence is also simple in character, and relatively infrequent. Here may be included such cases as are caused by sensible parasites, emigrated from the rectum. The more severe and frequent forms of vulvovaginitis, especially those which tend to extend upwards along the urinary and genital passages, are due to microorganisms, particularly the common exciters of suppuration and the gonococcus.

Much interest attaches to the possible presence of the gonococcus, for gonorrhœa is the same disease here as elsewhere, and autoinoculation of the eye, direct extension to the peritoneum and constitutional infection are all possible.

He recommends protargol in a 1 or 2 per cent. solution at all stages of the disease, using the greater strength for gonorrhœa.

The vagina is first cleansed with a weak alkaline solution, a small syringe being used for this purpose and the protargol solution is then injected through a soft rubber catheter, and retained for a few minutes by holding the labia together.

When the urethra participates, the author recommends crayons of cocoa-butter, each of which contains protargol, iodoform, Peruvian balsam and belladonna extract. One is introduced at bedtime, and perhaps a second during the day.

Nearly fifty cases of gonorrheal vulvovaginitis have been treated in the above manner, without a single complication, except a case of inguinal adenitis. A child should never be pronounced cured without repeated examinations for the gonococcus.

Siegert, F.: False Rickets in Myxedematous Idiocy. (*Arch. de Méd. des Enf.* Vol. iii., No 12.)

From a study of the literature of the subject, the author finds that the osseous lesions in myxedematous idiocy are of a specific nature, due to a hypoplastic chondrodystrophy. These lesions have nothing to do with rachitis, on the contrary, they present a veritable antagonism to rickets in their onset, their course and their results.

Zuber: Basedow's Disease in Childhood. (*Arch. de Méd. des Enf.* Vol. iii., No. 10.)

A girl of thirteen years presented a typical case of Basedow's disease, commencing with goitre and loss of flesh, followed by tachycardia, tremor and exophthalmos. She had an alcoholic family history, but was a normally developed child. About seven months after the onset of the disease an attack of rheumatism occurred, and was accompanied by pericarditis and a severe chorea limited to the left side of the body. In four weeks the choreic movements ceased, and the pericarditis disappeared completely. Attacks of serous diarrhea and incontinence of urine also occurred. Within six months after treatment began cure was practically complete, only the tachycardia and hypertrophy of the left lobe of the thyroid persisting. After two years these were still present, though less marked; the girl had grown stouter and had had no other trouble. Vigouroux's method of applying faradism to the neck and eyes was the treatment employed.

Improvement and even cure within a limited time seem to be more especially characteristic of cases in early life. Relapses

are by no means rare. An interesting fact is the rapidity with which extreme emaciation develops in these cases. While the Basedowian cachexia is severe and of quick development, it is also followed by rapid recovery.

Eshner, Augustus A. : The Differentiation of Chorea and the Disorders Simulating It. (*The Journal of the American Medical Association.* Vol. xxxv., No. 3.)

While there appears to be considerable evidence that chorea is an acute infectious disease, which incidentally attacks the motor cells of the cerebral cortex, it is apparent that this affection cannot be separated from the neuroses.

A comparison of chorea with those disorders which most resemble it is highly instructive. Comparing it with acute rheumatism, we must bear in mind that the latter can no longer be regarded as a specific disease, since it may doubtless be caused by any one of a number of infectious or toxic agencies.

The choreiform movements which follow structural lesions of the cerebral cortex do not constitute true chorea; the same may be said of athetosis, which while not a simulator of choreic movements as a rule, has been known to closely imitate chorea in certain cases. Habit-chorea occurs on a neurotic soil, but has no application with systemic infection or intoxication. Clinically the motor phenomena of this affection are readily distinguished from those of true chorea. Senile chorea is due to degenerative changes in the brain, and is consequently not amenable to treatment. Electric chorea of Dubini, also incurable, agrees with true chorea in the suggestion of dependence upon some general infectious disorder. Chorea major, so called, is held to be a hysterical phenomenon, and since the association of chorea and hysteria has been noted in certain cases, it is well to look for the stigmata of hysteria in any questionable case. Spasmodic wryneck and head nodding hardly require comparison with true chorea.

Maizard and Ulmann : Hypertrophy of the Thymus in Leucocythemia. (*Arch. de Méd. des Enf.* Vol. iii., No. 12.)

In a case of leucocythemia occurring in a little girl of five years, there were marked dyspnea, cyanosis and spasmodic cough, supposed to be due to the intrathoracic pressure of hypertrophied tracheobronchial lymph nodes. At the autopsy,

however, the compression was found to be chiefly due to a very large thymus gland, which weighed 111 grammes, and measured six by eight centimeters by eight millimeters; adherent to it were some hypertrophic lymph nodes. The blood count showed a proportion of one white cell to twenty-three red. Microscopically the thymus gland had the structure of a lymph node, Hassal's corpuscles being completely absent.

Fourteen similar cases were collected from the literature on the subject, and there is no doubt that there have been many others. It is probably true that the large thymus causes pressure symptoms in the majority of these cases, although it is usually overlooked and the symptoms attributed to the lymph nodes alone.

Leech, Otto: Concomitant Measles, Chicken-Pox and Small-Pox. (*New Orleans Medical and Surgical Journal.* Vol. liii., No. 2.)

He has seen but a single case of the coincidence of chicken-pox and measles, and is unable to find a parallel instance recorded. The patient, a boy of twelve, first fell ill on December 9, 1899, and his malaise continued for just a week before the development of slight chills, which were followed one day later by a febrile movement (104° F.) On the 18th a characteristic varicella exanthem developed, three crops of vesicles coming out during the four consecutive days. On the 22d, the temperature fell to normal, but on the following day patient suddenly experienced headache, vomiting, a chill and fever of 104°. There were irritation of the conjunctiva and bronchial symptoms. On the evening of the 26th the exanthem of measles appeared. This case shows, says the author, that these two affections can form a symbiosis in the human body. Each disease ran its course typically, the varicella being of a severe type.

The author has likewise seen a single case of coincidence of measles and varioloid, and here also he was unable to find any literature upon the subject. The patient, aged twenty-eight, had had measles in childhood, and had been vaccinated twice, the last time when ten years old. On February 28, 1900, he apparently took a severe cold, but on the 23d an exanthem of measles appeared. On the 27th, while convalescent, intense head and backache suddenly set in, with vomiting, and a chill followed by fever (104°). The next day a small-pox eruption

was apparent on the forehead and scalp, later becoming generalized. The eruption of measles, although faded, could still be made out side by side with the pocks of the variola. The latter eruption never matured. In this case the exposure to smallpox occurred on the 15th while measles was so prevalent that the patient had been repeatedly exposed to it. These two diseases can also exist in the human body in symbiosis, without either in any way modifying the evolution of the other.

Escherich : The Role of Microbes in the Gastrointestinal Diseases of Nurslings; Ectogenous Infections and Intoxications. (*Archives de Méd. des Enf.* Vol. iii., No. 12.)

A study of the intestinal tract under normal conditions should form the basis of any work on the importance of bacteria in the etiology and pathogenesis of the gastrointestinal affections of nurslings. A useful stain for the purpose is Weigert's procedure for coloring fibrin, plus fuchsin as a contrast stain. The use of the ordinary alkaline culture media is insufficient for the growth of more than 5 to 10 per cent. of the bacteria seen under the microscope, but the use of certain special acid media, proves that the multiplicity of the bacteria in a normal stool are greater than has hitherto been admitted, of particular interest is the presence of a branched bacterium, staining by Gram's method, and very constant and abundant. By employing the Guber-Widal reaction it is possible to demonstrate that the color bacillus present in the intestine of a given infant is of a particular variety characteristic to that intestine, and that it can be differentiated from color bacilli from other individuals. This property is retained for some time when the bacilli are grown on artificial media.

It follows that the development of bacteria in the nursling's intestine (although they may have been introduced accidentally in a certain sense, into the originally sterile meconium) is autochthonous and subject to certain laws. The normal intestinal flora is the expression, and at the same time one of the conditions, of the normal functioning of the intestine, it is largely independent of the number and variety of bacteria introduced by the food. The slightest change in the chemical composition of the intestinal contents or in its secretory or absorptive conditions, or in the general state and resisting power of the individual, suffices to change the vegetative conditions in the intes-

tine, and to pave the way for the development of other bacteria introduced ectogenously. Such ectogenous infections are made more possible by the facility with which milk undergoes alteration, and by the lack of protection offered by the infantile stomach.

There are many reasons for assuming that the presence of a bacterium different from those normally present in the intestine may cause morbid phenomena, especially when the microorganism is pathogenic to man or capable of producing fermentation. The bacteria may give rise to poisons by decomposing the intestinal contents, or they may cause inflammation of the intestinal mucosa, and, after destruction of the epithelium, general infection. Toxic bacterial products formed outside of the body may also cause disease, especially in warm weather. Classified according to their etiology, it becomes possible to distinguish: (1) intoxications due to ectogenous decomposition; (2) infection of the chyme; (3) infectious diseases of the intestine. All rapidly multiplying saprophytes of the intestinal tract or of milk may be concerned in the production of the first two varieties (proteus, proteolytes, bacterium lactis). All bacteria pathogenic to man may cause the third variety. As a matter of fact, in the case of the nursling, infections with the staphylococcus, streptococcus, colon bacillus, streptothrix, (?) and bacillus pyocyaneus (?) are known.

The mixed infections play an important part in the pathogenesis of the complications and sequelæ of gastroenteritis.

Kauffmann, O. J.: The Commoner Neuroses of Childhood. (*Lancet.* No. 4011.)

He considers chorea, enuresis, nocturna, migraine, tetany, dreaming and nightmare and epilepsy.

These neuroses possess common points in etiology, pathology and treatment. As to etiology there is an emotional factor and a toxic factor, with each of which heredity comes into play. The toxemic element predominates and depends upon a self-poisoning which is in turn dependent upon gastrointestinal disorders.

The latter comprise over-ingestion of food and unsuitable food, catarrh of the stomach or bowels and constipation, this last being especially prominent as a factor in the genesis of these neuroses. In regard to the existence of defective excre-

tion from the bowel we regard the degree of the indican reaction in the urine. Excess of this substance implies the existence of auto-intoxication, a feature of which is its tendency to cause sensations of malaise and languor in the early morning.

In the treatment of neuroses, the first indication relates to a proper dietary. Meat should be eaten but once a day and only at noon; we should aim rather at a reduction in the quantity of food consumed than a change in the quality. In bed-wetting it may be wise to discontinue meat altogether for a time.

Laxatives have an important place to fill in the treatment of these cases. The salines, such as sodium or magnesium sulphate, or the natural aperient waters are invaluable, as is also calomel. The aim should be to produce one stool of porridge-like consistence, every morning. The author has a certain amount of faith in sulphocarbolate of soda and charcoal as intestinal antiseptics. The vegetable charcoal may be safely given in thirty grain doses twice daily. Tonics do not strike at the root of the evil in these cases.

The author reviews the treatment specially indicated in these neuroses, but it differs little from that of the text-books and common experience.

Parsons, A. R., and Littledale, H. E.: **Epidemic Cerebro-spinal Meningitis in Dublin.** (*The British Medical Journal*. No. 2060.)

Of the 7 cases observed in this epidemic there were 4 in children. There can be no doubt but that the organism described by Weichselbaum is the cause of the disease. Among the recapitulations of the features of the disease are the following:

BACTERIOLOGY.—Evidence is steadily accumulating that the immediate exciting cause is the diplococcus meningitis intracellularis. It has been suggested that this organism may be found in the nasal secretion, and that by this route it probably reaches the brain. The secretion was examined in 2 cases; in one there were numerous diplococci, in the other they were very few. They were not believed to be the diplococcus intracellularis.

TEMPERATURE.—There is no constant type. In some cases it resembles typhoid, in others malaria.

Kernig's sign has been present in all the cases in which

looked for. It has been seen as early as the third day, and it has been present even after convalescence has set in, diminishing as the patient got well. Knee-jerk has been diminished or absent; never exaggerated.

ERUPTIONS.—Four of the 7 had well-marked nasolabial herpes. In 2 of the remaining 3 death occurred almost too soon to allow of the eruption to appear. None of the cases had herpetic eruptions in other parts.

EYE.—Most of the cases had strabismus and double vision, always due to the external rectus being involved. In the 4 who have recovered, full control of the rectus has been regained.

URINE.—Albumin was present in 2 cases, and in 1 there was complete absence of chlorids for a short time—a point of some interest on account of the connection supposed to exist with pneumonia.

LUMBAR PUNCTURE.—Osler speaks very highly of this as a diagnostic agent.

PROGNOSIS.—This depends very much on the epidemic; 3 of the 7 cases died, and 1 was still in hospital. It was considered that children have a better chance than adults.

TREATMENT.—Ice to the head and evaporating lotions. Trional, bromids and morphin have been used to relieve restlessness and procure sleep. Calomel has not been administered except as a purgative. The patients, when suffering pain in the trunk or extremities, have often expressed themselves as greatly relieved when rubbed with a chloroform and camphor liniment. If symptoms suggested a cardio-respiratory failure from pressure, lumbar puncture, with a view to diminishing the pressure by the removal of cerebrospinal fluid, might be tried.

Buckell, A. E.: Case of Idiopathic Tetanus; Death in Thirty-six Hours from Onset of Symptoms. (*British Medical Journal.* No. 2065.)

A twelve-year old boy in the midst of good health began to complain of face-ache. Next morning his back was so stiff that he was unable to get out of bed. Trismus was also present, but the patient was able to swallow liquids. No history or evidence of any trauma, however slight, was obtainable. On admission to the hospital, the muscles of the face, neck and

back were in a state of rigidity which persisted until death. Seventy-five paroxysms, or exacerbations of rigidity, were counted during the course of the disease. During these periods the patient groaned, the head became more retracted, the back more arched and the risus sardonicus more marked. There were also clenching movements of the fingers and drawing up of the legs, but these latter phenomena were evidently simple in nature and called forth by the pain.

The temperature rose steadily until it reached its maximum of 103° F. just before death.

The patient was treated with full doses of bromid of potassium and chloral, and 20 cm. of antitoxin (all that could be obtained) were injected. Chloroform was given to check the paroxysms. None of these measures had any favorable influence on the course of the disease.

An autopsy failed to throw any light on the source or nature of the affection. The only alteration perceptible to the naked eye was a considerable degree of pulmonary congestion.

HYGIENE AND THERAPEUTICS.

Rotch, T. M. : Milk; Its Production, its Care and its Use.
(*Boston Medical and Surgical Journal.* Vol. cxliii., No. 3.)

The author speaks of milk as a sort of necessary evil; a substance infinitely dangerous to the human species, but which is nevertheless demanded by that species. Despite its capacity for harm, however, milk is an ideal food when carefully produced and kept from contamination.

The principal obstacle in endeavoring to supply the public with proper milk is found in commercialism; in attempts to lower the cost of milk as if it were a simple and harmless commodity. The precautions which are absolutely necessary to guarantee a proper article of milk, entail a cost to the consumer of ten or twelve cents a quart, and strange to say, it is usually the well-to-do who are unwilling to pay this price.

These precautions which must necessarily raise the price of milk, comprise supervision of the health of the cow, running water in her stall, with facilities for the disinfection of the trough with live steam from time to time, and in general whatever conduces to perfect cleanliness. It is, however, somewhat

meddlesome to brush or wash the udder too much as this organ is very sensitive and irritable.

Every dairy farm should have a bacteriologist who should make daily examinations and reports; his main duty being to see that the number of bacteria should not exceed 10,000 per c. cm. The centrifugal separator is capable of greatly improving the condition of milk which does not come up to this standard.

The milkers on a dairy farm should have a professional status. They should be especially trained for their duties. They must not enter the milk house, which should be an absolutely sterile edifice, within which the milk remains only long enough to be bottled, and from which it is immediately dispatched to the consumer. Milk prepared at such pains must necessarily be expensive.

Northrup, W. P. : Exact Infant-Feeding. Accidents and Incidents. (*The Journal of the American Medical Association.* Vol. xxxv., No. 4.)

Cow's milk is the only variety of milk to be considered in substitute feeding. Dairy cleanliness is necessary. The modification of milk according to some definite formula is demanded. It is desirable to have the milk modified in a laboratory for purposes of cleanliness and exactness.

To fix the feedings of an infant of one month and then lose sight of it for several months, is not discharging our full responsibility. The following are some of the rules suggested:

Begin all feedings of new-born and sick infants with very low percentages; assuming that a normal child has a certain scheduled formula, that same child should when sick have a feeding appropriate for a younger child. Reduce the strength of food for all sick children. Increase the strength of feedings just as fast as the child can take it. The digestion of a growing, healthy child, as tested by the passages, is the important guide. When the passages become pasty—homogeneous—all one color, smooth like lard, canary-colored, the digestion is such as to warrant increasing the strength. Feedings of very young and convalescent infants can often be increased every two or three days to advantage. Such should be very slight increases and dependent upon the testimony of the diaper. In case of sick infants, the prescription should be changed less often or changed less abruptly.

In prescribing, sick and feeble infants may be considered physiologically younger than their accredited age. The fats,

sugars and proteids should be advanced together, usually, by fractions of a hundred and at frequent intervals. Keep the prescriptions level or balanced, so to speak.

To summarize:

1. Clean cow's milk, modified to some definite formula, is demanded.
2. A laboratory for modification is desirable; it secures greater exactness and cleanliness.
3. The physician should frequently revise his formula; frequent small percentages of increase are to be advised.
4. Accidents may arise from consigning an infant for several months to insufficient food ingredients. A baby is not the same baby for many weeks at a time; its growth and physiologic demands change so much.

Herbsmann, I.: **Treatment of Nocturnal Enuresis by Massage.** (*Medicinische Woche.* No. 37. 1900.)

Nocturnal enuresis, no matter by what pathological condition it may be caused, is produced by a diminished tone of the sphincters of the bladder.

The author discriminates between active and passive enuresis; passive, where the urine is discharged in drops by the over-distended bladder, and active in those cases where the bladder is always found empty as the urine is discharged in consequence of insufficiency of the sphincters. To this class belong the cases of enuresis present during childhood.

Ultzmann explains the enuresis of childhood by stating that the insufficiency is due to lessened nerve tone of the muscles. Trousseau and Bretonneau are of the same opinion, while other authors assume, as a cause, adhesions between the glans and prepuce. Oberlander is of the opinion that any condition predisposing to irritation of the neck of the bladder and the posterior urethra, as frequently found in adults, predisposes in the same way the child to reflex disturbances.

For the past eighteen months, the author has used in many cases, five of which are reported in detail, massage, with great and unvarying success. His method is to massage the neck of the bladder with the index finger, through the rectum. This is performed in sittings of from two to three minutes' duration each in the following manner:

The palmer surface of the index finger is moved first transversely across the neck of the bladder, and then in a longitudinal direction. These movements are used at first gently, later on,

more forcibly. After this has been done for two minutes, the tip of the index finger is pressed against the neck steadily for another half minute.

The above treatment has been very successfully employed even in some cases of very long standing, one of the patients being eighteen and another fifteen years of age, and both had been troubled with the affection since childhood. A cure was effected in from four to six sittings. The author believes this treatment improves the innervation of the vesical sphincters.

Babcock, Wayne: A Consideration of Certain Bacteriologic Features of the Gastrointestinal Infections in Infants. (*International Medical Magazine.* Vol. ix., No. 7.)

The intestinal contents of the new-born babe are sterile, but in from twelve to eighteen hours bacteria begin to appear therein, and thenceforth are never absent. It has been believed that microorganisms are of assistance in the digestive processes, but the evidence all points in the opposite direction. The digestive power of germ-free ferments is not impaired, while the bacteria themselves have but feeble peptic properties.

With regard to the source of the germs which induce gastrointestinal infections, it is known that milk is ordinarily sterile up to the time it leaves the lacteal ducts, and contamination may immediately occur from the skin of the nipple, the mouth of the nursling, and at times from some disease of the breast which affects the ducts; and in the case of cow's milk, from the milker's hands and milk pails, the dust of the cow-shed and bedding, the containers of the milk, and other causes. When all these possible sources of contamination were excluded artificially, the number of bacteria in a cubic centimeter of milk fell to 530, although in freshly drawn milk under ordinary circumstances it is over 30,000, and in ordinary market milk exposed to various kinds of contamination, and also enough to permit of the indefinite multiplication of germs, the number per cubic centimeter runs into millions. It is true that most of these microorganisms are saprophytes, but the pathogenic varieties are often represented. Not only are they recognized by microscopy, but injections of milk are often pathogenic in the animal experiment.

Since millions of germs may be swallowed daily without harm, it is evident that some other factor is present when milk

causes disease. Extreme youth is such a factor, as the resistance of the young infant is much lower in degree than in older individuals. Lowered vitality from any cause is also a possible factor. In the presence of these conditions the harmless saprophyte may become virulent.

No single organism is responsible for the alimentary infections of children, but there is an apparent relationship between the degree or kind of infection and particular bacteria. Thus certain of the latter appear to produce only local irritation, others a higher degree of local mischief with a considerable degree of toxemia, others again destructive lesions of the mucosa and intense toxemia.

It is, therefore, evident that a bacteriologic diagnosis should be helpful to the practitioner. The infant's food should be examined by the microscope and staining fluids, and a drop or two of fecal matter should be similarly studied. Even crude tests, such as may be made by the ordinary practitioner, have a certain value.

Wainwright, J. W.: Purgation with Opium. (*Boston Medical and Surgical Journal.* Vol. cxliii., No. 7.)

A boy, aged five years, had gone for sixty hours without a passage from the bowels. Despite the absence of obstructive symptoms, the patient was then treated unsuccessfully for intussusception (massage, inflation). After ninety-six hours had elapsed, a consultation was held to decide as to the indication for laparotomy. It was then learned by chance that the boy had hastily bolted a lot of cheese, which was believed to be obstructing the ileocecal valve. Massage, massive enemata, suspension by the feet and similar measures were resorted to for another twenty-four hours. A new consultant called in advised the use of two-drop doses of deodorized tincture of opium every half hour pushed to complete narcosis. Twice belladonna was also administered as an antagonist. After two courses of opium narcosis the boy's bowels moved, the stool consisting of a large knuckle-shaped mass of cheese. This action of the opium is explicable by the complete muscular relaxation induced thereby. The boy had been chloroformed during his treatment, but the opium exhibited the greater powers. The intestinal musculature once relaxed, the mass of cheese passed through the valve by gravity. (!)

Fitch, William E.: Enterocolitis. (*New York Medical Journal.* Vol. lxxii., No. 7.)

The paper is largely a eulogy of the efficacy of tannopin (tannon) in enterocolitis. This combination of tannin and urotropin he regards as an almost ideal disinfectant. It is not acted upon in the stomach, but the alkaline intestinal juices decompose it into its two proximate constituents, of which the tannin acts as an astringent, while the urotropin is a disinfectant.

Tannopin is without odor, is tasteless and free from any collateral irritating effects. It is insoluble, and may be given in the same manner as bismuth, and in similar dosage. For children, from three to eight grains are prescribed—according to age—three or four times daily. It should be suspended in simple syrup, in combination with chalk mixture.

As an adjuvant to this remedy, the author advocates lavage of the colon, and such other routine measures as are generally recommended for the disease in question. He adds tannopin to the irrigating fluid, one drachm to the pint (of sterilized water, to which one ounce of lime-water is added). One irrigation almost always suffices.

Palmer, George Thomas: Feeding the Infants of the Poor with Unsterilized Cow's Milk. (*New York Medical and Surgical Journal.* No. 1136.)

The author regards sterilized milk as an evil, as the radical alterations caused by heat favor the existence of malnutrition and digestive disorders. In the Trinity Diet Kitchen for Infants, Chicago, a rationally modified milk is used, and throughout the deadliest period of the heated term the death-rate was a remarkably low one. The preparation of the milk is as follows:

Good, clean, certified dairy milk is selected. This is diluted and cream and milk-sugar then added to bring up the percentage of carbohydrate. The method differs from that usually employed only in the fact that the initial quantity of proteids is larger, the proportion being progressively decreased. This feature of the modification is the reverse of that usually practiced, but the results are excellent.

The milk is packed in sterile jars and placed in buckets of ice, in which condition it is delivered to the mothers. The

children who use the milk are examined daily and a staff of visiting attendants see that the directions are carried out properly.

Out of 700 infants supplied with this milk, but 3 died, although all of the consumers must have been more or less ailing, as aid of this sort is never asked for a well individual. It is very evident that sterilized milk could produce no better results than those obtained in the manner just detailed.

McKernon, Jas. F. : The Abortive Treatment of Acute Mastoiditis. (*Medical News.* No. 1441.)

The author finds that his experience in the management of this affection is at variance with the teachings of recognized authorities. Thus, in regard to the principle laid down that the only rational means of aborting mastoiditis is by the use of heat; he has given this idea a thorough trial, but his results thus obtained were anything but successes.

He has fared much better by the following method: when mastoiditis is threatened, if there is not already sufficient drainage of the middle ear the natural opening is enlarged freely, the incision being carried, if necessary, into Shrapnel's membrane, and even still further into the upper wall of the canal. The patient is then placed in bed, where he must remain in perfect quiet, an ice-coil is fitted about the mastoid region, a purgative is administered, and finally the canal is irrigated every two or three hours with warm bichlorid solution (1-4000). The diet must be restricted to liquids. The coil should be taken off at the end of twenty-four hours. If an examination reveals that the inflammatory process is not practically cut short, cold must be reapplied for an additional twelve hours, and the other features of the management should also be continued. After thirty-six hours of this treatment, a very small proportion of cases may require still further recourse to the abortive plan, but in the great majority of cases convalescence is well under way, even after the first twenty-four hours, and at the expiration of a week's time most patients are not only recovered but they will remain fully cured.

Still, George F. : Cream and Fat in Infant Feeding. (*The Practitioner.* No. 384.)

If the proportion of fat in the infant's diet falls below 2 per cent. at any period during the first year of life, we may frequently see supervene some fault of nutrition, failure to gain in weight, or even rickets itself. Another consequence of "fat

starvation" is constipation. It is well to make allowance for at least 3 per cent. of fat, while some infants require 4 or 5 per cent. in their diet.

An analysis of the mother's milk should readily inform us as to whether or not the proportion of fat is up to the standard; but such an analysis is never representative, as the amount of cream in the milk is in constant fluctuation. To obtain a representative figure, at least for any given period of the day, we should first ascertain the usual length of time consumed by the baby in emptying the breast and should then take him off when one-third of this interval has expired; after which some of the milk is drawn off for analysis. By allowing the milk to stand for twenty-four hours in a graduated tube, at a temperature of 65° F., an approximate idea may be had of its proportion of fat. If the percentage of fat is found to be too low, attempts must be made to correct the mother's diet; but if this resource fail, we must *not* wean the infant, for we then increase the risk of "fat starvation."

Deficiency of fat is much more common in the hand-fed infant, and among the poor (of London) it is the exception to find a child with the necessary proportion of fat in its ingesta. When cow's milk is diluted, which must usually be the case to insure its digestibility, the proportion of fat falls below 2 per cent. and may even descend as low as 1 per cent. When milk is peptonized, the necessary dilution with water brings about the same poverty in the percentage of fat. Condensed milk requires the addition of water to such an extent that when prepared for ingestion, it contains less than the necessary 2 per cent. of fat. The unsweetened condensed milk requires less dilution.

To make good the deficit of fat, whether the baby is breast-fed or hand-fed, the most natural method is to determine the shortage and then add a sufficient amount of cream, which is best administered mixed with water or whey. It may be given two or three times a day.

When for any reason it is impossible to obtain cream, we must depend on cod-liver oil, butter or some other fat. Among the poor, butter is especially available, although it does not always agree. It is best given by emulsifying a small portion—say as large as a large pea—in milk and water. In children over nine months old, the yolk of egg, very slightly cooked, will, if placed in the dietary, supply a sufficiency of fat.

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Original Communications.

HEMORRHAGE INTO THE SUPRARENAL CAPSULE IN STILL-BORN CHILDREN AND INFANTS; REPORT OF A CASE SHOWING RUPTURE OF THE SAC AND ESCAPE OF BLOOD INTO THE PERIRENAL TISSUES AND THE PERITONEAL CAVITY.

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(Concluded from February number.)

REPORTED CASES.

CASE IV.—Tuley (ARCHIVES OF PEDIATRICS, November, 1892). A male child of a healthy mother. Labor was very short and unassisted. There was no history of injury. The temperature at birth was 99.6° F. The child failed rapidly. It had mild jaundice on the third day; this became intense before death. The temperature became elevated to 104.4° on the third day; on the evening of the fourth day the expression was anxious and painful and the face was drawn. The respirations increased to 72 and were sighing and labored. The pulse was weak and beat 200 to the minute. The extremities were cold. The abdomen was tense. The child died on the evening of the fourth day.

Autopsy.—The brain was not examined. The lungs were imperfectly crepitant, rather firm and heavy. On opening the abdomen about one ounce of fluid blood escaped. Several large clots were discovered in the left iliac region; 8½ ounces of fluid and clotted blood were measured. The liver was displaced upward by the right kidney. The left kidney was a

little pale; the right was enveloped in a large mass of clots filling the right side of the abdomen. The right suprarenal gland was almost as large as a goose egg, and was distended with fluid blood and clots. The kidney was much compressed but normal in appearance. The hemorrhage into the suprarenal gland had ruptured secondarily into the cellular tissue surrounding the kidney, into the post-peritoneal tissue and into the peritoneal cavity. The rupture occurred at the apex of the hemorrhagic sac.

CASE V.—W. F. Milroy (*Amer. Jour. of Obstet.*, July, 1884, Vol. XVII, p. 772). A male child; mother healthy; no history or evidences of syphilis. The labor was normal and short. The child was in excellent condition at birth and for twelve and a half hours seemed perfectly normal. It was then seized with vomiting, which lasted for a few minutes. Rapidly following this the extremities became cold, the features pale and sunken, the respirations shallow and rapid and expiration accompanied by a sharp cry. The child died in one hour and thirty minutes after vomiting. There was no history of violence subsequent to delivery.

Autopsy.—The only pathological condition present was as follows: The intestines were displaced to the left by a firm blood-clot about the size of a man's fist which entirely enveloped the right kidney and right suprarenal gland. A large quantity of fluid blood was found within the peritoneal cavity which had escaped from an opening into a hemorrhagic sac which proved to be a hemorrhagic right suprarenal gland.

CASE VI.—Milroy (*Ibid*) refers to a case spoken of to him by Dr. A. E. Maxwell. In an autopsy on an infant Maxwell had found a bilateral hematoma of the suprarenal glands.

CASE VII.—Prudden (*Proceedings of New York Path. Soc.*, 1899, p. 92). The author showed specimens from an infant born after a normal labor. The child breathed badly and performed its general functions badly from birth to the time of death on the fifth day.

Autopsy.—The abdominal cavity was filled with dark fluid blood or bloody serum, and a large and old clot lying over the region of the right suprarenal capsule. Both kidneys and the remaining abdominal viscera appeared normal, save that closely surrounding the right suprarenal gland there was a dense, firm, ovoidal blood clot about 4 centimeters long, 3 centimeters wide

and 2.5 centimeters thick. The suprarenal gland was apparently unchanged save by pressure, and a considerable infiltration of blood in several places.

CASE VIII.—In the discussion of the former case Dr. Northrup referred to having seen a child in whom one suprarenal capsule showed hemorrhages with quite extensive destruction of the gland tissue. Hematoidin crystals were found in his case, and a dirty color of the skin had been noted before death.

CASE IX.—Hodenpyl (*Proceedings of New York Path. Soc.*, 1890, p. 67). The infant, born after a perfectly normal labor, did well until within a few hours of death, which occurred on the third day. The symptoms were those of sudden collapse.

Autopsy.—The abdominal cavity was filled with blood which came from a ruptured hemorrhagic right suprarenal gland. The remarkable feature of this case was that the suprarenal hemorrhage had penetrated the under surface of the liver and had stripped up Glisson's capsule for a considerable distance. There was also an infiltration of the lung. No other lesions were found.

CASE X.—Gueniot (*Bull. de la Soc. anat. de Paris*, Vol. XL, p. 182, 1865). The author presented the suprarenal capsules from a new-born infant. Their cavities were filled with blood. During the labor there occurred prolapse of the cord. The forceps were used to shorten labor. The infant was apparently dead when born. Fetal movements had been felt less than two hours before birth. There had not been any direct pressure which could be made to account for the hemorrhage. No other lesions were noted.

CASE XI.—Hervey (*Bull. de la Soc. anat. de Paris*, Vol. XLV, p. 263, 1870), showed specimens from an infant dying suddenly on the tenth day. Up to the morning of the same day it had been well. There was very little evidence of trouble up to within a few minutes of death.

Autopsy.—A serosanguinolent fluid filled the entire abdominal cavity. There were some fairly dark fibrinous clots present. The kidneys showed no naked eye changes. There was a bloody fluid in the ureters, and there were many ecchymotic areas in the adipose capsule of the kidney. The suprarenal capsule on the left side was reddish in its medullary portion and on section was very congested. The right suprarenal was a huge black mass; it was converted into a cavity more or less

regularly limited by the cortical substance and contained blood-clots. There was a slit in the peritoneal surface about $1\frac{1}{2}$ centimeters long, immediately under the liver, which was occupied by a small clot. This was evidently the point of origin of the hemorrhage into the peritoneal cavity. There was a bloody infiltration into the osseous tissue of the occipital region. All other organs were normal. There was a history of the infant having fallen from bed two days before death. The fall was thought to have been on the head and back; it was the probable cause of the hemorrhages.

CASE XII.—Droubaix (*Thèse de Paris*, 1887). The infant was delivered by podalic version in an apparent state of death; it was resuscitated, however. There had been a prolapse of the cord. The whole labor had occupied forty-five minutes and the version was done rapidly. The infant was well nourished. There was a slight marginal placenta previa. The cord was 45 cm. long. The infant had a convulsion eleven hours after birth. It died on the third day.

Autopsy.—Aside from the suprarenal capsules the organs contained nothing abnormal. The capsule on the right side was almost completely destroyed and replaced by a hemorrhage, making a mass the size of a hen's egg. The blood had escaped into the surrounding cellular tissues. The hemorrhagic capsule was composed of a thin wall 1 mm. in thickness. The renal vein was free and presented no clots. The left capsule was considerably increased in size. It was very congested, almost black in color in the portions above and in front of the kidney. The capsule was not broken. There was, however, a focus of blood in the cellular tissue posterior to the capsule, and over the upper portion of the kidney. There was a small, fibrinous clot in the renal artery floating free in the vessel. The renal vein was completely obstructed by a clot adherent to the walls which on section was partly fibrinous and partly jelly-like. On section of the capsule the medullary portion was found completely disorganized and replaced by a focus of blood. On microscopic examination, from the periphery towards the center the vessels were found to be obstructed by blood. The cortical substance was nearly preserved in all the sections; there were a few isolated infiltrations which increased as the center of the mass was approached.

CASE XIII.—Valleix (*Clinique de maladies des enfants nouveaunes*, Paris, 1838). The infant died on the seventh day

after birth. The autopsy was held two hours after death. The kidneys were of normal size; their veins were engorged with blood. The suprarenal glands were much enlarged. The cavity of the left was the size of a small hen's egg, and contained a reddish liquid and a large quantity of fibrin. The contents had the appearance of boiled bloody liquid. This material seemed to be deposited on the walls of the cavity and formed a covering a half-line in thickness. It was strongly adherent and seemed organized. The walls of the capsules were reddish and easily torn. The right capsule preserved its yellowish color and was less distended. It contained a small black blood clot half an inch in thickness. The walls of the capsule were thick. The clot was easily shelled out.

CASE XIV.—J. Parrot (*Archives Générales de Médecine*, 1872). A female infant, on the second day of life developed convulsions. This was followed by a comatose condition; the rectal temperature was 33.4° C. During the third night the symptoms increased and death occurred on the following morning.

The autopsy showed a child fully developed. The lungs were congested in the dependent portions. There was some cerebral congestion and the brain was soft. There were soft clots in the cavities of the left heart, and some firm clots in those of the right heart and in the pulmonary artery. There were some rather grayish looking masses in the right ventricle which were friable and not adherent to the walls which resembled the fragments of an old clot. They were composed almost entirely of leucocytes. There were small hematomata on the auriculoventricular valves and in the tunica adventitia of the aorta. Near to its origin was situated a small recent hematoma the size of a hemp seed. The right suprarenal capsule was distended by an enormous blackish-brown and friable blood clot; the left contained a much less abundant bloody effusion.

CASE XV.—Ahlfeld, (*Archiv. der Heilkunde*, 1870, No. XI, p. 491). Infant was born of strong, healthy primipara. Owing to the resistance of the lower uterine segment and the severe pains five warm douches and a subcutaneous injection of morphia were given. As the head passed through the vulva meconium passed with the liquor amnii. The heart sounds were not audible. The head was delivered by Ritgen's method. The cord was very long and wrapped once about the neck.

The infant made one deep inspiration and then ceased to breathe. The limbs hung down relaxed. The child was finally revived. Twenty-four hours after birth it had an attack of suffocation. Three hours later a second attack occurred, and nine hours later a third and fatal attack.

Autopsy made sixteen hours after death. Female child, well nourished. The thymus was large and pale. On opening the abdomen there were seen two tumors the size of a hen's egg and having the appearance of huge extravasations of blood. They were found to be hemorrhagic suprarenal glands; on section fluid blood escaped. The kidneys were very large and congested, showing a deep bluish color on section. The origin of the hemorrhage could not be determined.

CASE XVI.—Fiedler (*Archiv. der Heilkunde*, 1870, No. XI, p. 301). A child born at term after a normal labor. The head was in the first position. The infant seemed normal for three days. It died after a few moments' illness on the fourth day, suffering from distension of the abdomen and severe dyspnea. There was no history of traumatism.

Autopsy.—There were no external evidences of injury. The abdomen was distended, the muscles well developed but pale. The subcutaneous tissues were rich in fat. The cranial cavity was not opened. The thymus was large and pale. The mucous membranes of the pharynx and esophagus were slightly injected. There were extensive diffuse hemorrhages under the right costal pleura. There was slight circumscribed hemorrhage into the parietal pleura at the border of the right lower lobe. There were two small hemorrhagic spots on the anterior surface of the mitral valves under the endocardium. Four or five ounces of dark liquid blood were found free in the abdominal cavity. There was widespread congestion of the parietal peritoneum in the right half of the abdomen. The liver was pale. Both kidneys were pale, the right being displaced downward. The right suprarenal formed a circumscribed mass, the size of a hen's egg, and was adherent to the loose cellular tissue about the kidney. The ascending colon passed over the tumor, and was slightly adherent to it. On section its cortical substance was yellowish-red in color and moderately thick. On pressure a brownish-red substance escaped. The microscopic and macroscopic study showed the tumor to be composed of blood clots which were not "fresh." The tumor on cross sections showed

many pea-sized cavities which contained serum. The hemorrhage evidently sprang from the cortical substance of the gland. In many areas on microscopic examination there was free fat. The round and angular cells which were present contained fat cells and drops. No fat free cells were found. There was also fatty degeneration of the cells in the medullary and cortical substances of the left gland. The walls of the capillaries and larger vessels in both glands were normal. There was a thick dark red blood clot in the tissues surrounding the right kidney which entirely enveloped the latter and separated it from the greatly distended suprarenal gland. There was a hemorrhage into the medullary portion of the kidney, and the kidney was enormously distended. The cortical layer had apparently long resisted the pressure of the blood; later it had burst and the blood had escaped into the capsule of the kidney; as the pressure increased the peritoneum was penetrated and there occurred fatal hemorrhage into its cavity. The vessels of the peritoneum showed no abnormality.

CASE XVII.—(*Ibid.*). He refers to a prematurely born child dying a few minutes after birth, in which the autopsy showed atelectasis of both lungs, small extravasations of blood under the endocardium and into the mitral valve, extensive hyperemia of the brain, hyperemia of the intestinal mucous membranes and of the liver, and a very considerable swelling of both suprarenals. This swelling was due to numerous punctiform hemorrhages. The cortical and medullary substances in this case also showed fatty degeneration.

CASE XVIII.—J. B. Bissell (*Amer. Jour of Obstet.*, Sept. 1894, p. 987). A male child. Healthy mother, multipara. The delivery was by podalic version, otherwise normal. Considerable gentle force was used in delivering the head and shoulders. Both arms were paralyzed; otherwise the infant seemed normal for two days after birth. It then became jaundiced and vomited. It had green mucus stools. On the third day the jaundice was very marked. On the fourth day the vomiting had ceased and the diarrhea was better. The child was very weak. Nourishment was given with difficulty. Death occurred from exhaustion on the fifth day. The temperature was elevated throughout, the maximum being 103.9°. The respirations reached 80 per minute.

Autopsy.—The liver was irregularly congested. It contained hard and rather whitish spots and streaks. There was a

dark fluctuating mass the size of a kidney in the region of the right suprarenal capsule, and a similar tumor in the region of the left. On section about one ounce of dark fluid blood escaped. A thin, yellowish zone, with a broader reddish-black internal layer next to the top of the kidney, forming the wall of the blood sac, marked the remains of the suprarenal capsule. The mucous membrane of the intestine was much swollen and congested throughout its entire length. The gall bladder was distended with mucus. There was a small extravasation of blood in the pectoralis minor muscle but no bruise of the surrounding tissues and no fracture of the underlying ribs. There was also a slight extravasation in the tissues of the scalp over the right occipitoparietal region. There was nothing in the symptomatology to have suggested the condition found *post-mortem*.

CASE XIX.—Parrot (*Ibid*). The author observed a small, twelve-days-old infant which was very weak and suffering from thrush. Three days later it developed strabismus, intermittent trismus and stiffness of the legs. Death followed shortly thereafter. The temperature just before death was 34.2° C.

Autopsy.—There were enormous hematmata on the mitral and tricuspid valves. The muscular tissue of the heart was slightly fatty. The umbilical veins and arteries had a mottled appearance and seemed to be fatty in areas. Throughout the entire abdominal portion of the inferior vena cava there was a clot from which prolongations extended into the iliac. At the level of the liver the thrombus showed areas of a reddish-gray color, being softened and purulent in the center. The thrombus extended into the renal veins completely obstructing that on the left side. The left suprarenal capsule adhered to the neighboring parts, notably to the pyloric end of the stomach and the pancreas. There was a bloody effusion into the post-peritoneal cellular tissues and in the anterior surface of the diaphragm. The whole capsule was distended by hemorrhage. There was a break in the wall of the capsule with an escape of blood into the parts above indicated. Both kidneys were very large and their surfaces blackish in color. On section liquid blood and venous clots escaped. The right capsule was healthy.

CASE XX.—Moissenet (*Jour. l'Expérience*, 1837. *Memoire de Rayer*) observed a new-born infant having an umbilical hernia.

The autopsy showed the right suprarenal to be the size of a kidney. On section there exuded serosanguinolent fluid. The cavity was covered by a pretty strong net-work of firmly coagulated fibrin of a brick-red color. There was a somewhat less extensive hemorrhage into the left.

CASES XXI and XXII.—Rayer (*Ibid*) also reports a case in a new-born, without giving the clinical history, which showed a large hemorrhagic tumor of one capsule, and relates another instance in a new-born in which the glands were transformed into pouches forming tumors in the lumbar region, covered with fibrin and containing sanguinolent fluid.

CASES XXIII AND XXIV.—LeConte (*Thèse de Paris*, 1897) reports two cases in which there was hemorrhage into both suprarenals in new-born infants.

CASE XXV.—Lancereaux (*Dict. Encyclop.*, 1875, T. 3, pp. 155 to 167) reports a case of an infant dying cyanosed two days after birth. The autopsy revealed a large clot in the right suprarenal gland, increasing it to four times its normal volume. There was a slight bloody exudate in the left suprarenal.

Riesman (*Post Mortem Records*, University Hospital, Philadelphia) made autopsies on six new-born children showing hemorrhage of varying degree into one or the other of the suprarenal capsules. Through his courtesy I am able to include these cases in the series I have collected.

CASE XXVI.—No clinical history. Small new-born female infant. A small thrombus toward the umbilical end of the umbilical vein. The heart cavities contained fluid and clotted blood. There was slight congestion of the right lung posteriorly. The left suprarenal gland was normal, the right was very soft, slightly reddish, and on section showed a cavity containing bloody fluid. The mesenteric glands were enlarged, the liver congested and there was some ecchymosis in the mucous membrane of the stomach. There was imperfect ossification of the parietal bone. Cultures were made from the spleen and heart-blood. The result was not attached to the record.

CASE XXVII.—White female baby aged nine days. No clinical history. The cord was detached; a scab was attached to the navel which on removal showed a bloody surface. The abdominal cavity contained considerable blood on the left side. On this same side, occupying the left hypochondriac and lumbar regions, there was a tumor the size of a duck's egg. It lay

behind the descending colon to which it was closely adherent. There was a large hemorrhage into the mesocolon which increased its thickness to three-eighths of an inch. The tumor mass was bluish in color, and on section proved to be a very large kidney and suprarenal. There was extreme hemorrhagic infiltration of the medullary substance of the kidney, the pyramids standing out as bulging black masses. The cortical substance was intensely congested. The suprarenal gland was enlarged. In its center was a cavity about the size of a walnut which was filled with blood. The walls of the cavity were soft and disorganized. The remaining portions of the suprarenal substance were soft and hemorrhagic. The capsule of the pancreas was hemorrhagic; the lungs were congested. The veins over the occipital lobe of the brain and in the Sylvian fissure were unduly distended with clotted blood. Cultures were made from the heart-blood and spleen; the result not recorded.

CASE XXVIII.—Small male infant, aged eight days. No clinical history. The umbilical stump was still adherent. There was interstitial hemorrhage involving the substance of the left suprarenal. The right was soft, cyst-like, enlarged, and on section showed a cavity the size of a large cherry which was filled with blood. The walls of the cyst were not disorganized. The mesenteric glands were enlarged, brownish and probably hemorrhagic. The stomach contained considerable grumous material having the appearance of altered blood. The cerebral vessels were injected. Cultures made from the spleen and right suprarenal showed staphylococcus aureus and albus.

CASE XXIX.—Male infant aged eight days. No clinical history. The umbilical stump was attached but mummified. The umbilical vein was large, bluish, and occupied in its entire length by a soft clot. The hypogastric veins also contained clots. The visceral pericardium was injected; the lower lobe of the lungs highly congested, and both suprarenal glands were enlarged, congested, and in some areas hemorrhagic. The kidneys were slightly congested.

CASE XXX.—Male infant aged eight days. No clinical history. The autopsy showed thrombosis of the umbilical vein; hemorrhagic infiltration of the lungs; ecchymoses in the mucous membrane of the intestine and stomach, and engorgement of the mesenteric vessels. The left suprarenal was very soft; on section it contained considerable grumous material.

The right suprarenal showed a hemorrhage into its medullary substance.

CASE XXXI.—New-born male infant, age not given. No clinical history. The right suprarenal gland was soft on section. It showed no cavity but considerable blood oozed on section. The medullary portion was dark red and hemorrhagic. There was universal hemorrhage of the right kidney, affecting especially the pyramids; the pelvis was injected and bluish-black. The left kidney was enormously enlarged and black, and on section was full of blood. The lungs were slightly congested. The umbilical vein contained a thrombus at its umbilical end. The inferior cava contained clots, and one extended to the right renal vein. It was dark in color and quite firm. Cultures were made from the left suprarenal.

Dr. Riesman tells me that in the three cases in which cultures were made and the results not recorded, the staphylococcus albus and aureus were found in each.

Mattei (*Lo Sperimentale*, 1863, p. 28, and *Jour. de Med. de Chirurg. et de Pharmacol. de Bruxelles*, 1865, Vol. XLI, p. 327), also observed five cases of hemorrhage into the suprarenal gland in new-born infants dying before the sloughing of the cord. Two of these cases are reported in detail.

CASE XXXII.—Born at term; well developed; died on the second or third day. The suprarenal glands were enlarged; chestnut-colored; the parenchyma infiltrated with blood, giving a deep red color on section. The large capsular vein was turgid. There was infiltration of blood into the elastic tissues about the gland. There were many areas of slight hemorrhage under the pia mater and on the surface of the cerebral hemispheres.

CASE XXXIII.—Four-day-old infant. No forceps lesion; subpleural ecchymoses, large hemorrhage into the left suprarenal gland which ruptured into the abdominal cavity. The parenchyma of the gland was entirely infiltrated with blood. On section there were two pockets visible which had contained the blood that had escaped into the abdominal cavity. The intraabdominal clot extended into the pelvis and surrounded the left kidney and the lower part of the left suprarenal gland. The right gland showed a slight infiltration of blood into its medulla. The kidney and liver were pale.

CASES XXXIV, XXXV and XXXVI are referred to by Mattei above but not described.

Mattei (*Lo Sperimentale*, 1863, p. 28, and *Jour. de Med. de Chirurg. et de Pharmacol. de Bruxelles*, 1865, Vol. XLI, p. 327) observed ten instances of hemorrhage into the suprarenal capsule in autopsies on twenty-two fetuses. He reports five of these in detail, as follows:

CASE XXXVII.—The author observed apoplexy of both suprarenal glands in a fetus born dead at full term. The glands were much larger than normal, but preserved their normal form. Underneath the capsule were various spots of extravasated blood, and on section they showed a deep red color uniformly diffused. Fluid blood exuded freely from the cut surface on slight pressure. The condition was an interstitial apoplexy, the blood probably coming from the rupture of a considerable number of small vessels. The liver was enlarged and engorged with blood. The other abdominal organs were normal.

CASE XXXVIII.—Nine months' fetus; well-formed; large. The head was engaged many hours in the lower pelvis, during which time the fetus died. It was extracted by cephalotripsy. The cord was once around the neck. This was considered to have caused death when the head descended into the pelvis. The suprarenal glands were a little enlarged and contained many small cavities filled with fluid blood. The walls of the right cardiac ventricle were hypertrophied; the other organs were normal.

CASE XXXIX.—Male; born at term; well developed. The lungs contained air. The suprarenal glands were large; the parenchyma of both was a deep red and showed hemorrhagic infiltration. Under the capsule of the right, over more than one-half of its anterior surface, there was a thin stratum of blood; the same gland contained a small cavity filled with liquid blood. There was a considerable amount of blood over the posterior half of the cranium, and a thin stratum overlying the upper and under surface of the cerebellum. There were many small ecchymoses over the lungs; the other organs were healthy.

CASE XL.—Fetus delivered by cephalotripsy many hours after the membranes had ruptured. There was hemorrhage into the substance of the right suprarenal gland under its posterior angle. The left was healthy. There were small ecchymoses in the visceral pericardium. All the other organs were normal.

CASE XLI.—The suprarenal glands were a little enlarged

with small ecchymoses over their surfaces. The parenchyma of each was dark red and infiltrated with blood. Under the scalp in the occipital region, as well as over the arachnoid and superior surface of the cerebellum, there were small extravasations of blood. The cerebellum was softened in many points.

CASES XLII to XLVI, inclusive, are referred to above by Mattei but are not described.

Cases observed by Spencer (*Obstetrical Transactions*, London, Vol. XXXIII, 1891) in still-born children.

CASE XLVII.—Female; both suprarenals distended with blood clots; the left ruptured, and the blood was spread behind the kidney. Both kidneys were hemorrhagic and the liver congested. There was hemorrhage over the vertex of the skull and under the periosteum of the left frontal and the right occipital lobes. The meningeal vessels were congested.

CASE XLVIII.—Female; accidental hemorrhage; version. Hemorrhage into the medulla of the suprarenals; into the cellular tissue of the scalp; liver, lungs and meninges congested.

CASE XLIX.—Female; hydrocephalus; breech presentation; traction; suprapubic pressure. The right suprarenal capsule was ruptured, the left congested. The right lobe of the liver was ruptured at its posterior part; ecchymotic areas in the lungs and heart; subcapsular hemorrhage into the right kidney; both congested; hemorrhage into the peritoneum and the tissues of the labium majora.

CASE L.—Female; breech presentation; easy delivery. The left suprarenal was greatly congested and there was hemorrhage into its medulla. There were subpericardial and pulmonary ecchymoses, with congestion of the peritoneum, small intestine, rectum, left kidney, uterus, ovaries and cerebral vessels.

CASE LI.—Male; slight hemorrhage into the medulla and congestion of both suprarenals; hemorrhage into the arm muscles, liver (ruptured), base of brain and processus vaginalis.

CASE LII.—Male; contracted pelvis; induced labor; forceps; *child lived two days*. The suprarenals were congested, the walls of the left separated by blood; small hemorrhage and congestion of the intestines and mediastinum testis. Hemorrhage into the tissues of the scalp, on the surface of the right cerebrum and around the spinal cord.

CASE LIII.—Male. Child had imperforate anus and dilated descending colon. The girth of the abdomen was fourteen and

one-half inches; delivery natural, vertex. The cord was wound around the neck; hæmorrhage into the left suprarenal; great congestion of the right; much congestion of the mediastinum testis, also surface of the testes; hæmorrhage and congestion of both kidneys; congestion of brain and pancreas; nails and mucous membranes blue.

CASE LIV.—Female. Contracted pelvis; footling presentation; depression of right parietal bone; traction; occiput rotated backwards. Hæmorrhage into medullæ of both suprarenals, in the left it exists as isolated patches, the right is converted into a cyst-like capsule filled with fluid blood; hæmorrhage into the mucous membrane of the uterus; into the hilum of both kidneys; into the left lung; into the scalp; on the surface of the brain; into the anterior cornua of the lumbar region. Both kidneys congested.

CASE LV.—Male. Natural vertex. Hæmorrhage between suprarenals and kidneys; much hæmorrhage into the suprarenals; hæmorrhage behind both kidneys and into the cellular tissue of the hilum of the kidneys; scrotum, right spermatic cord, mediastinum testis, lungs and spinal cord congested. Hæmorrhage under the pericranium and over the surface of the temporosphenoidal lobes.

CASE LVI.—Male. Placenta previa; version; embryotomy for severe hæmorrhage in mother. Suprarenals were full of blood; hæmorrhage into the liver; kidneys, testes and lungs congested.

CASE LVII.—Male. Cephalotripsy. Head hard and well ossified. Suprarenals large; the left has its lower half distended with blood; hæmorrhage into the spinal arachnoid; liver and kidneys congested.

CASE LVIII.—Male. Mother secundipara aged thirty-four; last child seven years previous; flat pelvis; slight hydrocephalus; forceps; two convulsions; version; strong traction; child just alive when born. Right suprarenal covered for a space of one and one-half by one and one-eighth inches by a layer of black blood which escaped through a laceration in the capsule and its peritoneal investment; congestion of the testes, lungs, spleen, cerebellum and medulla; hæmorrhage into the thymus, both lungs, scalp, right Sylvian fissure, and over both temporosphenoidal lobes.

CASE LIX.—Male. Natural vertex presentation. Child died

in convulsions *three hours after birth*. Suprarenals distended with fluid blood; slight superficial hemorrhages on surface of pulmonary artery, beneath pericranium; head and face, liver, spleen and kidneys congested.

CASE LX.—Female. Mother had epileptic fits for two days before delivery; version followed by natural delivery fourteen hours later through a rather rigid cervix. Suprarenals much congested and showed slight hemorrhage. Hemorrhage over left hemisphere, at base of brain, and over left cerebellum.

CASE LXI.—Female. Mother multipara; labor twelve hours; *child died eighteen hours after birth* of septicemia contracted in utero; vertex. Suprarenals full of bloody fluid; skin bluish; bloody fluid in pericardium, peritoneum, pleuræ and arachnoid; hemorrhage into hilum of kidneys; into cellular tissue around uterus and ovaries, and into all the subperitoneal and cellular tissues. Lower left lung congested.

CASE LXII.—Male. Contracted pelvis; forceps. Hemorrhage in front of suprarenals, also into substance of organ, and in cellular tissue between suprarenal and kidney. Hemorrhage into the scalp; subperiosteal hemorrhage over both parietal and over both frontal bones; slight at the base of the cerebellum and around the medulla, over the nose and petechiæ over lungs; kidneys congested.

CASE LXIII.—Male. Accidental hemorrhage; second breech presentation; legs extended; forceps; traction by fillet and groin. Hemorrhage into left suprarenal; right slightly congested; bruise in left groin from traction; small quantity of blood in peritoneum and in each tunica vaginalis; hemorrhage into mediastinum testis, liver, subpericardium, periosteum, over left side of surface and at base of brain and into meninges of spinal cord; left kidney cortex greatly congested; lungs congested.

CASE LXIV.—Female. Multipara. Rigid cervix; accidental hemorrhage; footling presentation; strong traction. Hemorrhage into right suprarenal; legs black; black bruise on left shoulder and on back. Hemorrhage into left sternomastoid, temporal muscle, gluteus maximus, erector spinæ, cellular tissues and muscles of legs and cellular tissues of right thigh. Hemorrhage into scalp, pleuræ, lung, liver, and rupture of its capsule; into great omentum; into hilum of both kidneys; on the surface of the left cerebral hemisphere at the base of the brain and between the dura and arachnoid; spinal cord congested.

CASE LXV.—Female. Labor eight hours; membranes prematurely ruptured; breech presentation; delivery natural until shoulders were born, when child gasped and was delivered with difficulty by the midwife, still-born. Slight hemorrhage into the medulla of both suprarenals at upper part; vessels of uterus and Fallopian tubes congested; hemorrhage on the surface of brain.

CASE LXVI.—Male. Eighth month. Mother multipara aged thirty-nine; five-hour labor; breech; arms extended; extraction of head difficult; *heart beat for twenty minutes* but the child never breathed. Both suprarenals congested; slight hemorrhage into the left; hemorrhage into cellular tissue and muscles of back and thigh, and into the lower third of the right sternomastoid. Slight hemorrhages into the cellular tissue just above the periosteum of the scalp; hemorrhage on the surface of the brain; under the capsule of the liver; into testes; dartoid tissue. Kidneys congested.

CASE LXVII.—Male. Natural vertex. Child revived by artificial respiration; *died suddenly fifteen minutes later.* Hemorrhage into suprarenals; into scalp and upper surface of the right lobe of liver; into the capsule of the spleen and into its substance; at the base of the brain and into tentorium cerebelli; hemorrhage and congestion of cellular tissue around the kidneys and in the hilum; testes congested.

CASE LXVIII.—Female. Natural first vertex delivery. Suprarenals congested; slight hemorrhage into left; hemorrhage over surface of liver, subcapsular; into lungs; beneath the visceral pericardium; into the Schneiderian membrane; under the parietal periosteum; over surface of parietal lobes; into duodenum; fulness of the veins of the upper cerebellum; congestion of the mucous membrane of the stomach, esophagus and jejunum; deep ecchymoses in cortex of both kidneys; thymus congested.

CASE LXIX.—Female; breech; extended legs; impaction failed to bring down leg; traction with fillet and groin; arms extended, difficult to bring down; child died during delivery of arms. Suprarenals both congested; hemorrhage into right; hematoma of the left labium minus; hemorrhage into cellular tissue around the orifice of vagina; slight hemorrhage at base of brain; under laminæ; into anterior edge of left sternomastoid; into hilum of kidneys; congestion of thymus and of the pyramids of the kidneys.

CASE LXX.—Portal (cited by Lieutaud and quoted by Droubaix) reported the case of an infant two months old which cried continuously for five days without discoverable cause. Convulsions developed and the child died after three days. The autopsy showed hemorrhage into both suprarenal glands. The glands were larger than a pigeon's egg.

CASE LXXI.—Wainwright (*Trans. of Path. Soc. of London*, 1893, Vol. XLIV, p. 137.) A two-months-old infant with purulent ophthalmia and bronchopneumonia died in convulsions.

Post-mortem.—Areas of consolidation were present in both lungs. There were no evidences of tubercle bacilli. All the other organs were healthy except the adrenals; one measured one and one-eighth inches in length by five-eighths of an inch in breadth and one-third of an inch in thickness. It was tough, pale and slightly nodular. On section it showed a cortical layer of apparently normal tissue bounded internally by a band of brownish pigment; internally to this was a practically translucent caseous looking mass which felt gritty under the knife. Microscopically the outer layer was made up of normal cells with here and there patches of broken down tissue. The band of pigment was the remains of an old hemorrhage. The central portion was composed of a coarse, fibrous, net-like material containing in parts small cells, but chiefly enclosing mulberry-like calcareous masses and a few patches of dark pigment. There were no tubercles, no leucocytic infiltration, in fact, nothing to suggest a recent infiltration. The condition was thought to be an old hemorrhage.

CASE LXXII.—Duckworth (*Twentieth Century Practice*, Vol. II) refers to a case of pertussis in an eight-months-old child in which the paroxysms of cough induced excessive hemorrhage into both adrenals.

CASE LXXIII.—Still (*Trans. of Path. Soc. of London*, 1898, Vol. XLIX) discovered at an autopsy on a fourteen-months-old infant dying of acute miliary tuberculosis a distended purplish suprarenal capsule. On section the whole organ was engorged with blood. The medulla was of a dark purple color. There were one or two gray tubercles present in the substance of the gland. Microscopically the medulla was infiltrated with extravasated blood corpuscles, but there was no disintegration of the tissues. The hemorrhage was nowhere circumscribed. The

cortex showed engorgement of the small blood-vessels and some extravasation of blood, but less than in the medulla.

CASE LXXIV.—Andrews (*Trans. of Path. Soc. of London*, 1898, Vol. XLIX, p. 259). Female infant, aged fifteen months, had a hemorrhagic rash which was papular in the chest and somewhat resembled small-pox. It died after an illness lasting two days.

Autopsy.—The glands of the neck were somewhat swollen. All the viscera except the suprarenal glands were normal, both of the latter were dark red in color from hemorrhage. Cultures from the suprarenals, lungs, liver, spleen, and kidneys remained sterile. Blood films from the suprarenals stained in various ways showed no microorganisms. Sections from the suprarenal glands, lungs, liver, kidney and spleen were stained but showed no microorganisms. The suprarenals showed a firm uniform diffuse extravasation of blood, the proper tissue elements being obscure and apparently diminished in number.

CASE LXXV.—Churton (*Lancet*, 1886, Vol. I, p. 248) reports a case of hemorrhage into both suprarenal capsules in an infant dying as the result of a severe burn.

CASE LXXVI.—Voelcker (Registrar's Reports, Middlesex Hospital, 1894, p. 278) notes the case of an infant dying at the age of two years from an acute illness and having purpura. The autopsy revealed hemorrhage into both suprarenal glands.

CASE LXXVII.—Batten (*Trans. of Path. Soc. of London*, 1898, Vol. XLIX, p. 258.) An infant aged two and one-half years had suffered from urticaria for one month. He was taken suddenly ill with vomiting, diarrhea and fever. Convulsions occurred on the second day. The child became comatose. The respirations were of the Cheyne-Stokes type. The pulse reached 200 beats to the minute. The temperature rose to 102° F. Strabismus was present. There were no fundus changes. There were bronchial rales over the entire chest. The knee jerk was marked and there was a tendency to ankle clonus. The temperature rapidly rose to 106° F., and the child died on the evening of the second day.

Autopsy.—There were three small extravasations of blood on the floor of the lateral ventricles, congestion of the lower lobes of the lungs to a dark purple color, and of the right suprarenal gland. All the other organs were normal. A microscopic examination showed the entire suprarenal to be extremely

congested, extravasation of blood having taken place into the medullary portion of the organ. The left suprarenal was normal.

CASE LXXVIII.—Garrod and Drysdale (*Trans. of Path. Soc. of London*, Vol. XLIX, p. 257). A female child aged four years had a blotchy purpuric eruption over the body. The thymus gland was large. Both suprarenals were of a deep purple red color, and their medulla was of a deep purple tint. There were no circumscribed hemorrhages. Microscopic examination showed the stroma fairly well preserved. The cells enclosed in the meshes of the stroma had largely disappeared being replaced by effused blood. Some of the individual spaces were entirely filled by red blood corpuscles; elsewhere the cells could be seen in considerable numbers, the nuclei staining well, but the cell substance being practically destroyed. There were no other lesions in the body. Cultures from the spleen, liver, kidneys and suprarenal capsule remained sterile.

CASES LXXIX TO XC, INCLUSIVE.—Still (*Trans. of Path. Soc. of London*, 1898, Vol. XLIX), in commenting upon his case described above says that in 3791 autopsies on children under the age of twelve years at the Hospital for Sick Children, Great Ormond Street, only 4 cases of suprarenal hemorrhage were noted. One occurred in a child aged three years and the others in infants. Two cases of marked congestion, one in a child of eleven years dying of acute tuberculosis and ulcerative endocarditis, the other in an infant dying of septicemia were also recorded.

In addition to the above, on autopsies made elsewhere in twenty-five children dying before the fifth day, he found congestion in 4 and hemorrhage in 1 case. He refers to records of 2 additional cases of congestion and 1 of hemorrhage into the suprarenal gland in infants, no particulars being recorded, making a total of 12 cases of hemorrhage and 7 of congestion. These 12 cases with the 78 already recorded bring the total up to 90.

FOOT NOTE.—Since this article has gone to press it has been brought to my attention that Dr. Chas. Norris presented to the New York Path. Soc. on March 12, 1900, a case of "Hematoma of the Right Suprarenal which Ruptured into the Peritoneum in a Child aged Ten Days." The infant was a blue baby and died suddenly on the tenth day. The only other lesions recorded are "a foramen ovale nearly closed" and "a ductus arteriosus presenting a funnel-shaped opening at its aortic end. He refers to having seen an exactly similar case. In the discussion of this case Dr. Larkin refers to having seen four or five hematomata in still-born children.

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Sterilization of Milk as Related to Intestinal Putrefaction.

Angelo Volpe (*Il Policlinico*, April 1, 1900) concludes, after a long series of experiments, that by sterilization milk is so much changed in its nature as to interfere with its digestibility. When non-sterilized milk is used in alimentation, the total amount of sulphur eliminated in the urine is increased, but so also is the sulphur belonging to the ethers, so that the action of the bacteria contained does not seem to be prevented, assimilation is, however, more complete. When milk is sterilized at 100° C., the putrefactive processes diminish, it is true, since the amount of sulphuric ethers is lowered, but the total amount of sulphur is lessened, which signifies that not all the albumin introduced in the milk has been assimilated. We must bear in mind in the feeding of children that the temperature of milk is not unimportant, since the digestibility and assimilability are impaired, and what is gained on the one hand by a diminution in the number of the bacteria is lost in the total effect of alimentation, only a portion of the milk being utilized, while the rest remains in the intestines, this residue of undigested substances being a fruitful source of putrefactions which are anything but harmless.—*The American Journal of Obstetrics.* May, 1900.

THE DIAGNOSIS AND TREATMENT OF ADENOIDS BY THE GENERAL PRACTITIONER.*

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The diagnosis of adenoids does not offer any difficulties to the specialist. Patients consult him because of some nose or throat trouble. In the case of the general practitioner it is different. His patients come with all sorts of stories, not necessarily of a local nature. The condition, therefore, is frequently overlooked or the physician fails to appreciate the import of the symptoms presented. An intimate knowledge of the local and general effects is essential, otherwise the signs are imperfectly interpreted and the treatment in consequence is merely palliative. "A child with adenoids presents two distinct conditions, the lymphatic diathesis manifesting itself locally in the nasopharynx, and the constitutional and local results of the nasal obstruction." (T. H. Halstead.) Were this fact remembered, the disease would not be overlooked so frequently. To illustrate the changes which have taken place in the views on this subject, the following may be of interest:

A little more than fifteen years ago Morell Mackenzie wrote, "We often predicate the existence of enlarged tonsils as the child, with open mouth, drooping eyelids, dull expression, and thick voice, enters the consultation room." Until Meyer's researches were made public, such symptoms were credited to the tonsils. At the present time we recognize that the description applies to the changes produced by the pharyngeal and not the faucial tonsils.

In advanced cases with the above characteristic facies, no one ought to fail to make a diagnosis. A moderate amount of disease, however, may not give manifest symptoms; indeed not infrequently, the growths are found in little patients who complain little or not at all of local disturbances.

Our suspicions are aroused by repeated attacks of nasal

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catarrh, and it is only at such times that the children appear to suffer. When the attack is over they are free and in the eyes of the parents apparently well. Scarlet fever, measles and diphtheria induces a rapid increase in the size of the growths. If the patients recover (for the prognosis is more grave in such cases) the symptoms of nasal obstruction are usually pronounced. Numerous instances in which adenoids are said to have followed an attack of one of the infectious diseases will, upon closer investigation, disclose slight evidences of prior trouble. Indolently enlarged lymph nodes, painless, freely movable and about the size of an almond, situated at the angle of the jaw, one on either side, point to trouble in the nasopharynx. A digital examination generally reveals the lymphoid hypertrophies. The nodes are apt to become enlarged as the result of acute nasal catarrh, or even without any apparent cause. Under treatment and sometimes without, the swellings grow less until the original size is reached, or suppuration, etc., may follow. Local tuberculosis is not uncommon.

When the attention of the parent is directed to these nodes, the information is frequently volunteered, that the "kernels" increase in size with each new cold, and subside again as the latter improves. In fact, children are very often brought to the clinic because of the swelling of the nodes. Under such circumstances, the original cause is referred to the nasopharynx at once and the presence of adenoids suspected.

Dyspnea upon exertion without any evidence of heart or lung trouble, must not be attributed to the anemia present. The morbid condition in the nasopharynx offers a ready solution, the truth of which is established by the results of operation.

In quite a large number of cases in general practice, the prominent symptoms for which the patient is presented, mask in a measure the original and primary cause of the trouble. Not infrequently a careful analysis is required before the symptoms can be referred to the nasopharynx. The relationship of nasopharyngeal disease to certain cases of ear trouble, local facial spasm, and other nervous disorders, dyspeptic manifestations, thoracic deformities, incontinence of urine, the mental condition to which the term "aproxexia" has been applied, bronchial and other pulmonary disorders, etc., may be referred to incidentally to bear out the truth of this statement. This phase of the subject has been carefully considered by the writer, in an article on

"Nasopharyngeal Disease in Pediatric Practice," published in the "Jacobi Festschrift."

"That form of trachoma in which there is lymphoid infiltration of the follicles of the conjunctiva is treated by the use of forceps, which squeezes them out. These trachomatous granules or lymph follicles, are small rounded masses of various sizes; they are lymphoid cells and connective tissue cells surrounded by a fibrous capsule. These are the cases I consider the same as adenoids." (Wm. Olive Moore.) In such patients, the lymphoid structure in the nasopharynx will be found to be hypertrophied.

J. N. Mackenzie says: "In a child suffering from impeded nasal respiration or symptoms of an ordinary non-suppurative otitis media or both, if the forceps be introduced, without preliminary inspection, into the nasal pharynx, a mass of adenoid growths will generally be found in its grasp upon withdrawal."

Often a prominent vein running across the base or root of the nose will direct attention to the impeded venous circulation in the pharyngeal vault. In older children nose bleeding is common. The bleeding ceases and the prominent vein disappears in a few weeks, when the patency of the nasopharynx has been restored.

Large tonsils are generally associated with a greater or less degree of adenoid growths at the vault. The removal of the former is frequently followed by a marked recession of the pharyngeal growth. The improvement may be due in part to the amelioration of the nasopharyngeal catarrh and in part to the restoration of a proper degree of nasal respiratory pressure, or perhaps to a break or interruption in the lymphatic circulation in the vicious circle constituting the "tonsillar ring"—possibly to all three in combination. In these cases the small adenoids may be ignored, though the large lymphoid hypertrophies require curetting. Recurring attacks of nasal catarrh or a tendency to catch cold easily in a young child should direct attention to the nasopharynx.

In infants the head is often thrown back over the arms of the nurse, the little patients appearing to breathe more easily in this position. In those at the breast the manner of nursing is characteristic. Breathing being principally buccal, the mouth cannot be kept closed long, the nipple is seized and quickly dropped with a fretful cry, to be taken again with the same

result. Nursing is therefore attended with great difficulty and nutrition is apt to suffer. Snoring is present during sleep, colds are easily contracted and nasal catarrh with more or less acrid discharge is common.

Falling backward of the tongue in diseases attended by muscular weakness, as chronic gastrointestinal catarrh, diphtheria, whooping-cough or malnutrition in general from any cause, is more apt to occur in infants and children with adenoids, particularly if the frenum be long. In this connection, it may be of interest to refer to cases in which the swelling and thickening of the mucous membrane in syphilitic coryza seriously impede respiration and interfere with nursing—threatening a fatal termination. The difficulty is more pronounced if the little patients are lying on the back. When placed on the side or inclined forward, semiprone, with the face turned partly downward, the distress is less.

Inspiratory spasm (*laryngismus stridulus*) in infants, now and then is due to nasopharyngeal disease. Several were seen at the clinic during the past month and a case was admitted recently to the "Jacobi Ward," Roosevelt Hospital. The infant, four months old, was seized with a crowing inspiration whenever the bottle was given. As soon as the nasopharynx was irrigated the attacks disappeared. Older children said to be "subject to croup," to use a familiar lay expression, are commonly found to be afflicted with adenoids.

As to *diagnosis*: the diagnosis may be made (*a*) from the symptoms, (*b*) by means of the rhinal mirror, or (*c*) digital exploration of the nasopharynx. The symptoms are often so plain that no one can fail to interpret them correctly. The use of the mirror for posterior rhinoscopy is impossible, as a rule, in children. Digital exploration after a little practice is readily performed and yields the desired information.

For one reason or other it may not be desirable at the time to resort to a digital examination. Under such circumstances, reliance may be placed upon two symptoms. Either one or the two jointly offer a ready and easy method for a correct diagnosis.

First.—The presence of two small lymph nodes, painless and freely movable at the angle of the lower jaw, one on either side. Though apt to become swollen with each new catarrhal inflammation of the nose, they return to their former size when the nasal trouble has disappeared, provided a mixed infection has not taken place.

Second.—Upon oral examination and inspection, if the size of the tonsils does not obstruct the view, numerous small lymphoid hypertrophies will be found upon the mucous membrane of the posterior pharynx, now and then at the level of the soft palate larger masses are present.

The appearance of the diffused lymphoid infiltration is characteristic, the isolated prominences, more or less numerous, pearly and translucent in appearance, resemble smaller or larger sections of boiled sago projecting above the surface of the pharyngeal mucous membrane. Tenacious mucus or mucopus which should be removed, may coat the nasopharyngeal wall and partly obscure these little growths. The presence of the latter or of the lymph nodes glands referred to at the angle of the jaw, justifies the diagnosis of adenoids and a digital exploration of the nasopharynx for the purpose of establishing their existence is unnecessary under such circumstances.

The importance of a correct interpretation of these two signs has been insisted upon and taught for six or seven years in the practical course at the Vanderbilt Clinic. When one or both were present, we were always able to remove large masses of adenoids from the nasopharynx—preliminary exploration with the finger not having been considered necessary. The observations are not claimed as original, though the writer cannot at the present moment recall the original source. He was rather surprised, a short time ago, to find that a well-known specialist claimed the second as an original observation. In a subsequent personal communication the gentleman stated that specialists at the present time were just beginning to correctly interpret the peculiar appearance of the pharyngeal wall referred to.

TREATMENT.

In discussing the treatment in detail, two points must be considered. First, the removal of the lymphoid hypertrophies constituting the "tonsillar ring," and second, the effects local and general, due to the interference with normal nasal respiration. The earlier the treatment is instituted, the greater the success in preventing secondary changes, the thoracic deformities, abnormalities in the jaws, hard palate and teeth and numerous other evils. It is true that about the time of puberty there is a natural tendency to retrograde changes in the pharyngeal and faucial tonsils. In the meanwhile, however, irreparable damage

may be done to the bony structures, the ears and the general health. We should bear in mind that the lymphoid growths are peculiar to the developing period of life. They interfere with normal nasal respiration. The blood, therefore, is imperfectly supplied with oxygen and as a natural sequence the cells, tissues and organs will suffer. The bad results are not limited to the nose, ear and throat; the brain, heart and lungs show the effects of imperfect oxygenation and consequent malnutrition. The parts are not equally affected. The symptoms vary with the individual.

In the milder cases, characterized by an absence of symptoms, except when nasal catarrh is present, there appears to be a simple diffuse hypertrophy of the lymphoid tissues, or perhaps small masses. Attention to the general health, the internal administration of the syrup of iodid of iron in appropriate doses, with careful nasal irrigation during the acute exacerbation and in intervals between the attacks should be advised. Carefully followed up, such patients after a longer or shorter period, will be found to present pronounced symptoms of nasal obstruction, the tissues having undergone further growth, as the result of recurring attacks of catarrh or the advent of one of the infectious disorders. It is a question whether a timely early scraping may not be indicated to avoid subsequent troubles.

In any case, in which decided symptoms are associated with adenoids, the growths should be removed. This may be accomplished by the finger, forceps or curette. Personally, the reader prefers the curette—Delstaunche's Modification of the Gottstein. In infants, the small Hooper forceps may be used.

For a week or so before the operation the nares are irrigated with warm salt solution, a few times daily, a nasal cup, Birmingham douche or medicine dropper being used. No force must be exerted, otherwise an otitis may be set up.

The operation may be done in the "intubation position" the patient being firmly held by an assistant or in the reclining posture with patient upon the back, the head between the thighs of the operator, and body resting on the lap of the assistant, who firmly grasps the arms and at the same time confines the lower extremities between his own. The child is under complete control in either position and the curetting can be rapidly accomplished with the Delstaunche instrument. The finger is then introduced and any remnant is crushed or removed with a smaller curette.

The after-treatment consists in instilling warm salt water into the nares every few hours. Liquid diet is ordered and the child is confined to the house for a few days. The nasal irrigation (no force being used) is kept up for weeks. Internally iron, arsenic and strychnin or syrup of the iodid of iron is continued for months.

As to the question of narcosis: should an anesthetic be given to children in operating in these cases? The patients in general are in poor health, their blood is impoverished, the heart is weak and the lungs are more or less impaired. As Paltauf has shown there is a systemic weakness in general, a diminished power of resistance to disease or shock, and moreover there is the great danger of sudden cardiac paralysis.

Hinkel has directed attention to the danger of chloroform. Muir, Halstead and others have reported fatal results and now and then we hear of others not reported. The list is large. Evans, of Louisville, recently reported a fatal case from the use of nitrous oxid gas (*Pediatrics*, December 1, 1900.)

A number of specialists remove both tonsils and adenoids at one sitting without narcosis in less time than it would take to narcotize the patient. The work is done thoroughly and with less suffering than is entailed by the use of anesthesia. Halstead, of Syracuse, one of the latest writers, in a recent article deprecates the use of chloroform. He highly recommends a preliminary hyperdermic of atropia and the local application of cocain to the nose by means of a cotton swab to avoid some of the unpleasant effects of the anesthetic, general narcosis with ether being resorted to before the operation is attempted. He has followed this plan for nearly two years with satisfactory results.

The writer prefers to operate without narcosis. If after a few weeks it is found that all the growths have not been removed a second curetting can be done. The pain of the operation does not seem to be severe and he firmly believes that there is less shock from this operation, provided the little one has not been frightened beforehand by a knowledge of what is to be done, than in the giving of an anesthetic, particularly ether, to a struggling and frightened child.

Contraindication.—The existence of an acute otitis, bronchitis, or inflammatory process in any part of the respiratory tract is a contraindication. In chronic suppurative ear troubles, the operation is frequently indicated and is followed by marked

improvement. Bleeders, or those who have had petechiæ, are best left alone. The bleeding, as a rule, is not excessive. Before operating, it is a good plan to remove or loosen the clothes about the chest, thereby avoiding any constriction about the neck, or interference with the return circulation.

If the symptoms are due to the adenoids and tonsils—the anterior nares and nasal passages being free, the relief is immediate and marked. The change is surprising. In a short time, the cheeks fill out, the expression and intelligence improve, the restless nights disappear, breathing is carried on normally and quietly and the improved general health speaks volumes for the success of the operative measures. If, however, the anterior nares are small, the cartilaginous or bony septum thickened or deflected, anterior or posterior turbinate hypertrophies exist, further treatment and operation may be required. In giving a prognosis as regards the disappearance of symptoms, it is well to remember these points, otherwise considerable disappointment will result and possibly discredit be attached to a most useful operation; one which, when done early and thoroughly, prevents many serious consequences and rescues the patient from a life of suffering, misery and ill-health.

209 EAST SEVENTEENTH STREET.

The Treatment of Dysenteriform Enterocolitis of Infants by Guarana Powder.—R. St. Philippe says (*Le Bulletin Médical*, June 6, 1900,) infantile diarrheas vary in form, aspect, cause, and pathogenesis, and no single treatment can be laid down for all. They should be carefully distinguished from one another, and the appearance of the stools themselves will lead to the proper treatment. The glairy dysenteriform enterocolitis is a variety apart, characterized by special etiology, symptoms and therapeutic indications. This variety of enteritis is favorably modified by fresh guarana powder, which should be used after cold maceration and should be prepared some time in advance. The dose varies with the patient's age, from 50 cgm. to 2 gm. in the twenty-four hours. The physiological action is evidently complex, but it appears to act in a substitutive and tonic manner. The remedy should be ranked with other anti-dysenteric drugs.—*Medical Record*, June 23, 1900.

SOME OBSERVATIONS UPON THE TEMPERATURES
OF APPARENTLY HEALTHY CHILDREN:
AN EXPERIMENTAL STUDY.*

BY W. M. DONALD, M.D.,

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The sensitiveness of the temperature controlling apparatus in children, and the instability of their bodily temperature in sickness are facts well known to the medical public.

For a number of years past I have noticed in institutional work, where young children, on account of suspected exposure to some infectious disease, have been quarantined and watched carefully for a number of days, that the temperature by accurate thermometric tests showed marked variations. These variations seemed to be due, partly to individual peculiarities of temperament, and partly to variations in atmospheric temperature.

In the summer of 1899 I decided to conduct a series of experiments in the Protestant Orphan Asylum of Detroit to determine if possible something of the daily variation in temperature in the same healthy child, and something of the individual variations in a group of healthy children.

In August, 1899, during a period of cool summer weather, twenty healthy children, aged from three to twelve years, were selected, and their morning and evening temperatures taken for a period of two weeks. The temperature of the room in which they were examined and in which they lived during part of the day, was also recorded, together with the daily temperature record of the Weather Bureau as it appeared in the daily press. It was during vacation period from school, and the children were engaged in the ordinary vacation pastimes, and lived regular, normal lives.

In September of the same year Dr. W. A. Wilson, visiting physician to the Florence Crittendon Home of this city, conducted, at my request, a series of similar experiments at that institution upon twelve healthy babies whose ages ranged from two months to two years. As the results reached by him in his

* Read before the Detroit Medical Society, November 1, 1900.

experiments were almost identical with those recorded by me, I will not make any further statement of his results, but will confine myself to my own.

These experiments were undertaken primarily entirely as a matter of scientific curiosity, but when we secured interesting data from our experiments, and had allowed sufficient time to elapse to satisfy ourselves that none of these children had any latent tubercular or other taint about them, which might account for their aberrations of temperature, we decided to make this report as a synopsis of what we had found.

As stated before, twenty children were selected for the tests and the temperature of each taken twice daily, at about 8.30 A.M. and 6 P.M., for a period of fourteen days. During the fourteen days in which the tests were conducted, we had, of course, twenty-eight collective readings, and out of these twenty-eight, twelve readings, or 42 per cent., gave us a mean or average temperature of 99° F. or over.

As was to be expected, the higher readings occurred at the afternoon tests in the majority of cases; nine of these being recorded in the afternoon, and but three in the morning aggregate. On five different occasions, or about 18 per cent., the mean temperature on the collective reading showed a higher range in the morning than in the evening of the same day.

This is contrary to the usually accepted dictum that the normal evening temperature is always higher than that of the morning, and was a point of considerable interest to us.

Leaving now the collective and taking up the individual readings, we may premise that we had in the aggregate 560 temperature records. Out of these 560 records, 13, or .02 per cent., showed 100° F. or over. On one occasion a child was found with a temperature of 101° F., and once a temperature of 102° F. was discovered in another child. The minimum readings showed 13 out of 560 records, or .02 per cent., to be under 98° F. As a matter of fact, they were usually 97° F. or 97.4° F. In the course of his tests Dr. Wilson, upon a single occasion, found a temperature of 96.4° F.

Another point which is of marked interest, and which was manifested in about 30 per cent. of the cases examined, was a tendency towards a constant high temperature. Thus in the case of a lad aged seven the temperature during the evening tests showed, with one exception, a range of 99° F. or over.

Here is his record: 99.8, 99.9, 99.4, 99.5, 99.4, 98.4, 99, 99.4, 99.4, 100, 99.4, 100, 99.3, 100.2° F. Two other lads aged eight showed in 11 tests out of 14, or about 80 per cent., an evening range of 99° F. or over. Their records are: *number one*, 99.6, 100.3, 99.8, 99.5, 98.6, 98.2, 99.2, 99, 99.1, 99.8, 99.3, 99.6, 98.6, 99.3; and *number two*, 99.6, 100.2, 99.3, 99.4, 99.5, 98.6, 99.2, 98.1, 99.3, 99.4, 99.2, 99, 99, 99.2° F.

As before remarked, 30 per cent. of the children showed this peculiarity of constant high temperatures, but those in which the figures are given will suffice as an illustration. While I have cited these cases as examples of constant high temperatures in the evening, there was also exhibited the same peculiarity in the morning examinations, though not in as marked a degree.

A few children were characterized by the opposite condition of subnormal temperatures upon the evening examinations. Thus a boy aged eleven had during the fourteen evening tests a slightly subnormal temperature on five different occasions, or about 30 per cent. His record was: 98.2, 97.8, 97.5, 98.3, 98.3° F. His morning temperature was similarly low. A little girl aged two showed a similar range of subnormal temperature on the same number of evenings, with a corresponding increase in the number of subnormal temperature records in the morning. An occasional mark of 97° or 97.5° F. in the morning was not at all unusual in the records of all the children.

I regret that the temperature of the external air during the whole fourteen days in which we conducted the tests was almost constant, so that little could be learned of the changes which might come in the bodily temperature from a sudden heated or cold period of weather.

We discovered that when some of the children had been playing vigorously and came into the examining room flushed and heated and perspiring from their efforts, that the range of temperature was apt to be lower than at other times. We used four thermometers for our tests, all of a standard pattern, and all by previous tests registering accurately.

I wish to emphasize again that these were children especially selected from nearly 100 in the asylum on account of their perfect condition of health. No one of them was sick at any time during the tests and none of them has developed any illness since.

I have taken pains during the past week to look up the records of their physical condition and have found that every

one of them is in perfect health, with no sign of any constitutional trouble.

In this brief paper I have endeavored to give sufficient data to demonstrate, first, the instability, and, second, the variability of the normal temperature in children; third, the individual peculiarity in some children of a tendency to maintain a constant high temperature—a temperature in fact which in other children would be considered as indicating a pyrexia; and fourth, a tendency which is already well known of normal temperatures in children to run somewhat higher than normal temperatures in adults.

In conclusion I wish to acknowledge the invaluable services rendered me by my student, Mr. Wm. Hanes, in securing an accurate record and compiling equally accurate results.

970 JEFFERSON AVENUE.

A Case of Dermatitis, Tetany, Desquamation and Edema Due to a Severe Intestinal Autointoxication.—Valenza in (*de Gazzetta degli ospedali e delle clin.*, September 16, 1900,) reports the case of an infant aged fourteen months. The child had been suffering for some time from dyspepsia. The present illness began suddenly with fever and a scarlatiniform rash over the face and neck, as well as with a bright-red erythema over the trunk. The limit of this erythema looked like the boundary line of an erysipelas. There was also marked tympanites, and purgatives were therefore ordered, with the result of promptly relieving the symptoms. On the following day, however, the child was found in a tetanic condition, and the skin all over the face, neck, abdomen and chest, was desquamating. There was a slight edema of the face, the back and the fingers, and the pulse and temperature were normal. The tympanites had returned and the child was constipated; the urine was scanty. Irrigations of the bowels, pepsin, sodium benzoate and caffeine were ordered, and in five days the symptoms disappeared. In commenting upon this case, the author says that the cause of this symptom-complex was an intestinal self-intoxication, and that this was probably the result of the diet. The child had received asses' milk, which milk is more likely to ferment than that of any other animal.—*The New York Medical Journal*, October 20, 1900.

Clinical Memoranda.

CASE OF APPARENT RECOVERY FROM A CONGENITAL ABNORMALITY OF THE HEART.

(? PATENT DUCTUS ARTERIOSUS.)

BY JOHN THOMSON, M.D.,
Edinburgh.

On reading, lately, Prof. Escherich's very interesting paper "Ueber das Vorkommen von Ductusgeräuschen bei Neugeborenen," in Prof. Jacobi's "Festschrift," the following case was brought to mind. Although my notes are not, unfortunately, as full as they might have been, it seems well to record them for what they are worth.

CASE.

Cecilia M., nine weeks old, was brought to the New Town Dispensary on March 22, 1893. Dr. W. G. Sym, while seeing another child in the family for eye disease, had been struck with the blueness of this infant's face and hands and had advised her mother to have her heart examined. The child's blueness had been noticed by the parents from birth, but, as she seemed well in other respects, they had not been concerned about it. The cyanosis was the only reason of their bringing her to me.

She was the tenth child of apparently healthy parents. Five of the other children had died in infancy or early childhood from various ailments, and one in adolescence from phthisis. The other three, were at that time, alive and healthy. During her pregnancy, the mother had been nursing her consumptive son and had had little rest, but she had not been ill.

The infant was fed from the bottle first with condensed and afterwards with diluted fresh cow's milk. She was always small and was noticed to sleep more than usual; but otherwise she had seemed normal and she had never had any respiratory trouble. The blueness of her extremities was noticed to vary in degree and to be worse when she cried.

She was a puny, undersized infant with slight rickety beading of the ribs. The hands and feet and the face (especially the lips) were distinctly cyanotic. The pulse was very rapid (156), and small but regular; the respirations were 36 in the minute. The lungs and the abdominal organs appeared to be normal.

The heart's apex beat was very indistinct, and was situated in the fourth left interspace about one-third inch outside the nipple line. No thrill could be felt in any area. There was no increase of the cardiac dulness and no sign of enlargement of the right side of the heart. On auscultation, a loud systolic murmur was heard. It was most marked over the base of the heart, especially to the left of the sternum, but was also audible in the other areas, in the axilla and in the interscapular regions. The pulmonary second sound was normal and not accentuated. There was no clubbing of the finger ends.

On March 29th, the condition was unchanged. The pulse was 168 and the respirations 40-44.

On May 26th, 1893, the child was again seen. Her feeding had been regulated and she seemed to have been a good deal the better of this. She was fatter, firmer and more lively. Her mother reported that she no longer turned blue, and on examination only very slight cyanosis of the feet and legs was noticed. The murmur was distinctly less loud, and over the tricuspid area it was quite inaudible. The pulse was 152.

On July 1st and 15th, the child was again seen on account of faint attacks which seemed to be connected with dyspepsia. There was no change in the heart sounds and no cyanosis.

On October 16, 1893, the child seemed fatter and stronger. Her pulse was still rapid, 148-150. There was still a distinct systolic murmur over the base of the heart, but as the child was very irritable the limits of its distribution were not ascertained. There was no cyanosis.

After this, the child was lost sight of for years. On May 4, 1900, Dr. J. S. Fowler, under whose care she then was, kindly sent her back to see me. She had been tolerably well since I last examined her and was fairly healthy in appearance. She showed no trace of cyanosis and had no clubbing of the fingers. Her pulse was normal in rate and rhythm, and neither Dr. Fowler nor myself could detect any abnormality whatever on examination of her heart.

Remarks.—While the facts given above are hardly enough to found a sure diagnosis upon, it seems to me possible, indeed probable, that the murmur and other signs of circulatory disturbance in this case may have been due to a patent and perhaps dilated, ductus arteriosus, and their disappearance to the closure of its lumen. A perusal of Prof. Escherich's paper referred to above, has served to strengthen me in this opinion.

TUMOR OF THE CEREBELLUM IN A BOY OF SEVEN YEARS.*

BY S. RUSH KETCHAM, M.D.,

Consulting Physician to the Northern Dispensary; Physician to St. Christopher's Hospital for Children, and to the Out-patient Department, Episcopal Hospital,

AND LUTHER C. PETER, M.D.,

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J. Q. was admitted to Dr. Ketcham's service in St. Christopher's Hospital for Children, November 30, 1900. His family history is negative except for a tubercular taint on his mother's side and attacks of vertigo to which his mother is subject of late years, which seem to be of cardiac origin.

He was born at term after a normal labor and breathed well at birth. At nine months, while yet on the breast, he had diphtheria. He began to talk at the usual time, but did not walk until twenty-two months of age. The parents never noticed anything wrong with the child until he began to walk, when they thought that he walked awkwardly. He has been clumsy in walking all his life, staggering and falling much without apparent cause. The child was placed upon table food at seventeen months, and except for a staggering gait and an irregular movement of the eyes, he was thought to be in perfect health for several years. He was bright, talked well, and was able to dress and feed himself up to several months ago, when the movements of his hands and arms became awkward. About the same time, too, the child complained of blindness in the right eye. On October 7th, he began to vomit without nausea and without effort. For some months he has complained of headache, and now when asked how he feels, his reply invariably is, "I feel well, but my head hurts." His headache is frontal, persistent, and at times severe. He has never lost power in any part of his body, never had a convulsion and never complains of vertigo.

EXAMINATION.—He is a finely built boy, large for his age, and while lying quietly in bed, has every appearance of perfect health. He is bright, talks well and answers all questions intel-

* Read before the Philadelphia Pediatric Society, December 11, 1900.

ligerly. His speech is perfect for a boy of seven. There are no palsies and his muscular power seems to be as good as one would expect at his age. When asked to grasp an object, his hand moves around incoordinately before he takes hold of the object, in a manner somewhat like the "hovering hand," and in touching the tip of his nose or the lobe of his ear with the index finger of either hand, the irregularity of movement is very apparent. Closing of the eyes increases the incoordination. While lying quietly on his back, his effort to kick at objects held in different positions, results in marked ataxic movements of the legs. There is a little stiffness, too, about the joints when handled passively, which does not seem to be present during active movement. The knee jerks are increased on both sides but especially on the right; ankle clonus is not obtainable. When the soles of the feet are stroked crosswise a hyperextension of all the toes is sometimes obtainable, but not constantly. The cremasteric and abdominal reflexes are both present and normal. The chin jerk likewise is present and a normal biceps tendon reflex can be obtained on both sides. When the child is placed upon his feet and makes an effort to walk, he staggers like one intoxicated, tending especially to fall to the right. The latter observation agrees with the mother's statement. His feet are not raised high as in locomotor ataxia, but the movement is uncertain, ataxic, and the right leg is slightly dragged along. He stands with difficulty, with feet wide apart, and with considerable sway even when his eyes are open; closing of the eyes increases the sway. There is no disturbance of touch, pain, or temperature sense in any part of the body.

For a report of his ocular condition we are indebted to Dr. Frederick Crouse. It is as follows: "There are no palsies of the ocular muscles. Vertical nystagmus is present on both sides associated with a similar movement of both upper lids. Both eyes react sluggishly to light, and the left also to accommodation. There is total blindness in the right eye. The right pupil is oval, long axis 80 degrees, media clear; disc's edge is hazy, greatly swollen, best seen with plus seven diopters, while the surrounding media is best seen with plus three. Arteries and veins are reduced in size and bend sharply down over the disc's edge. There are large areas of fatty degeneration in the macular region, the largest being down from the

same and somewhat flame shaped. Left pupil is oval, long axis 90 degrees. Disc edge is very hazy, arteries and veins are tortuous and venous blood is very dark. Spots of fatty degeneration are numerous."

The important features in the case are as follows: We have nystagmus noticed soon after birth followed in a few years by a titubating gait, static ataxia, incoordination of the upper extremities, headache, vomiting and choked disc.

The symptoms are clearly those of tumor of the cerebellum, not a rare condition in early childhood. The early onset, however, and especially the presence of nystagmus soon after birth and a titubating gait, remind one of the possible existence of the cerebellar type of hereditary ataxia of Marie and Nonne. There is no speech trouble in this boy, but the speech defect in these cases of inherited ataxia may make its appearance very late. The presence, however, of optic atrophy and the fact that the age of onset in hereditary cerebellar ataxia, as a rule, is somewhat later, serve to eliminate this condition. In fact, the symptoms are so well defined and so characteristic of cerebellar new growth, that other conditions are easily excluded.

As to the pathological characteristics of the neoplasm we can but speculate. Tubercular growths are by far the most frequent and next in order are the glioma and sarcoma. Tubercular growths, however, usually are secondary to foci elsewhere, and although there is a tubercular history in this child's family, examination does not reveal, and his appearance does not suggest, a tubercular soil. The progress of the symptoms has been so slow that we naturally think of the slowly growing glioma, a form of growth which is very apt to develop at an early age.

The question of operation in a growth apparently so well defined as this, is of some moment. Abscess in this location has been operated upon not infrequently with gratifying results. Notwithstanding the hopelessness of the case, an operation does not seem to offer any hope of recovery or even of relief. The degenerative changes in the retinae are so far advanced that an amelioration of the other symptoms would little improve the general condition of the child other than prolong an unhappy existence. Altogether there is little to be hoped for from operative interference and we have endeavored to make the child as comfortable as possible by symptomatic internal medication and good nursing.

REPORT OF A CASE OF DIABETES IN AN INFANT. *

BY WILLIAM E. YOUNG, PH.G., M.D.,

Resident Physician, Randall's Island Hospitals, New York.

The patient, R. M., a male foundling about six months old, was admitted to the Infants' Hospital, on the service of Dr. Stowell, in good condition and did very well for the first fourteen days when he commenced to vomit. His stools were green and undigested, although the food had not been changed. At every weighing, a loss of several ounces was noted and emaciation was marked. The appetite was good at all times. The skin was very dry and wrinkled, the tongue red and the baby was very nervous. A swelling was noticed in both lumbar regions and the abdomen was slightly distended. Palpation of the kidneys showed them to be about four times their normal size and the liver also was somewhat enlarged. The temperature was never above 99°. An examination of the urine showed a specific gravity of 1030, about 5 per cent. sugar, very little albumin, and a few casts. The diet was pasteurized milk, formula 4-7-2 and there was never any starchy diluent to the feeding. Small doses of codeia were given but did not lessen the amount of sugar. About the end of the third week the patient was greatly emaciated, contracted pneumonia, and in three days or just one month after the first symptoms of diabetes appeared, he died.

Post-mortem examination showed the kidneys to be about twice their natural size; the cortical layer was grayish-white and indurated. There were marked hyperemia and inflammation of the parenchyma. The mucous membrane of the bladder was inflamed and the liver enlarged; but all the other organs appeared normal.

A review of the literature of the subject shows there have been no detailed reports of the cases, and the following, while inadequate in many particulars, gives many facts which may be of assistance in a further research in this line. West in 1859 reported 700 cases, and only one was under five years,

*Read before the Section on Pediatrics, the New York Academy of Medicine, February 14, 1901.

and in 1899, Ashby and Wright report 111 cases, ranging from six months to fifteen years. J. Lewis Smith, Meigs and Pepper, and Henoch do not report any cases. Oppenheimer in 1900, reports but 2 cases. Holt in 1898 quotes: 1360 cases by Pavy and only 8 were under ten; 700 cases by Prout with only 1 under ten; 380 cases by Meyer and only 1 was under ten.

With regard to the cause, West claims that when the processes of digestion and assimilation are seriously disturbed in early life, the functional activity of the kidneys become excessive and disordered, and this is likely to occur when the easily assimilated food of suckling is changed to a varied diet after weaning. Ashby and Wright state that there is often a history of diabetes in the family. Pavy reports a case of diabetes in a two year old child who died, the third generation with the disease. In the case here reported we have no family history to guide us.

In the differential diagnosis in the test for sugar we must remember that sometimes it is found in scarlatinal nephritis, but is transient. Its constant presence with rapid emaciation and gastrointestinal disorders proves the diagnosis. Marasmus and athrepsia must also be considered in the diagnosis, but with many cases of both in the hospital the distinction between them and this case of diabetes could be easily drawn.

In the treatment Dr. Venables recommends milk and iron phosphates. Many give codeia and saccharin and some give bromid of arsenic to enrich the blood cells and help oxidation. Universally it is agreed that milk is the most beneficial diet.

The prognosis is bad and probably fatal in young children. Many cases die of asthenia and diabetic coma, and some develop pneumonia, which is fatal, as it was in this case.

Cold Baths in Typhoid Fever in Children.—The application of cold water and friction is a most valuable method of treatment in typhoid fever, but its universal routine application in the form of the plunge bath, particularly in children, in every case of typhoid fever is not rational; some patients require the plunge, others the ice rubbing; still others require simply sponging with cool water and friction. Our position is not that of one who wishes to antagonize the cold bath in typhoid fever, but rather that of one who wishes to have its application rational in every respect.—*Editorial, Therapeutic Gazette.* Third Series. Vol. xvi., No. 4.

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ANALGESIA BY COCAINIZATION OF THE SPINAL CORD.

Since the practical value of Corning's experimental work on spinal cocainization has been recognized it has become a legitimate means of producing analgesia without the administration of a general anesthetic. There have been many cases recorded in which the injection of cocain into the spinal canal has been a satisfactory preliminary to surgical work. A few of these cases have been in children. Bier, Murphy and others, have used it in children under twelve years.

One of the most recent contributions on analgesia by spinal cocainization in children is by Bainbridge (*Medical Record*, December 15, 1900). He reports seven cases, all under nine

years, who were operated upon at the Randall's Island Infants' and Children's Hospitals. Most of the patients required surgical aid for chronic disease, such as tuberculosis, caries, abscess from otitis, club foot and hernia. A few minims of a 1 per cent. solution of cocain produced analgesia sufficient for operative purposes in two to nine minutes. The effect of the cocain lasted from an hour and a half to three hours. There were no dangerous symptoms from the cocain, but dilatation of the pupil, slight nausea, vomiting, headache and nervousness were noted. General tests showed that the muscular sense was retained and the ability to detect heat and cold was not lost.

The pulse, temperature and respirations were observed to be increased after the operations, but the increase did not persist. In one case of a psoas abscess where a sinus necessitated curetting of the third and fourth lumbar vertebræ there were cerebral symptoms which ended in complete recovery in four weeks.

Considering the character of the cases operated upon and the severity of the constitutional disturbance in all of the patients with bone lesions, the results of operation with cocain analgesia were extremely satisfactory and warrant a further use of this procedure for children to whom it may seem unadvisable to give ether or chloroform.

THE AMERICAN PEDIATRIC SOCIETY will hold its Thirteenth Annual Meeting at Niagara Falls, on May 27, 28 and 29, 1901. Members of the Society will oblige the president, Dr. Booker, if they will send the subjects of their papers to Dr. B. K. Rachford, 323 Broadway, Cincinnati, Ohio, or to Dr. S. S. Adams, 1 Dupont Circle, Washington, D. C., as early as possible, so that the program can be arranged.

Bibliography.

A Manual of Obstetrics. By A. F. A. King, M.D., Professor of Obstetrics and Diseases of Women in the Medical Department of the Columbian University, Washington, D. C., and in the University of Vermont, etc. Eighth Edition. Pp. xv-612. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1900. \$2.50 net.

This well-known manual needs only a mention of the new edition. It has been thoroughly revised, and forty-one engravings have been added. Of special interest to the pediatricist are the chapter on "Resuscitation of Asphyxiated Children" and the paragraphs on the "Treatment of Premature Infants."

Physical Diagnosis in Obstetrics, A Guide to Antepartum, Partum, and Postpartum Examinations for the Use of Physicians and Undergraduates. By Edward A. Ayres, M.D., Professor of Obstetrics in the New York Polyclinic; Attending Physician to the Mothers' and Babies' Hospital. With illustrations. Pp. v-283. New York: E. B. Treat & Co. 1901. \$2.00.

This work has already been published serially but it has been corrected and is now issued in book form to give physicians and students a thorough understanding of the advantages of clinical observations and records in the case of the pregnant woman. To make the history of each case as clear as possible, charts are used, on which are printed notes of all ante- and postpartum conditions. The chapters of the book elaborate the records and give under separate headings descriptions of the physical points necessary for accurate histories.

The child's history is given in detail, and nothing is omitted from the record that would serve in a study of the infant's health at birth except reference to congenital heart disease as one of the causes of irregular circulation.

The book marks the advance in the teaching of obstetrics that has taken place during the past twenty-five years and

its concise form shows the advantage of clinical instruction as an aid to the practice of obstetrics.

The volume is well printed and the illustrations are, without exception, additions to the text. If every practitioner would read this helpful book less would be said of the "accidents" of childbirth.

Transactions of the American Orthopedic Association. Fourteenth Session. Held at Washington, D. C., May 1, 2 and 3, 1900. Vol. xiii. Philadelphia: Published by the Association. 1900. Pp. xxviii-340.

A number of contributions, valuable outside of the specialty of orthopedic surgery are to be found in this volume. Dr. Ridlon's report on "Scorbutic Spine" is a good history of a case of scurvy in a baby. The spinal symptoms of rigidity and arching are observed in many of the cases when any attempt is made to flex the spine. It is left, however, to the orthopedist to give a special designation to these evidences of tenderness.

There are papers on "Tendon Plantation" by W. R. Townsend, "Congenital Dislocation of the Wrist" by P. Hoffmann, "Congenital Dislocation of the Shoulder," by J. L. Porter, and many others equally important.

Malignant Diphtheria.—That an attenuated diphtheria germ may, in new soil, cause the most virulent form of the disease is well shown by Dr. Coriveaud (*Journal de Médecine*, September 9, 1900). In an epidemic of mild cases one child had recovered and was dismissed from the hospital as cured, but had still a slight discharge from a suppurating submaxillary gland. A few days later, in a neighboring town, it slept with another child, and nine days afterward this latter developed an extreme diphtheria poisoning and died. Six days later a brother was attacked, followed in eight and eleven days by two other children. All exhibited marked asphyxia, not due to the membrane but to the excessive toxemia; all were given antitoxin, but each succumbed within two days of the attack.—*The Medical News*.

Society Reports.

THE NEW YORK ACADEMY OF MEDICINE—SECTION ON PEDIATRICS.

Stated Meeting, December 13, 1900.

THOMAS S. SOUTHWORTH, M.D., CHAIRMAN.

MARKED DILATATION OF THE COLON.

DR. W. L. STOWELL presented a nine-year-old boy who had had a very marked distention of the colon for seven years. When first seen, two weeks ago, the bowels had not moved for a week, and the boy was in a state of stupor. His abdomen measured 71 cm. in circumference at this time. By the use of high saline enemata a quantity of dark, semi-solid material was evacuated from the colon, and examination showed absence of stricture or of hemorrhoids. The circumference of the abdomen was now 60 cm. The history showed that the child never had normally formed stools. The stomach seemed to be normal in its functions, but intestinal secretions and peristalsis were entirely unnatural. The bladder was also subject to over distention and enuresis resulted. The treatment instituted was strychnin, belladonna and ergot.

DR. H. KOPLIK said that from a hasty examination he should suspect that there was great dilatation of the stomach also. It would be interesting to examine this child with the gastro-diaphane.

CONSTITUTIO LYMPHATICA.

DR. DAVID BOVAIRD presented specimens taken at autopsy from an infant of four months at the New York Foundling Hospital. The autopsy showed distinct evidence of rachitis. The thymus was very greatly enlarged, and the cervical, bronchial and mesenteric lymph nodes were moderately enlarged. The spleen was larger than normal. Examination of the brain, larynx, trachea and bronchi was negative.

DR. F. HUBER said that one could not correctly estimate at autopsy what had been the size of the thymus during life on account of the vascularity of this gland.

DR. L. EMMETT HOLT said he had seen 4 cases quite similar to this one, and he was not yet convinced that the general condition of the lymphatics was more important than the size of the thymus. It was difficult to say what was the cause of the sudden fatal attack. He had seen 1 or 2 cases in which it had apparently been determined by the upward pressure of a distended stomach or colon, or by some minor indigestion.

DR. S. WELT KAKELS said that while an infant of five months was being undressed for examination at the Mount Sinai Dispensary it had been suddenly seized with an epileptiform convulsion in which it had expired. There was only a history of slight cough for a few weeks. A very careful autopsy had been made by Dr. E. Libman, and it was worthy of note that in addition to the enlargement of the thymus and the general hyperplasia of the lymph nodes there was edema of the brain. This had been also reported by others.

DR. KOPLIK said that this thymus was the largest he had ever seen. The subject was made all the more puzzling by the occurrence of enlarged thymus in autopsies on cases of pneumonia and of gastroenteritis.

DR. H. D. CHAPIN referred to a case of sudden death in private practice which he had reported about ten years ago. A child of about three years, suffering from moderate bronchitis, suddenly died in the midst of a coughing spell of ordinary severity. The autopsy had revealed an enlarged and suppurating bronchial lymph node pressing on the recurrent laryngeal nerve.

DR. H. HEIMAN thought that death was caused in these cases of enlarged thymus by pressure on the recurrent laryngeal nerve.

DR. J. J. WALSH said that in the cases he had seen the lymphatic enlargement had apparently been the result of infection, possibly from the stomach or bowel.

DR. BOVAIRD said that the stomach and bowel had been normal in his case, and there had been no edema of the brain. The purely mechanical theory of pressure did not seem to him adequate to explain the sudden death.

REMARKS ON THE DIAGNOSIS OF ADENOIDS IN INFANCY.

DR. WALTER F. CHAPPELL read this paper. He said the chief objective symptoms were, mouth-breathing, snoring, noisy respiration by day, changes in the voice, sneezing and various reflex neuroses. The principal subjective symptoms were headaches, a stuffy feeling in the nose, dryness of the mouth and throat in the morning, impairment of taste, stupidity and mental depression. He had not found it practicable to demonstrate the presence of adenoids in infants of three or four months. In making the diagnosis it should be borne in mind that other causes of obstruction and noisy respiration are lymphatism, lithemia, syphilitic or gonorrheal rhinitis, congenital atelectasis, digestive disturbances, a congenitally highly arched palate, unusual smallness of the post-nasal space, marked anterior projection of the bodies of the cervical vertebræ, malformation of the soft palate and hypertrophy of the tongue. Recurrent nasopharyngitis was common in lithemic infants. Large tonsils alone might produce snoring or mouth-breathing.

THE DIAGNOSIS AND TREATMENT OF ADENOIDS BY THE GENERAL PRACTITIONER.

DR. FRANCIS HUBER read this paper. (See p. 181).

DR. KOPLIK pointed out that in the nasopharynx of some young infants a little normal adenoid tissue might be found. He regarded the operation for adenoids as serious, especially in older children suffering from chorea. The large wound surface was apt in this class of children to lead to a reinfection of the endocardium.

DR. WENDELL C. PHILLIPS said that almost invariably when little children suffer frequently from suppurative otitis media adenoids are present in the vault of the pharynx. It should not be forgotten that one was dealing with the lymphoid condition, and that these adenoids—the lymphoid ring—was only a part. He was surprised that Dr. Chappell had met with so many cases of hypertrophy of the tonsils without pharyngeal adenoids, for, this had not been his own experience. He would emphatically condemn digital exploration of the pharynx as a painful and unnecessary procedure and one that might easily carry infection into these parts. For many years he had made it a rule to examine these cases with mirror and tongue depressor, and had

been able in a large proportion of young children to make a satisfactory examination. He had long been impressed with the harm done by adhesions to the Eustachian tubes and elsewhere in neglected cases of adenoids. His experience pointed strongly to heredity as playing an important part in the development of adenoids. If one made it a rule to always examine the pharynx two or three months after an adenoid operation, one would be astonished at the frequency with which fragments of adenoids had been left behind.

DR. B. V. D. HEDGES felt sure that he had seen nervous children suffer for many months from the shock produced by an adenoid operation without narcosis. He favored resort to narcosis not only on this account but because the operation could be done more thoroughly.

DR. JOHN DORNING thought sufficient emphasis had not been placed on the constitutional dyscrasia underlying these cases of adenoids. Syphilis, tuberculosis and scrofulosis were the common vices of constitution observed in this connection, and hence the operation was necessarily but a small part of the treatment. While it might be well to employ narcosis for very nervous children he thought in most cases there would be less excitement if the operation was quickly performed without an anesthetic.

DR. HEIMAN said he was not so sure that the lithemic diathesis was related to adenoids, and he was not aware that there was on record any authentic case of adenoids having arisen from a gonorrheal infection. He preferred to use an anesthetic in this operation.

DR. CHAPPELL said that where hypertrophic rhinitis was present, it should be treated before doing the adenoid operation. In young infants requiring such preliminary treatment, he knew of nothing better than the local and internal use of suprarenal extract. Five grains of the extract should be dissolved in one teaspoonful of warm water and used in the nostrils every night for a week or ten days. He would not use an anesthetic except for very nervous children. He had seen 2 cases of gonorrheal rhinitis.

THE NEW YORK ACADEMY OF MEDICINE—SECTION ON
ORTHOPEDIC SURGERY.

Stated Meeting, December 21, 1900.

DR. A. B. JUDSON, CHAIRMAN.

DR. L. W. ELY read a paper entitled "A Few Observations from the Lorenz Clinic," and Dr. H. L. Taylor a "Resumé of the Treatment of Orthopedic Affections at Berck, France."

RE-POSITION OF THE CONGENITALLY DISLOCATED HIP.

DR. ELY, in a recent visit to Vienna, had spent some time in observing the practice of Lorenz who was receiving cases of congenital dislocation of the hip from all parts of Europe. The cutting of tendons and instrumental traction were rarely seen. When the head of the bone had been replaced with suitable force and manipulation, the reduction was maintained by a most elaborately applied plaster of Paris spica, which did not include the trunk and extended below only to the knee. The patient was then sent home to stay several months. The results were good and sometimes so brilliant as to justify the enthusiasm of the operator, who believed that when a knowledge of the operation was widely spread reduction would be made at such an early age as to almost preclude the possibility of a failure. The remarkable statistics of successes which had been published had their origin partly in enthusiasm and partly in the undoubted excellence of a method applied with requisite technique.

DR. H. L. TAYLOR reported that the experience of Calot in his hospitals at Berck, on the channel coast of France, had showed that the bloodless reduction of congenital dislocation of the hip was applicable in children up to eight years of age, or later in exceptional cases. Active treatment covered from six to twenty-two weeks and included two or three weeks' traction with a weight of from ten to twenty pounds, and at the operation the application of a force of 300 pounds for ten minutes to bring the head of the bone down to or below the acetabulum. When the retaining apparatus was removed massage and training in walking completed the treatment. Patients had recovered without the trace of a limp. He had practically given up the open method. The correct attitude obtained by cutting would be at the expense of limitation of motion or ankylosis,

which might be properly sought by this method in certain cases in which replacement was impossible.

DR. R. H. SAYRE had seen Lorenz operate last year in Paris at the Redard Clinic. The patient, a child of about eight years of age, was moderately disabled by a single dislocation of the hip. The thigh was made to form an angle of perhaps 20 degrees posterior to the plane of the body. A great deal of force was employed for this and in turning the limb in various directions. The head of the femur could be heard as it popped around on the ilium in what must have been a mass of lacerated tissues. The spica, which was nearly two inches thick where the strain came, included two loose strings for subsequent use in scratching the skin and keeping it clean. The head did not assume a permanent residence in the acetabulum. It was said that it would do so after the child had walked about for a year or two in the spica, a question which would have to be answered in due time.

DR. C. H. JAEGER had recently spent six weeks at Vienna and reported that the treatment of congenital dislocation at the Lorenz clinic was exclusively by the bloodless method. Double cases were treated singly. The results were very favorable. The spica was applied with great care. Only a thin layer of cotton padding was used. The plaster bandage was applied very snugly, the thigh only being enclosed and a narrow strip going about the pelvis. This left the knee and ankle free and also the whole spinal column. The limb being thus fixed in extension and abduction, the patient soon learned to walk without crutches and with (in single cases) a high sole on the sick foot. It was most interesting to see a child with double dislocation, with both legs strongly abducted, spread eagle fashion, walking beautifully, hopping with one leg, then the other without a stick or help of any kind. Lorenz was accustomed to lay great weight on having the parents of the patient extend the knee many times daily, to prevent contracture. In opposition to these views Hoffa strongly advocated the open method.

DR. W. R. TOWNSEND said that Hoffa had stated in very positive terms that none other than the bloody operation could be of any use. An American authority also had reported that in a large number of open operations only two or three had exposed an acetabulum in which it was possible to place the head. The views and practice of Lorenz, however, were those of one

whose experience with the open operation had been greater than that of all other operators combined. In one of the dissections reported by Dr. E. H. Bradford the capsule had been found pushed in front of the head of the bone in such a manner that a perfect reduction could not be made. This had led to the suggestion that in some cases the open operation might be modified by slitting the capsule instead of gouging or boring the bone which might lead to ankylosis or limited motion.

DR. JAEGER thought that Hoffa was dissatisfied with the bloodless procedure partly because of the position in which he fixed the limb after reduction of the deformity. He applied the spica with the limb in extension and strong inward rotation, which could not afford a very firm hold for the femoral head in the acetabulum. In this position it was probable that relaxation would occur during the application of the bandage or on the first attempt at walking.

DR. T. H. MYERS said that those American surgeons who, after trying both methods, favored the opening of the joint in every case, were at variance with Lorenz. In his own experience, which had been considerable, he had not yet opened a joint believing that the bloodless method should be tried first. It secured some perfect results and in the results which were not perfect the head was placed anterior to or above the acetabulum which was better than to leave it on the dorsum.

DR. G. R. ELLIOTT had passed several weeks with Lorenz in 1896 and had seen him operate many times by the non-cutting method, having already begun to discredit the cutting operation which he had done so much to perfect. There could be no possible doubt of the good results obtained. He had seen many instances and had repeated them in his own practice. Success lay in the thoroughness of the procedure and in the perfection of the technique. (1) The head of the bone should be brought down to the level of the acetabulum. (2) It should be lifted over the posterior edge of the acetabulum. (3) Abduction should be extreme, even posterior to the mid-plane of the body. (4) The plaster bandage should be pressed posteriorly against the joint to keep the reduced head from slipping backward. Great force was often required but neglect of any point would leave the head of the femur resting on the posterior acetabular edge to be dislocated as soon as the bandage was removed. Lack of success would be due to want of technique leading to

imperfect reduction. Thorough padding was necessary beneath the bandage. Blood had appeared in the urine of a patient operated on by him last week. The child had been laid face downward to facilitate fortifying the splint posteriorly and the soft plaster bandage had pressed against the abdomen and hardened. Cutting the bandage relieved pressure and the blood disappeared.

SEA-AIR FOR TUBERCULAR AND RICKETY PATIENTS.

DR. TAYLOR in his review of the treatment at Berck said that Calot was an enthusiastic advocate of sea-air for patients affected with external or peripheral tubercular lesions, those of the skin, glands, bones and joints. He rejected phosphorus in the treatment of rickets, prescribing intestinal antiseptics and a diet mainly of milk and eggs. Many of his patients were kept recumbent. He affirmed that rickety deformities would disappear during a sojourn at the sea-side.

DR. SAYRE had listened to Calot as he described the advantages of sea-side treatment. His interest in the subject was shared by others of his countrymen, whose native enthusiasm perhaps lent a too rose-colored light to their views.

DR. TAYLOR had been impressed with the picturesque quality of Calot's writings. His zeal often broke through the conventional boundaries of scientific composition. The reader was entertained and delighted but not necessarily convinced.

TREATMENT OF POTT'S DISEASE.

DR. ELY said that Lorenz used a corset composed of perforated strips of celluloid, metal bands and canvas. It laced in front and was probably sufficiently comfortable but could not be said to "splint the spine."

DR. TAYLOR said that although Calot declared that neither braces, plaster jackets nor corsets could prevent or arrest the deformity, all of his patients wore the plaster jacket after subjection to manual pressure directed against the kyphos. In certain cases ablation of spinous processes without invasion of the tubercular territory was recommended in order to facilitate correction and avoid sores from pressure of the jacket. The use of suspension, the amount of manual pressure and the degree of lordosis to be enforced were points to be settled for each case. Severe pressure and all traumatisms were to be carefully avoided, in marked contrast with the violent proceedings which called attention to the name of Calot in 1896, when he was claiming

uniformly brilliant results from the outlay of all his strength on the kyphos supplemented with cuneiform resections in obstinate cases.

DR. SAYRE said that Calot's recent methods, as he had heard him describe them, varied but little from those of Dr. L. A. Sayre when he introduced suspension and plaster of Paris jackets. Calot had, however, secured a distinct advantage in extending the jacket up to the chin instead of stopping at the top of the sternum, thus promoting lordosis even of the lumbar spine and gaining a leverage over the entire spine which was impossible when the upper part of the vertebral column was free.

TREATMENT OF JOINT DISEASES.

DR. ELY said that at the Lorenz Clinic joint diseases generally were treated by retention in plaster of Paris. The spica for hip disease usually had an iron stirrup running down from the bottom to take up the weight of the body.

DR. JAEGER said that Lorenz taught that traction *per se* did no good in hip disease except as it caused fixation and that fixation alone was necessary as the inflamed joint could well bear the weight of the body so long as there was no rubbing of the joint surfaces.

DR. TAYLOR said that Calot very justly believed that a stiff joint in a good position was better than a movable joint in a bad position. It was his practice to reduce the deformity by force and retain the improvement with a plaster spica. Complete ankylosis in a bad position required subcutaneous osteotomy of the femoral neck.

TREATMENT OF ABSCESSSES.

DR. JAEGER had noticed fewer abscesses in patients affected with hip disease at Vienna than in patients of the same kind in America, which was not easy to explain except by climatic differences as the poor there were poorer, and their nourishment probably worse, than in this country.

DR. TAYLOR said that Calot forbade incision, curetting and excision in Pott's and hip disease unless the joint or abscess was infected or a sequestrum was found. He took the ground that patients affected with these diseases practically always got well under closed treatment and always died under the open treatment. Abscesses were to be treated by roborant drugs, a full

diet, correct hygiene and rest. A cold abscess might be aspirated through healthy tissue and medicated by injections. By repeated aspirations and the application of compresses and bandages openings which seemed inevitable might be averted and in from four to eight weeks the abscess would disappear without a scar and with healing of the bone in most cases. It was interesting to note that we had (1) in Calot a surgeon of ten years' active experience, formerly an advocate of scraping, incisions and excisions, with the reputation of having done 80 excisions of the hip, who was now aggressively opposed to the operative treatment of diseases of the joints and (2) in Lorenz a surgeon of great experience in the cutting treatment of congenital dislocation of the hip who had given it up in favor of a bloodless method. The coincidence and the contrast between the recent past and the present were quite impressive.

LATERAL CURVATURE FROM DIVISION OF THE SPINAL ACCESSORY NERVE.

DR. R. A. HIBBS related a case as follows: A girl fourteen years old had had lymph nodes removed from the left side of the neck six months before she was first seen a few days ago. There was spinal curvature toward the right with drooping of the left shoulder, paralysis and atrophy of the trapezins and marked disability of the left arm. The patient declined an operation for uniting the ends of the spinal accessory nerve, which had evidently been severed at the point where it pierced the sternocleidomastoid muscle.

DR. MYERS recalled the case of a similar patient, fifteen years of age, whom he had been observing for three or four years. He saw her eighteen months after the paralysis, and considerable permanent atrophy of the muscles of the shoulder had set in. There was spinal curvature toward the opposite side which did not go on to be extreme and was easily controlled.

FRACTURE OF CERVICAL VERTEBRÆ.

DR. SAYRE related the case of a man who was carried home unconscious after a fall on the head and neck about two months ago. On regaining consciousness there was paralysis of the extremities, bladder and rectum, in which there was slow improvement after two days. As every attempt to walk increased his symptoms he was kept in bed several weeks. A diagnosis of fracture and dislocation of the fifth and sixth cer-

vical vertebræ was made on his history, the flexion of the head, the absence of motion of the head and neck, difficulty in swallowing and the disability of the left upper extremity. The diagnosis was confirmed by skiagraphs, of which it had been necessary to take several from different points or view. One of the negatives was taken after fastening a bandage tightly over one shoulder and under the opposite arm-pit so as to make a gulch in which one edge of the plate had been forced so far as it would go. The skiagraphs and a brace were exhibited. The latter consisted of a leather and steel collar attached to posterior steel rods and a pelvis belt. The head and neck would be thus fixed until consolidation was assured, the brace being capable of easy modification from time to time as the patient improved. He recalled an almost exact counterpart in a case which occurred several years ago in which the application of a jacket and jury-mast had been followed by disappearance of the paralysis.

PNEUMATIC PERINEAL STRAPS.

DR. MYERS exhibited rubber tubes ten inches long and one and one-quarter inches in diameter designed to take the place of the ordinary perineal straps. Smaller sizes were also made. Each tube was provided with a removable cover of cotton flannel and a valve for inflation by a bicycle pump. The straps were not elastic. They were expensive but very durable. The pressure made by them was equalized automatically and that made them especially comfortable for older children and adults whose weight made perineal support difficult.

Phosphorus in Rickets.—An extensive literature is quoted by E. Kassowitz (*Therap. Monatsheft.*, April, 1900) to support his view that with the introduction of phosphorus a new era in the treatment of rachitis has begun. Most authors are unanimous in the opinion that phosphorus aids the process of ossification, and that the convulsions, laryngospasm, insomnia and restlessness are better benefited by this than any other drug. The records of over a hundred thousand teach the author that phosphorus is the specific in rickets. He recommends it dissolved in cod-liver oil, in which form it keeps well for months.—*Medical News*. Vol. lxxvi., No. 21.

THE PHILADELPHIA PEDIATRIC SOCIETY.

Stated Meeting, January 8, 1901.

DR. ALFRED STENGEL, PRESIDENT.

DRS. W. M. FISHER and J. A. SCOTT presented an infant of seventeen months, born of Italian parents,

SHOWING GREAT ENLARGEMENT OF THE SPLEEN AND A SEVERE
ANEMIA.

The pallor was noticed one month after birth; the splenic tumor was noted as soon as he came under observation (ten months), and has continued to increase in size. The symptoms have been chiefly intestinal catarrh, with frequent stools; no nose-bleed, no hemorrhages from mucous membranes; teething normal; no rickets; no evidences of syphilis; no marked evacuation.

The blood was examined five times between June and January 7th: the first count was reds 3,120,000, whites 105,000, hemoglobin, 20 per cent. The differential count showed polymorphonuclears 27.5 per cent.; lymphocytes, small 27 per cent. large 30 per cent.; myelocytes 8 per cent.; eosinophiles 75 per cent. Subsequent examination showed a reduction of leukocytes at one time to 18,600. At present the leukocyte count is again rising, 36,700. The differential count remains about the same. The blood shows marked poikilocytosis, many macrocytes and microcytes, many normoblasts, a few megaloblasts, evidences of degenerative change in the reds, as well as polychromatosis. The case is regarded as one of splenomyelogenic leukemia, though it is yet on the border line of leukemia and pernicious anemia.

DR. S. McC. HAMILL
presented a six-months-old infant showing a rather

INTERESTING FORM OF ANEMIA.

There was nothing of special note in the child's history except that it did not inherit syphilis; it had none of the signs of congenital syphilis; it had had no illness other than the present. According to the mother's statement the child had been yellow since the fifteenth day of life. There was a history of the child having been feverish at odd times, but the temperature, taken quite frequently, had shown no elevation.

The physical examination showed marked yellowness of the skin, pallor of the mucous membranes and pearly sclera. The child was fairly well-nourished. There was a slight systolic whiff over the pulmonary area and loud hums in the vessels of the neck. The lymphatic lymph nodes in the cervical and inguinal regions were just large enough to be palpated. There were no rachitic manifestations. The liver was palpable about one and one-half inches below the margin of the ribs; the spleen was palpable at the same distance.

The most recent blood examination showed 42 per cent. of hemoglobin (Fleischl); 2,970,000 red blood corpuscles; 23,920 white blood corpuscles. There was marked variation in the size and shape of the red cells; marked polychromatophilia. There were 37 erythroblasts to 509 leukocytes, the majority being normoblasts; there were a few macroblasts. There was some karyorrhexis and atypical shapes. The differential count of the leukocytes showed polychromatosis 21.8 per cent.; mononuclears, 4.2 per cent.; transitional forms, 4 per cent.; lymphocytes, 67.6 per cent.; eosinophiles, 2.4 per cent. There were three sizes of lymphocytes, some of the largest being difficult to differentiate from mononuclears; many showed sacculation of the cell wall. There were many irregular forms, staining blue, which were practically impossible to classify. There was a decided increase in the number of plaque heaps.

The case was considered impossible of classification under any of the various described forms of anemia, and as probably occupying a midway position between leukemia and pernicious anemia.

DR. D. J. MILTON MILLER showed a

CASE OF HEAD ROTATION AND HEAD NODDING,

with nystagmus, in an infant of fourteen months. The child had been artificially fed since birth, and had suffered constantly from digestive disturbances. When five months old it had a severe and prolonged attack of colitis, with marked rectal collapse. Two months later, in May, 1900, at the age of seven months the head movements began, and had continued ever since, with temporary periods of improvement, corresponding apparently with improvements in its general condition. She was brought to Dr. Miller for the first and only time on December 24, 1900. At that visit, the movements numbered sixty a minute, and were mostly lateral, interrupted by occasional nod-

ding movements. They were remarkably smooth and rhythmic in character, and not at all spasmodic, a peculiarity insisted upon by Aldrich. The movements ceased during sleep, when the attention was fixed, and almost but not entirely in the recumbent position. Under ordinary observation no nystagmus could be discovered, but on holding the child's head, and thus stopping its movements, a fine horizontal nystagmus became at once apparent, most marked in the right eye, especially when the gaze was directed upward. No evidence of eye strain could be elicited. Most of the child's time was, and had been spent on the floor of a fairly light room. Neither could any history be obtained of the child remaining for long periods in a position where a bright light or reflection was looked at in an unnatural manner, which, with living in dark rooms, Raudnitz considers of great importance in the etiology of these cases. Signs of rickets were present; beading of ribs, epiphyseal enlargements, protuberant belly, etc.

Dr. Miller said that this was the fourth case of this curious affection seen by him associated with rickets. In a review of the literature, about a year ago, he had found rickets in about 50 per cent. of the cases. He believed it, however, to be much more frequent, slight signs being readily overlooked. The case illustrated also, the influence of acute and debilitating illnesses in determining the affection in a child whose motor centers are not very stable, as is usually the rule in rickets. In the investigation above referred to he found such a connection in the majority of cases—measles being particularly frequent, possibly because of the eye affection in that disease. Another interesting point about the present case was the absence of the head movements at the present time, although the nystagmus is quite evident. Three weeks ago the condition was exactly the reverse, the head movements were very marked, while the nystagmus could be brought out only by restraining the former. This showed the close relation between the eye and head movements, as did also the cessation of the latter on bandaging the eyes, and supported the contention of Raudnitz that the affection was due to a reflex spasm brought about by the attempt at fixation. This was undoubtedly true of many of the cases, but not of all. The eye grounds of the patient had not been examined, but it was intended to have this done at an early date.

DR. WILLIAM PEPPER read a paper entitled

A STUDY OF CONGENITAL SARCOMA OF THE LIVER AND SUPRARENAL,
WITH REPORT OF A CASE.

A female child, apparently normal at birth, was found at the age of three and a half weeks to have an enlarged abdomen which increased markedly until death at the age of six and a half weeks. The autopsy showed the right suprarenal enlarged to the size of an English walnut, firm and hemorrhagic. The liver was the seat of an infiltrating growth and weighed 2 pounds, 8 ounces; it was uniformly enlarged, the capsule smooth and mottled or marbled in appearance. On section it was found uniformly infiltrated by the growth to such an extent that scarcely any hepatic tissue could be detected. The other organs were normal. There were no other secondary growths. The tumor was a lymphosarcoma. A thorough search of the literature was made and 5 very similar cases were found. These cases are recorded by Heaton, *Trans. of the Path. Soc.*, Lond., 1897-98, Vol. XLIX, p. 140; Orr, *Edinburgh Med. Journ.*, Sept., 1900; Parker, *Trans. of the Path. Soc.*, Lond., 1880, Vol. XXXI; de Ruyter, *Langenbeck's Archiv.*, 1890, Vol. XL, p. 98; Meisenbach, *Weekly Med. Review*, St. Louis, 1884, IX, 433. All these cases occurred in the first few weeks of life, all died in a few weeks, all had enormously enlarged livers which were infiltrated with a sarcomatous growth, three had also the suprarenals involved, and one a secondary growth lying between the spleen and kidney (suprarenal?) There were no other secondary deposits in any of the cases. Four were females, and in one the sex is not given. There are a few other cases of early sarcoma of either the liver or suprarenal, but they did not occur as early as those mentioned, nor do the growths resemble those quoted, either in symptomatology or in pathological findings.

DR. SCOTT said it was of interest to note the absence of pigmentation in the cases so far reported. It would seem probable that the process is so acute that time is not given for pigmentation to occur as seen so notably in the main chronic diseases, such as the malignant cachexias and Addison's disease.

DR. PEPPER said that pigmentation has been discovered very rarely in sarcoma of the suprarenals whether primary or secondary, and whether the growth was congenital or not, and there has not seemed to be much difference in this way between growths of protracted course and those of rapid development.

Current Literature.

SURGERY.

Gamgee, Leonard: Two Cases of Cranial Meningocele Treated by Excision; Recovery. (*The Lancet*, No. 4020.)

The successful treatment of cranial meningocele depends chiefly on the absolute asepsis of the operation, but partly also on the strength of the child, for in this operation the two chief causes of death are septic meningitis and collapse.

Two cases were operated upon. The first was a girl of six weeks and the second was a boy of eleven weeks. Both cases did well. The excision of the sac seems to hold out greater hope of success than does that by injection of iodine solution.

Carson, H. W.: A Case of an Unusual Form of Intussusception. (*The Lancet*. No. 4023.)

A female baby five months old was brought to the hospital with an abdominal tumor and a history of passing blood and mucus. When the abdomen was opened an intussusception was found in the situation of the lower part of the descending colon. Attempts at reduction proving unsuccessful, the tumor was drawn outside the abdomen and shut off from the peritoneal cavity; the intussusception was opened by the longitudinal incision recommended by Barker, the ileum and the ensheathing layers having been first united by interrupted sutures. The intussusceptiens was then cut through *in situ* at the upper part as it was impossible to bring it through the incision. The congested portion of the bowel that was freed was about two inches long and had the mucous membrane external. The intussusceptiens was found to consist of four layers measuring fifteen inches when unfolded. The upper and lower ends of this at the ileocecal junction and at the junction of the colon with the sigmoid flexure were so congested that there was no alternative but to excise the whole of it. This was done and the ileum was united to the rectum over a bone bobbin. The patient died in an hour.

The case is a good instance of the rare form of an intussusception in which a descending intussusception is associated with an ascending one, the two occupying the same segment

of the bowel. The descending intussusception of the present case was of the ileocecal variety, and the ascending one of the colic variety, thus differing somewhat from the description given by Treves. These cases are rare.

Grant, H. H.: **The Medical and Surgical Treatment of Acute and Chronic Lymph Nodes of the Cervical Region.** (*New York Medical Journal*. Vol. lxxii., No. 16.)

In a paper with the above title the author gives the following conclusions:

1. The cause of tuberculous adenitis of the cervical region is almost always local, and takes place through the buccal cavity.
2. The glandular manifestation, when it progresses, and especially when it is followed by suppuration, indicates a damaged and usually useless, often dangerous, gland.
3. The removal of such a gland *in toto* and promptly is neither difficult nor dangerous, and is the treatment indicated.
4. Nature will probably provide a new and equally perfect protection in the stead of the one that is lost.
5. Multiple enlarged glands indicate a constitutional tendency which will not be benefited by removal, except when local discomforts and dangers indicate it.
6. Small groups of single, slowly growing glands are subject to the same indication.

Bainbridge, William Seaman: **A Case of Multiple Fracture of the Inferior Maxilla Complicated by Dislocation.** (*Buffalo Medical Journal*. No. 647.)

A boy aged nine years had an accident in an elevator and there were produced a fracture at the base of the condyle, another, long and oblique, through the body of the jaw, and a separation of the symphysis, with dislocation of the right temporomaxillary articulation. All the incisor teeth, upper and lower, were loosened.

After a delay of five days to allow the swelling of the soft parts to subside, chloroform was given, the bicuspid teeth were wired so as to maintain the symphysis in position, and the jaws were bandaged together, thereby causing the superior maxilla to serve as a splint for the broken bone beneath. A plaster of Paris bandage was applied over all. The chief difficulty lay in maintaining the broken condyle in its proper position. The dressings were left undisturbed for a month, the boy subsisting meanwhile on fluid nourishment. When he began to take solid

food, there was apparent a tendency to lateral motion of the jaw toward the fractured side. This disposition was overcome in time by the voluntary efforts of the patient. A considerable callus formed just in front of the ear but was rapidly disappearing at the date of the report. Aside from irregularity in several of the lower incisors (which can readily be overcome by a dentist), the result appears to be an ideal one, since union of the fractured bones is perfect, and no disfigurement remains.

Turner, G. R.: **A Case of Supernumerary Testis.** (*The Lancet.* No. 4012.)

A healthy-looking child of three and a half years was operated upon for a tumor of the scrotum which at first sight looked like a hernia above a hydrocele. The swelling was separated from the cord when it was found to be a serous sac that did not communicate with the gut. The cyst was removed. Below it were two testicles; the upper one had a normal tunica vaginalis and a distinct cord of its own and the lower and larger one was in the usual position of the testis with the sac of the tunica vaginalis the seat of hydrocele. The left testis appeared to be normal.

The case is a rare one and formerly the condition was not thought possible.

Wright, G. A., and Wylie, D. S.: **Abdominal Tumor (Included Fetus) Occurring in a Child Aged Three Months; Laparotomy; Death.** (*British Medical Journal.* No. 2081.)

The child's abdomen was swollen at birth, and was the cause of dystocia. The swelling continued to increase and became a source of dyspnea. The child wasted and seemed in poor health. When the child was two months old there was an enormous mass on its left side extending from the left lumbar region forward beyond the umbilicus. It seemed to be partially cystic, and tapping removed over a pint of clear albuminous fluid.

As the cyst appeared to fill again laparotomy was performed when the child was three months old. After the fluid had been drawn off, the solid mass was extirpated. No pedicle was found, but the adhesions to neighboring organs were extensive, involving the ligation of numerous large veins. The child never fairly rallied from the shock of the operation, dying a few hours later.

An elaborate pathological study of the tumor by Dr. Ballantyne showed that the apparent neoplasm was in reality a monstrosity, a fetal inclusion, or so-called fetus in fetu. About thirty similar cases have been placed upon record. This monstrosity represents an anomalous termination of twin pregnancy, and the inclusion seldom shows more than a rudimentary degree of development. The situation in the left side of the abdomen is classic.

Clark, H. J.: Unusual Case of Malignant Disease in Early Infant Life. (*British Medical Journal.* No. 2027.)

The author believes that the exceptional rarity of malignant disease in early infant life justifies the publication of the following case: At birth neither testicle presented any abnormality in size or position. When ten weeks old some enlargement of the infant's left testicle became apparent, wholly unassociated with any accidental cause. This enlargement was of steady growth, until at the end of eight months, it had attained the size of a small hen's egg, smooth and firm to the touch and without any implication of neighboring glands. On December 10, 1899, when the infant was eleven months old the testicle was removed in the usual way; it weighed 1 oz. 13 gr.

The tumor was found by the microscope to be composed of groups of tubules with columnar cell lining, or empty or filled with mucoid substance.

Aside from congenital renal tumors, columnar cell carcinoma is rare in infants. In this case neither parent presented any suspicion of malignant history.

Monsarrat, Keith: Four Cases of Laparotomy for Intussusception. (*British Medical Journal.* No. 2077.)

He has recently performed laparotomy upon 4 cases of intussusception, the ages of the patients having been respectively five months, seven months, two and four years. Of the three very young infants, two died from primary operative mortality, while the third recovered. The older child also survived the operation.

He considers the cases of the three nurslings together. All were examples of acute intussusception. Case I., which ended fatally, was progressive from the start and had doubtless been aggravated by the early treatment, which consisted of aperients. This constant tendency to become worse led to a high degree of strangulation. Case II. was operated upon promptly after

symptoms of strangulation appeared and the patient recovered after a fortnight's treatment for enteritis. Case III. is regarded by the author as an example of intermittent invagination, in which a temporary release of the invaginated gut gives rise to apparent improvement and leads to an erroneous prognosis. When it becomes plain that laparotomy is after all indicated, the moment for safe intervention has passed. Thus in the case under consideration forty-eight hours had elapsed before the operation was performed, and to this delay the author attributes the fatal termination. However, he thought that the patient might still have been saved if an opiate had been given at once after the operation, and thereby opens the question as to whether or not opium acts as a corrective of the state of shock or collapse which follow these operations under any condition when the patient is of such a tender age.

Lodge, Samuel, Jr.: Two Cases of Thrombosis of the Lateral Sinus in One of Which the Etiology and Pathology were Obscure. (*Journal of Laryngology, Rhinology and Otology*. Vol. xv., No. 9.)

One of these cases occurred in a boy aged fourteen years. There was a history of a running ear following the operation of tonsillotomy. After several months the discharge ceased spontaneously, and headache with persistent vomiting supervened. The patient went about as usual for a number of days, but the appearance of rigors and high temperature led to his admission to the hospital, where the tympanomastoid cavity was at once laid open, revealing caries of the mastoid cells, and an opening in the posterior wall of the antrum which led into the sigmoid groove of the lateral sinus. The latter was then apparently free from thrombosis, and after packing the wound lightly with gauze, the author awaited further developments. A brief interval of apparent improvement was succeeded by fresh rigors and high fever. The bony wall of the sigmoid groove was then exposed as far as the apex of the mastoid. Pulsating granulation-tissue was curetted from the sinus, revealing evidence of a thrombus. The sinus was laid open for an inch and the fetid, putty-like formation was scraped away with the curette. The blood current then became re-established and hemorrhage controlled by a tamponade, after inversion of the edges of the incision. As fever persisted after the operation one injection of antistreptococcus serum was given. The temperature gradu-

ally became normal and save for the development of transitory passive edema of the face the convalescence was smooth.

Beck, Carl: On a New Method of Operation for Exstrophy of the Bladder. (*The New York Medical Journal.* Vol. lxxii., No. 8.)

The object of the operation is to create a very solid anterior muscular wall. The method of procedure is as follows: The margins of the protruding bladder wall are freed and dissected backward to the extent of 1 cm.; having ascertained that the freshened margins can be approximated without tension, both recti muscles are exposed and incised along their inner margins to the extent of a little less than half their thickness. The outlining of the flaps is completed by two transverse incisions connecting the outer and inner margins of each rectus muscle and extending into the muscle to the same extent, the lower incision being as near the symphysis as possible and the other one below the umbilicus. Beginning at the incision's inner margin, the upper layers of fibers of the recti are divided until the flaps can be lifted near the outer margin, with which they remain connected as by a hinge. The bladder walls being united with thin iodoform silk sutures, the reflected muscle flaps are united above. The subcutaneous suture is used for the integument, which is supported by four relaxation sutures, also of iodoform silk, and applied three-fourths of an inch from the wound margins, thus avoiding direct contact with the wound line.

This method was used in the case of a boy five years old, and a small but virtually normal bladder was secured, likely to distend later on.

MEDICINE.

Friedenwald, H.: Postdiphtheritic Paralysis of Both External Recti Muscles. Report of a Case. (*Philadelphia Medical Journal.* Vol. vi., No. 11.)

A girl of six years who was very ill with faucial diphtheria was given 4000 units of antitoxin. About one month later she had convergent strabismus with almost complete paralysis of both external recti muscles and also of the palatal muscles. The paralysis of the external recti lasted a little more than two weeks. There was also paresis of both upper and lower extremities and of the neck. It was formerly believed that this postdiphtheritic paralysis of the recti was rare but Moll in 1896,

collected 150 cases of paralysis affecting the eye. Goodale, of Philadelphia, reported on the same condition.

Soerensen investigated the influence of antitoxin serum in the development of these cases and found that the serum treatment seemed to produce a greater proportion of cases of paralysis. Greef explains this by the greater ratio of recovery in severe cases because of the serum treatment. The results of serum therapy in the treatment of postdiphtheritic paralysis are indefinite and not encouraging.

Griffith, J. P. Crozer: Recurrent Vomiting in Children (Cyclic Vomiting). (*The American Journal of the Medical Sciences.* Vol. cxx., No. 5.)

Four cases are detailed, two having been fatal, one very severe, and one mild. Prodromal symptoms may be absent, or malaise, coated tongue, anorexia, and possibly headache, last from a few hours to a day, rarely longer. There is never any distinct evidence of decided indigestion preceding or in any way connected with an attack. Vomiting, obstinate and repeated, is the most striking symptom of the attack itself. At first the contents of the stomach are ejected—not, as a rule, showing any evidence of abnormal fermentation; later the vomit consists of watery fluid with mucus or bile, and sometimes with blood. Vomiting generally continues until toward the close of the attack, and then gradually or suddenly ceases. Constipation is a very constant but not a necessary symptom. It is sometimes so obstinate that no treatment has any effect. In no case reported did the relief of the constipation influence the cessation of the vomiting. Distension of the abdomen by gas does not seem to occur, and abdominal pain is almost entirely absent. Thirst is usually intense, and appetite completely lost. The tongue is not, as a rule, as greatly coated as in cases of indigestion. A sickening odor to the breath has been described. Sore throat sometimes accompanies the attack. There is apt to be more or less fever, though this is not a necessary symptom. Respiration is rapid, irregular or sighing; the pulse is generally rapid, often irregular; in one case it was slow. The condition of the urine, especially as regards the amounts of urea and uric acid present, is of great interest, but as yet no conclusions can be drawn regarding it. Convulsions have been noted, also great restlessness followed by exhaustion, emaciation, and even collapse. The duration of an attack varies from

ten hours to sixteen days. Convalescence is generally astonishingly rapid, even in cases in which exhaustion has been extreme. The frequency of the attacks varies greatly, the intervals between them being weeks or months. The term "cyclic vomiting" is misleading therefore, because there is no regularity about the recurrence. The condition may perhaps be a neurosis; but, if so, it is one of toxic origin, in some way connected with faulty metabolism. The disease may begin at any time in childhood, but the majority of cases appear within the first three years of life, although generally after the first. A neurotic or gouty family history has been observed in some cases. Usually the children themselves are in excellent health. Exciting causes have not been definitely ascertained. A differential diagnosis must be made from the periodic vomiting of Leyden, the onset of some infectious disease, meningitis, nephritis, acute indigestion, and intestinal obstruction. The prognosis is good, though not necessarily so. The disposition to the recurrence of the attacks seems to diminish as the child grows older.

Treatment is unsatisfactory. Overwork, overplay and constipation should be guarded against, and a free action of the kidneys maintained. When an attack has commenced the first indication is to open the bowels by an injection or by saline cathartics or calomel, if the child can retain them. After the first effort it is well to administer nothing by the mouth, thus giving the stomach an absolute rest. The bowel should be reserved for small, concentrated, nutrient enemata and the administration of medicine. Chloral and bromids in full doses are best; morphin, hypodermically, has done good in some cases. Stimulants should be given by the skin and rectum as needed, ice or counter-irritants to the epigastrium, and hypodermoclysis in severe cases. Phosphate of soda or Rochelle salts by the mouth may be tried, if a lull occur in the vomiting, and so help to eliminate the poison by free drainage through the bowel.

Spillmann, L.: **Researches on the Bony Changes in Rachitis.** (*Rev. Mens. des Mal. de l'Enf.* Vol. xix., No. 1.)

The initial lesion in the rachitic process in the bones is a new formation of blood-vessels; proliferation of the cartilage cells, defective calcification and ossification are secondary. All the stages of an inflammatory process are found in a rachitic bone (new formation of connective tissue cells, differentiation

of these cells, formation of new capillaries), and in the periosteal region as well. Consequently rachitis should be considered a subperiosteal and epiphyseal osteitis.

Berti, Giovanni: Whooping-cough: New Clinical and Therapeutic Considerations. (*La Pediatria.* Anno viii., No. 11.)

He first discusses the dyspneic attacks of whooping-cough, his conclusions under that head being as follows:

There are often seen in pertussis certain accesses of dyspnea which are entirely independent of the paroxysms of coughing. These come on suddenly and at irregular intervals, and may assume one of two types, viz.: extreme tachypnea or stenosis. Such attacks should not be confounded with the habitual frequency of respiration which accompanies pertussis. The phenomena are probably due to the toxin of the disease.

He agitates the question of the possibility of immunizing against pertussis by inoculating with the products of some other disease. He cites the claim of Lichtenstein made in 1841, that vaccination from the serum of a pustule caused by tartar emetic could immunize against small-pox. Ordinary vaccination with cow-pox appears to influence favorably the course of whooping-cough in many cases, and this influence may be due, perhaps, to the pyogenic element and not to the specific cause of the vaccinia. Varicella and furunculosis have also appeared to exert an antagonism toward pertussis, and may abbreviate attacks of the latter in a remarkable manner.

Thomas, H. M.: Obstetrical Paralysis, Infantile and Maternal. (*Johns Hopkins Hospital Bulletin.* No. 116.)

He has seen three cases of obstetrical paralysis in babies during a single year. The lesion was of the Duchenne type, viz.: paralysis of the arm due apparently to a stretching of the brachial plexus; or perhaps to pressure upon "Erb's point." As a matter of fact, the precise rationale of this accident is by no means determined. A scarcity in autopsy material has always existed which accounts materially for the shortcomings of our knowledge upon this subject.

In Case I. traction was made upon the right arm, which was found to be paralyzed after delivery. In Case II. strong traction was made on the neck of the child to free the anterior shoulder. This manœuver, by its tendency to stretch the brachial plexus of the left side, would partly explain the paraly-

sis of the left arm which was noted at birth. In Case III. traction was made upon the child's head with forceps, while the neck was flexed toward the right shoulder. The child's left arm was found to be paralyzed at birth.

Notwithstanding the fact that the brachial plexus appears to have been exposed to injury in all three of these cases, the author thinks that the second is the only undoubted example of stretching of the plexus. The first case he prefers to regard as having originated from compression of the roots of the plexus, by the clavicle, although stretching may have likewise occurred. In the third case, he assumes the cause of the paralysis to have been either direct pressure of the forceps upon the plexus or the strong traction upon the head with lateral flexion.

In regard to the subsequent history of these children, Cases II. and III. never developed any reaction of degeneration in the paralyzed muscles, and recovered in time under the use of passive motion, massage and electricity. This happy termination of obstetrical paralysis is not the rule, however, for many cases persist into adult life. The other child died when a few weeks old and an autopsy was not obtained.

Williams, P. Watson: Note on a Pre-exanthematous Sign of Measles. (*Bristol Medico-Chirurgical Journal.* Vol. xviii., No. 68.)

After a mention of Koplik's sign, of the minute, round, discrete, bluish-white specks on a reddish or diffuse red background in the mouth, the author states that in many cases no distinct red spots are to be seen, but the white specks look like particles of salt lying on the surface of the reddened mucous membrane. These white spots are adherent, but may be rubbed off, leaving a smooth pink surface. The buccal mucous membrane, not that of the palate, is the place where their presence should be sought.

These spots appear from twelve hours to three days before the skin exanthem. They generally begin to fade as the skin eruption becomes well developed. He has found this sign of great value in arriving at an early diagnosis of measles. He is unable to say from his personal experience whether these spots are absolutely pathognomonic.

He does not agree that all cases without the spots are cases of r otheln, but he is convinced that when spots are present, they invariably indicate the existence of morbilli.

Villy, Francis: A Form of Faucial Inflammation Resembling Diphtheria. (*The Medical Chronicle.* Third series. Vol. iii. No. 6.)

Four cases are reported in which the symptoms were: 1. Local faucial lesions of a more gangrenous character than that of diphtheria, a slough rather than a membrane. 2. More fever than in diphtheria, delirium was not uncommon. 3. No paralysis. 4. With recovery, no cardiac affections. 5. Few, if any, Klebs-Löffler bacilli. 6. The presence of the streptococcus pyogenes in the throat. 7. The negative action of the diphtheritic serum. The appearance of the throat was that of a sloughing, ulcerating process. The deposit was friable.

The cases reported were too few and the results of the bacteriologic examinations were too indefinite to make the conclusions positive as to a distinct entity of disease.

Durno, L.: Notes of a Series of Cases of Glandular Fever Occurring in Epidemic Form. (*British Medical Journal.* No. 2080. 1900.)

Children from two and a half to thirteen years of age were attacked and also one adult who had nursed three patients. There were no premonitory symptoms, the illness commencing with headache, nausea, vomiting and pain in one side of the neck, especially the left side. The temperature ranged from 100° to 105° F. Constipation was the rule. In two cases convulsions ushered in the attack. A distinct swelling appeared on the affected side of the neck in from twelve to thirty-six hours after the onset, and proved to be a group of three to five lymph nodes, separate, tender and movable, showing no tendency to suppurate, and unaccompanied by redness of the skin over them. In one-third of the cases the corresponding nodes on the opposite side were also attacked, less severely, but always with an aggravation of the general symptoms. The posterior cervical nodes were involved in a few cases and the inguinal in three. In most of the cases the glandular swelling disappeared during the third week, and convalescence was very protracted, out of all proportion to the severity of the illness. No deaths occurred. Hemorrhagic nephritis complicated two cases, and acute otitis media occurred in two others. Slight deafness on the affected side was a common symptom. A deep purplish blush extended over the mucous membrane of the

throat on the side of the swelling, contrasting markedly with the healthy side.

The most probable primary region of infection seems to be the throat, and it is an important element in the treatment to maintain, as thoroughly as possible, an antiseptic state of its mucous membrane.

Libman, E.: Sarcoma of the Small Intestine. (*American Journal of the Medical Sciences.* Vol. cxx., No. 3.)

Four cases are reported, with autopsy. Three were lymphosarcoma occurring in patients of twelve, three and eighteen years of age; a spindle-celled sarcoma occurred in a man forty-two years old. Sarcoma of the intestines is an unusual disease, much less common than carcinoma. It involves the small intestine and the rectum more often than it does the colon. In the writer's cases the tumor was in the ileum in 2; duodenum in 1, and jejunum in 1. Males are twice as often affected as are females, and cases have been reported in patients aged five days to seventy years, the third and fourth decades showing the largest number. The tumor may be single or multiple, small or large, primary or secondary. The lymphosarcoma is the most frequent variety, generally begins in the submucous lymph nodes, and tends to grow longitudinally; the muscularis is early infiltrated and paralyzed, the feces then dilating the intestine. This dilatation is a peculiar, though not a constant feature of intestinal lymphosarcoma. The serous coat is rarely involved, though in a few instances the growth began there. The lymphosarcomata generally have extensive metastases; the spindle-celled sarcomata have few, or none.

Microscopic examination showed that the growth was transmitted alongside the vessels, and in the lymphosarcoma cases the sarcoma cells were frequently seen in the lymphatics, liver and kidneys showed extensive parenchymatous degeneration. The growth may cause intestinal dilatation or incomplete stenosis, or it may undergo ulceration and perforate. The symptoms at the outset are slight. Pain is present in practically all cases. The abdomen is distended from involvement of the peritoneum, pressure on the vessels, tympanites, perforation of the intestine, or the size of the tumor, which is only slightly or not all tender, and may often be made out by rectal examination. Pressure symptoms (ascites, etc.), occur, as do gastric and

intestinal disturbances. Dyspnea is due to pleural effusion, abdominal distention or weakness and anemia. A peculiar white, characteristic color in the face usually appears after the abdomen is distended. The external lymph nodes are not usually enlarged, and there are no characteristic blood changes.

The course of the disease may be as follows: (1) latent, and the tumor first discovered at autopsy; (2) general symptoms, tumor or abdominal distention noted first; (3) intussusception or other obstruction, or perforation the first symptoms; (4) resembling tuberculous peritonitis; (5) jaundice the first symptom; (6) resembling ovarian cyst; (7) resembling appendicitis.

The diagnosis is difficult, but possible, and the following diseases must be excluded: carcinoma of intestine and peritoneum; tuberculous peritonitis, and tuberculosis of the mesenteric lymph nodes; sarcoma of the kidney; ovarian tumor and cysts; neoplasms of the bladder and prostate gland; retroperitoneal sarcoma; appendicitis with or without peritonitis. The disease lasts from two weeks to one and three-quarter years, most cases dying within nine months. The prognosis seems to be invariably fatal.

Operation is indicated when the growth can be completely removed, but lymphosarcomata with extensive metastases should not be subjected to exploratory incisions, because this is likely to hasten the fatal issue. Arsenic given internally, hypodermically or parenchymatously (into lymph nodes) has proven of value in cases of sarcoma, and should be tried before and after resection is done.

Hochsinger, C.: On Myotonia in Infants, and its Relations to Tetany. (*Wiener. Med. Wochenschr.* Nos. 7-12. 1900.)

The majority of authors describe two varieties of tetany in childhood. In the first are found intermittent tonic contractions of the muscles of the extremities; in the second we have persistent—not intermittent—spasms of the flexors of the extremities especially in the hands and fingers. The position of the hand peculiar to tetany is also frequently found in this variety, but according to Hochsinger, with whom Hensch and Strümpell agree, these persistent muscular spasms are to be distinguished from tetany. They differ from the latter by showing no hyperexcitability of the muscles and nerves either on mechanical or galvanic stimulation, as is always the case in true tetany.

These persistent muscular spasms are painless while the contractions present in tetany are usually painful.

Tetany affects children between the fourth and twentieth months of life; the persistent form of muscular contraction, however, is almost exclusively found during the first three months. Rachitic children especially are likely to be affected by tetany, while persistent myotonia affects non-rachitic children suffering from some other grave disturbances. Most frequently these disturbances are gastrointestinal diseases; in other cases, congenital syphilis; and sometimes this myotonia is found in the course of persistent dermatitis, as eczema, burns, etc. The occurrence of convulsive and spastic attitudes of the hands and feet in children suffering from intestinal diseases has been mentioned by different authors, among whom are some of an earlier period. Hochsinger considers these persistent tonic spasms an exaggeration of the physiological hypertonia of the muscles of new-born infants, which is present during the first three months of life and may be described as follows:

There is a slight rigidity of the flexors of the extremities, and a tendency to assume a position of slight flexion in the fingers and toes even in perfect health. But little psychical excitement is sufficient to produce a tonic spasm which doubles the hand into a fist and strongly flexes the toes. Between these physiological conditions and the above mentioned pathological myotonia of young infants, several intermediate stages are found. One of these is a phenomenon similar to Trousseau's sign in true tetany. Prolonged pressure on the brachial plexus produces, according to the degree of muscular irritability, either partial or complete flexion of the fingers; and this fist phenomenon may be produced in all forms of pathological myotonia. In the lightest forms of myotonia, appears, besides this phenomenon, an increase of the physiological hypertonia of the flexors even without any exciting cause. During the first few weeks of life, a little digestive disturbance may cause this mild degree, but it is rarely found beyond the second month.

The second degree, or persistent spastic myotonia, is characterized by persistent symmetrical spasms of the flexors of the hands and feet (persistent carpopedal spasms); stiffness of the flexors and adductors of the extremities; it involves the extremities only. These persistent spasms may continue for six months without noticeable change. The hands sometimes assume the

position similar to that noticed in the artificially produced fist phenomenon above described. This second degree is especially frequent during the first week of life and relatively infrequent after the third month. Pseudotetanus is the third degree of myotonia. In this form the myotonia extends to the muscles of the trunk and neck, and even to those of the face, producing a condition resembling tetanus. It is distinguished from true tetanus by the absence of increased excitability of the muscles and nerves.

It is Hochsinger's opinion that a number of cases of chronic tetanus reported in literature as cured, are really cases of pseudotetanus. Myxedema in earliest infancy may produce pseudotetanic conditions. In some cases of myotonia, clonic spasms or eclampsia are found, but these are considered as complications or as effects of the same conditions which produced myotonia. The ease with which the first phenomenon may be produced during the first few weeks of life is explained by the absence of inhibitory impulses arising in the cortex of the brain which restrain reflex action of the cord, and by the tonic spasm peculiar to infancy. Trousseau's phenomenon in tetany, on the other hand, denotes a general increase of the excitability of the entire nervous system. With great regularity the evidences of myotonia are present in syphilitic infants; these however diminish toward the third month, and after this age no case of syphilitic myotonia was observed by the author. Myotonia arising in the course of intestinal disease was found in older infants. Marchi and Nissel have demonstrated by their staining methods changes in the anterior nerve roots and the cells of the anterior horns of the gray matter of the spinal cord in specimens obtained from children who had died of septic or intestinal disease. These changes, Hochsinger believes, form the anatomical basis of the conditions of myotonia described by him, and although they affect only the nutrition of the parts, they are likely sufficient, in connection with the absence of inhibitory impulses, to produce the muscular contractions.

Burt, Stephen Smith: Purpura Hemorrhagica, or Morbus Maculosus of Werlhof. (*Boston Medical and Surgical Journal.* Vol. cxliii. No. 18.)

The author quotes extensively from the writings of Holder. As the tendency of the disease is to attack patients in a single ward there can be hardly any doubt as to its contagiousness.

Holder's therapeutic experience leads him to infer that there is no specific treatment for this disease. Burt reports in detail a fatal case which he once attended. A purpuric eruption and bleeding of the gums appeared without prodromata, and were at first uncomplicated. The macules did not exceed one-fourth of an inch in diameter. About the fourth day epistaxis was added to the clinical picture and on the fifth day hematemesis and melena. The temperature, as a rule was slightly elevated, but was at times subnormal. The mind was clear up to the seventh day, when stupor and delirium appeared. Death took place on the tenth day. Hemostatics, stimulants, the saline solution, etc., all proved of no avail in controlling the symptoms. In a case cited from Dawson, a deep injection of ergot appeared to produce a cure, while others have reported successes from injection of blood serum. Mild cases recover spontaneously, while examples of the virulent type are essentially irresponsive to any form of treatment.

Morris, Lewis Rutherford: A Case of Unusual Cerebellar Tumor, With Hydrops Ventriculi. (*Medicine.* Vol. vi., No. 7.)

The evolution of the endocranial disease in the six year old girl was obscured by a concurrent history of relapsing appendicitis which was cured by operation before the report was made of this history. In addition the history of the cerebellar lesion exhibited intrinsic peculiarities, periods of apparent health alternating with symptoms of grave or equivocal significance. Thus even while learning to walk, the child showed peculiarities of co-ordination, and sustained a number of severe falls, one of which was followed by a hematoma beneath the occipital protuberance. No meningeal symptoms succeeded to these accidents. The child learned to walk, and at a later period became a good dancer.

During a considerable period all evidences of ill-health were referred to the presence of the chronic appendicitis. After the latter condition had been cured by operation, the child appeared to be quite well, so that the gradual onset of her terminal disease could be readily studied. There was at the outset a failure in the general health, while the first symptoms to suggest endocranial trouble were headache and vomiting, followed by a certain amount of contracture in the muscles of the neck. Ocular symptoms, such as anisocoria and right internal strabismus,

next supervened, together with a tremor of the hands. There was no evidence of cerebellar ataxia.

After several periods of remission these symptoms, which all became progressively intensified, were reinforced by clonic convulsions of the right leg (kicking movements), and mental apathy, which later passed into stupor. The power of swallowing then became extinguished, and death resulted from respiratory failure.

Dr. Hamilton had made an *ante-mortem* diagnosis of hydrops ventriculi with median cerebellar tumor which was practically confirmed on autopsy, although the tumor—a round-cell sarcoma of the size of an egg—was not within the cerebellum, but pressed against its anterior surface.

HYGIENE AND THERAPEUTICS.

Gregor, Konrad: **The Justification of Venesection in Infants for Therapeutic Purposes.** (*Jahrbuch f. Kinderheilkunde.* No. 52. Third series. B. ii., H. 1.)

Therapeutic application of venesection is at present limited in adults to disturbances of the respiratory centre, or threatened paralysis of the centre due to toxic changes in the blood, as well as to relieve an insufficient, dilated cardiac muscle from undue resistance. Baginsky, in citing the disappearance of this therapeutic measure in the last two decades, mentions several cases of dilatation and engorgement of the heart occurring in children which were relieved and life preserved by venesection. In spite of authorities to the contrary, Gregor has often seen venesection performed on children of four to eight months old. Also has he seen local blood letting in infants by means of leeches in cases of intercranial congestion and pneumonia followed by success. In one infant, six months old, he succeeded in bringing a child safely through a double pneumonia with threatening cardiac insufficiency and intense dyspnea. This case encourages him to the belief that in rapidly developing pneumonia and before the blood-pressure has materially decreased, the relief afforded the circulation by blood letting is superior to digitalis in regulating the heart. The venesection is to be done on the visible veins of the elbow; the basilic median, or median basilic veins being the best for the purpose and the incision into the vein being transverse. The amount of

blood to be withdrawn should bear to the weight of the entire mass of blood in the body, the ratio of 1-15 or -16.

Floerisheim, S. : The Use of the Suprarenal Capsule in Diseases of the Heart; A Preliminary Report. (*New York Medical Journal.* Vol. lxxii., No. 14.)

When the heart is diseased it is noted that there is a more or less marked effect from the use of the suprarenal gland. This effect is believed to be due, without doubt, to the action of the gland on the heart muscle.

The action of the gland on the rapidity of the heart is uncertain and it has probably little or no effect in controlling the rapidity. Immediately after the stimulating effects of the remedy has passed off the heart seems to be left in better condition than it was before its use and cases in which this agent was used showed temporary improvement. In children its action seemed satisfactory when given in 5-grain doses, and cases of mitral disease were apparently benefited and "toned" by it.

Hatfield, Marcus P. : Varicella, Variola and Vaccination. (*Medical Standard.* Vol. xxiii., No. 9.)

Under the head of the bacteriology of chicken-pox it is stated that while the exciting cause has not as yet been isolated it can have nothing in common with the virus of small-pox and vaccinia. Its vitality outside of the human body is feeble. The so-called gangrenous form is due purely to secondary infection with pyogenic cocci. The author has seen epidemics of gangrenous chicken-pox in overcrowded orphan-asylums. In certain cases the secondary infection just mentioned may cause ordinary sepsis.

In the treatment of small-pox, the author recommends baths of sublimate solutions or dilute hydrogen peroxid as antiseptics. Begg, of China, uses salol in full doses as a preventive of secondary suppuration. In regard to the preventive power of vaccination the author relates the following episode: In a family of nine people, seven had been properly vaccinated, one (the father) had once been inoculated with variola, while the youngest child was unprotected in any way. The entire family were all attacked later by a contagious disease which at first was of so mild a type that no diagnosis could be made, and the health officers promptly excluded small-pox. When the disease reached the father, however, it was recognized, despite its mild

and atypical character as variola, while the unvaccinated infant developed confluent small-pox and lost its eyesight. In this case the vaccination gave better protection than variola itself.

Berger, Franz: Caries of the Teeth in Children and Its Treatment. (*Archiv. f. Kinderheilkunde.* B. xxviii., H. 5 and 6.)

The author describes the danger of carious teeth as portals of entrance for pathogenic germs. Thus Körner proved experimentally that the *bacillus tuberculosis* entered the lymph spaces through the diseased tooth and thereby called forth a submaxillary lymphadenitis. Dr. Slavyk found upon examination of 100 specimens of saliva of healthy children, 24 per cent. to be harboring the Löffler *bacillus diphtheriæ*, without causing any pathological condition. He states that the possibility of infection through injured mucous lining or carious teeth is always present. As for the prevalence of caries of the teeth, statistics show that in Switzerland, in children between seven and fourteen years of age, 94.2 per cent. are affected. In Sweden, despite extraordinary vigilance in the schools, 97.27 per cent. were found with caries. In England and Scotland, after examination of 10,500 children, over 80 per cent. were described as having carious teeth. In the various cities of Germany, from 81 per cent. up to 98 per cent. were found to be thus affected. After stating that Ottofy found only 75 per cent. average in the examination of American children, the author blandly remarks that this good showing must rest upon faulty examination or imperfect statistics. It has been found generally that lime soils are conducive to better dentition than other ground. The higher the civilization the greater the prevalence of caries. It is supposed that nascent lactic acid produced by the decomposition of carbohydrate food attacks the soft tissue of the tooth producing caries. Rachitic children are more prone than others to the disease, as the dentine and soft tissue are mal-developed, and the enamel thin or lacking in parts. For prophylaxis, the pregnant mother ought to take albuminous foods, vegetables and much milk, as thereby better dentition is insured. After birth, only the best milk is to be used in feeding the child. To prevent lactic acid fermentation, a soft cloth, dipped in weak sodium bicarbonate solution should be used to cleanse the mouth. The teeth should not be rubbed too hard as by attrition and erosion the enamel is worn down. The child should be taught to mas-

ticate well. Phosphorus and preparations of iron are useful when the teeth are weak. The child should be taught early the use of the toothbrush. Should the teeth become carious they are to be treated conservatively and not extracted, for the child needs its teeth even more than the adult and the milk teeth ought to be preserved to the last possible moment for the better development of the permanent teeth. As a tooth powder some alkali should be used—not too gritty—such calc. carbonate precip. mixed with soap. The mouth wash should contain alcohol, zinc chlorid, thymol or any other neutral antiseptic.

Beddies, A., and Fischer, W. : Effervescent Cod-liver Oil.
(*Medizinische Woche.* No. 36. 1900.)

By a new process, animal and vegetable oils—cod-liver oil, castor oil, and olive oil—are impregnated with carbon dioxide, in the same manner as mineral waters are charged with this gas. The finished product contains considerable quantities of CO₂, which it gives off upon shaking or on exposure to the air.

The main purposes of the experiments which led to this invention were to improve the taste and advance the keeping qualities of the oils by impregnation with carbon dioxide. These have been fully attained—the predominating taste being slightly acid, due to the presence of the gas. In addition, another very important change regarding the effervescent cod-liver oil, is its improved therapeutic quality. Experiments have been made by the authors to determine whether this new product is more rapidly assimilated by the organism (in health, as well as in disease) than the pure oil. Another series of experiments was undertaken to compare the absorption of the CO₂ cod-liver oil with that of other fats. To a healthy male person was given a test breakfast consisting of a cup of tea and a roll, and two-thirds of an ounce of CO₂ cod-liver oil. This was done on three successive days. For another three days the same test was made, with the exception of substituting for the cod-liver oil two-thirds of an ounce of unsalted butter, and in a third series plain cod-liver oil in the same quantity was given. In the first group of experiments the particles of cod-liver oil were found to be in finely emulsified form, while in the series where butter was administered the fat appeared in large globules, easily recognizable to the naked eye. The specimens removed by the second introduction of the stomach pump, showed only very few microscopic particles of fat in the CO₂ series, while in the other two sets of experiments a consid-

erable portion of the test breakfast was found still retained in the stomach. A chemical examination, showed, in the first experiment, a larger secretion of the gastric juice with a higher total acidity and absence of lactic acid. In the two following experiments, where butter and plain cod-liver oil were used, the secretion was less, total acidity low, and lactic acid was present. The favorable results of these experiments would lead one to the conclusion that effervescent cod-liver oil would be absorbed by the intestine more readily than other fats. To determine this, a careful comparison of the amount of fat, nitrogen and carbohydrates taken in and discharged by the feces was made. Of $2\frac{2}{3}$ oz. of butter fat, 5 per cent. was recovered from the feces, while of the same amount of plain cod-liver oil 2.25 per cent. and of CO_2 cod-liver oil 1.20 per cent. was recovered. As a control experiment 10 per cent. of fat was added to an artificial pancreas solution (Stutzer). The two cod-liver oil samples were emulsified almost immediately, but the butter fat and olive oil required an exposure of from half to three-quarters of an hour at a temperature of 40°C .

In the case of an alcoholic with chronic intestinal catarrh, and that of another patient with nervous dyspepsia, the difference in the amount of fat introduced into the system and recovered from the feces was still more in favor of cod-liver oil, as compared with butter fat, especially so when CO_2 cod-liver oil was used. In the case of the alcoholic, 11.75 per cent. of butter fat, 4 per cent. of cod-liver oil and 3.37 per cent. of CO_2 cod-liver oil were recovered. In the case of the dyspeptic the respective figures were 12.75 per cent., 9.12 and 4.02 per cent.

The addition of a few grains of common salt to the effervescent cod-liver oil will make it palatable.

Denny, Francis P. : Diphtheria Bacilli in Healthy Throats and Noses, with Reports of Cases. (*Boston Medical and Surgical Journal.* Vol. cxliii., No. 21.)

He concludes from extensive personal studies that diphtheria bacilli are seldom found in the throats of those who have not been exposed to diphtheria, and that they occur more frequently in those who have been in the vicinity of diphtheritic patients, especially in institutions and under poor sanitary conditions. The fact that the Klebs-Löffler bacillus can flourish in the healthy throats of inmates of institutions is explained by defective air-space necessitated by the confinement of many peo-

ple in close quarters. Healthy individuals with specific bacilli in the throat are as dangerous to the community as are the mild or convalescent cases of outspoken diphtheria.

Tunncliffe, F. W., and Rosenheim, Otto: Contribution of our Knowledge of Proteid Metabolism in Children. (*British Medical Journal.* No. 2076. 1900.)

In order to determine whether milk proteid is capable of replacing meat in the food of children between three and six years, experiments were made with plasmon, an unaltered milk proteid prepared from skimmed milk on a large scale. It is a yellowish white, fine powder, without odor or taste, developing a faint milky smell when boiled with water. With small quantities of cold water it forms a gelatinous paste; with large quantities an opalescent solution showing an amphoteric reaction. Bread, biscuits, cocoa, chocolate, vegetable and meat soups may have their nutritive value (proteid) increased by the addition of plasmon; while the proteid contents of milk can, by the addition, be increased almost *ad libitum* without appreciably increasing its bulk nor lessening its digestibility.

Comparative observations were made in three cases upon the metabolism in children during ordinary and plasmon diet, the results justifying the conclusions that the phosphorus of the milk proteid is capable of being assimilated and retained in the body; that a greater increase in body weight took place during the milk-proteid period in all three cases than during the meat period; and that plasmon is capable of replacing meat as a nitrogenous food in the mixed diet of children according to its nitrogen percentage.

Laslett, E. E.: The Treatment of Severe Cases of Diphtheria with Saline Infusions. (*The Lancet.* No. 4025.)

Saline infusions were employed (1) in the last stage of diphtheria where there was persistent vomiting and nutrient enemata were rejected. In the six cases that were treated all were fatal, but the injection seemed to prolong life. (2) In the acute stage it was employed in fifteen severe cases. The salt solution was of the strength of two teaspoonfuls to a pint of water. The injections made were into the loose skin below and outside of the breast. The pressure was one and a half to three feet; the quantity of the solution was 10 to 15 ounces. In a half hour the children were greatly soothed. Seven of the fifteen cases died. Antitoxin was given to all of the patients.

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THE BLOOD IN INFANCY AND CHILDHOOD.*

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THE ERYTHROCYTES.—The red corpuscles are more numerous at birth than in the normal condition in after-life. The average of the enumerations of various investigators is 5,742,080 per c.mm. The counts obtained by these investigators are as follows:

Hayem	averaged	-	-	-	5,360,000
Sørensen	"	-	-	-	5,665,000
Otto	"	-	-	-	6,165,000
Bouchat and Dubrisay	"	-	-	-	4,300,000
Schiff (one case)	"	-	-	-	6,658,000
Gundobin	"	-	-	-	6,700,000
Elder and Hutchinson	"	-	-	-	5,346,560

Schwinge greatest at birth.

Certain attending conditions are supposed to influence the number of cells, thus according to Hayem and Helot it has been found that when the umbilical cord was not tied until its pulsations had ceased, a greater number of red corpuscles was found than in cases in which immediate ligation was practiced.

Elder and Hutchinson in comparing the new-born infant's blood with that of its mother found the former always richer in the number of corpuscles, the difference being as much as 350,000 to 500,000 per c.mm. Gundobin attributed this high count to concentration of the blood by loss of water through the lungs. Schiff found the same and further that the number of corpuscles decreased when the child was put to the breast. Elder and Hutchinson and Gundobin speak of the variations in

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the daily count, but do not attribute such variation to the usual physiological processes such as the influence of diet, and Gundobin suggests that it may be the result of some change in the chemical composition of the blood as a whole. The number of red corpuscles begins to fall after the second day and in one case in which Schiff estimated the number in the morning and evening during the first fifteen days of life, there was an irregular declension. The first day's count was 7,628,000; the last day's count was 4,565,600; and the average for the fifteen days was 5,828,465. This decrease in the number continues during the first year according to Schwinge and Gundobin and then there is an increase up to the eighth or twelfth year when the number becomes approximately that maintained until adult life. The count of the two sexes is approximately the same both before the fourteenth or fifteenth years and after the menopause, but in the intervening years the count in women is apt to be lower than that in men.

The red corpuscles during the first few days and at birth vary greatly in size. Hayem estimated the variations at from 3.25 μ . to 10.25 μ . and Loos found the size from 3.3 μ . to 10.3 μ . This irregularity in size has been observed by many others. Gundobin claims that the hemoglobin is more firmly attached to the cell stroma in the new-born infant and he also calls attention to the great number of small-sized corpuscles. In general, however, the histologists find no difference in the structure of the red corpuscles in infancy and in the adult.

THE HEMOGLOBIN.—This is increased at birth as Taylor, Morse, Elder and Hutchinson, Rotch, and others have shown, but it tends to decline rapidly in the first few days of life. Gundobin found the proportion of hemoglobin greater at birth than in adults or in infants after feeding had begun. Rieder's investigations showed an excess of 25 per cent. to 30 per cent. at birth.

SPECIFIC GRAVITY.—This usually varies as the percentage of hemoglobin varies, so that at birth the specific gravity is high and subsequently it declines. Monti found it 1060 at birth; Rotch 1065; Hotch and Schlessinger 1066; and Moelle 1060. E. Lloyd Jones noted that the specific gravity was highest at birth and at a minimum between the second week of life and the second year.

It has generally been observed that the specific gravity like the number of cells decreases after the first two days. Hoch and Schlessinger found figures between 1048 and 1052 up to two years of age and 1052 to 1056 from two to six years. The following figures will indicate the specific gravity at different periods.

Monti found the average	1057	at two to four weeks.
“ “ “ “	1050	“ twelve months.
“ “ “ “	1052	“ two to ten years.
Rotch “ “ “	1048-1051	up to two years.

The investigations of Monti, Rotch and Hoch and Schlessinger show that the specific gravity may be stationary for weeks or months at a time in healthy children. The variation, for example, in two healthy children studied by Hoch and Schlessinger was only .0025.

THE LEUCOCYTES.—The white blood corpuscles are greater in number at birth than in the adult blood, this excess in number constituting that which has been recognized as the physiological leucocytosis of the new-born. The following figures have been found by the authors quoted.

Rieder to be	15,500	10 minutes after birth.
Oransky “ “	16,980	immediately after birth.
Cadet “ “	19,480	“ “ “
Elder and Hutchinson to be	17,884	average in 12 cases at birth.

During the first forty-eight hours of life there is a still further increase in the number of leucocytes after which the number declines, though the count still remains higher during the first and second years than that found in the blood of the adult. The following table shows figures obtained at various times after birth:

Schiff	24,000-36,000	in first 24 hours.
Oransky	20,980	20 hours.
“	31,680	next day.
Gieffer	18,000	24 hours.
Rieder	16,500	8 hours.
After the third day		
Rieder 1 case	8,700	3d day.
“ 2 cases	10,500	5th day.
“ 3 cases	13,600	4th day.
“ 3 cases	12,200	5th day.

After the second year the number gradually declines to that

found in adult blood and the percentage of the various forms of leukocytosis also becomes normal.

Physiological influences, such as diet and digestion, have about the same effect on the leucocytes in the infant as in the adult, that is to say, a digestive leukocytosis is observed. From the frequent feedings of the infant, however, this leukocytosis is practically constant as Taylor has pointed out, but Gundobin has observed an increase of from 2,000 to 4,000 in the number of leucocytes after feeding. The same author has observed that daily variations of temperature have no effect.

With regard to the variety of leucocytes it may be noted that the same kinds of cells are found as in the adult blood though the proportions of the several forms are different. The most striking peculiarity in the differential count is the increase in the number of lymphocytes and the more or less proportionate decrease in the polymorphonuclear cells.

Gundobin gives the following figures: Lymphocytes 50 per cent. to 66 per cent., polymorphonuclear 28 per cent. to 40 per cent. This indicates a three-fold proportion in the number of lymphocytes as compared with the adult, and a corresponding paucity of the polymorphonuclear cells amounting to about a half. The weight of the child apparently has no influence either on the total number of leucocytes or on the proportions of the different forms. If the child is increasing normally in weight, the numbers already alluded to occur, but when there is a cessation of the normal growth or a decrease in weight, variations in the number of leucocytes and in the relative proportions of the various types are apt to appear. Daily variations of temperature or artificial elevations of temperature amounting to 0.6 per cent. C. apparently have no influence on the number of leucocytes. (Gundobin.) C. S. Engel found 12 per cent. to 20 per cent. of polymorphonuclear cells in infants during the first few months of life and 40 per cent. to 50 per cent. after the expiration of the first few months up to the end of the first year. At twelve years of age he found 60 per cent. of polymorphonuclear cells.

The eosinophile cells vary greatly in number at birth and we find expressions as follows: "almost fail" (Elder and Hutchinson); "not increased" (Weiss); "in varying numbers" (Loos); "1.53 per cent. to 19.54 per cent." (Zappert); "often considerably increased" (Hoch and Schlessinger).

Nucleated red corpuscles are the embryonal type of the normal erythrocyte and, until the sixth month of intrauterine life, form the greatest number of the red cells of the blood. From this period until birth they gradually decline in number and at birth only a few erythroblasts can be found. By the end of the second day these as a rule disappear entirely. A few observers like Hoch and Schlessinger have found them in apparently healthy children. As a rule they are not found after the second or third day, excepting in children who are ill. Elder and Hutchinson found them as numerous as 1 to 20 and 1 to 8 of the leucocytes, in the blood taken from the umbilical cord. They also noted many free nuclei but no mytoses.

PATHOLOGICAL CONDITIONS OF THE BLOOD IN INFANCY.

The first changes observed in most cases of disease affecting the blood is a reduction in the hemoglobin and in the number of the erythrocytes, but as a rule the reduction in coloring matter is greater than that of the number of cells, especially in young infants and early childhood. No other change may be observed in the red cells, but on the other hand, there are often changes in size and shape. In the blood of infants Gundobin calls attention to the occurrence of the smaller forms, the so-called microcytes. A condition of the red corpuscles that has been commonly regarded as degenerative is its peculiar reaction to stains as a result of which the red cell becomes dichromatophilic or polychromatophilic. Loos has called attention to the microcytes and macrocytes as showing this change in particular, and the same author calls attention to the fact that the biconcavities of the same cells are usually lost, showing a change in the structure as well as in the staining properties of the cells. A still further change in these cells causes an increased adhesiveness so that they stick to the cover glass firmly. Loos' attention was first directed to this by observing that in specimens insufficiently fixed these cells and the leucocytes were the only ones to remain after washing the slides for mounting. The polychromatophilic change is a rather common one, being found in posthemorrhagic conditions and in most of the anemias. There is much difference of opinion as to the real cause or actual change in the cell. Ehrlich supposed that it was an evidence of senility or of death of the cells while Gabritschewski, Askanazy, Dunin and others opposed this theory and state that they have found it in

young cells, *e.g.* around the nucleus of the megaloblasts. Basic or granular degeneration of the red corpuscles has not received the attention of investigators in the blood of children. Loos found cells with fine granules which he supposed to be the remains of a former nucleus and Ehrlich suggests that this change is a coagulation necrosis of the cell contents or that the granules are the remains of a former nucleus.

Nucleated red corpuscles: Erythroblasts. When these cells are found in the circulating blood after the second or third day of life, their presence may usually be assumed to indicate a pathological change or condition. The significance of erythroblasts is, however, much less in infancy and childhood than in the adult since marked anemia occurs so much more readily in early life. The number of the erythroblasts varies greatly at different times in the same patient and in like grades of intensity of a similar disorder in different patients. Erythroblasts have been found in secondary and in primary anemias by Weis, Gundobin, Elder and Hutchinson, Morse, C. S. Engel, Monti, Berggrun, Hoch and Schlessinger. Loos found them very abundant in pseudoleukemia, syphilis, rickets, osteomyelitis, congenital rickets and tuberculosis, and in less number in the same affections in slighter grades. Most investigators have found these cells under similar conditions. Karyokinetic figures are rarely found in the circulating blood and only in cases of very severe anemia.

Leucocytes. Increase in the number of leucocytes (leukocytosis) more frequently presents itself in the blood of anemic children than in adults and the increase may reach enormous proportions in apparently slight pathological conditions. The causes of leukocytosis in childhood are in general the same as those which occasion the condition in adults. We may distinguish toxic, inflammatory, posthemorrhagic, and cachetic forms. Enlargement of the spleen may or may not accompany the leukocytosis; in the majority of cases there is enlargement. The differential count of the leucocytes shows an increase in the lymphocytes, the mononuclear cells or the polymorphonuclear neutrophils. The eosinophiles seem to be governed by influences quite different from those which control the number of the other forms, but the nature of those influences is as yet unknown. Myelocytes are more frequently found in the blood in childhood than in adults. Their occurrence in increasing numbers is of

bad prognostic significance as C. S. Engel, Cabot, and others have especially noted in pneumonia and diphtheria.

We may now proceed to the consideration of the hematologic features of various general and local diseases.

INFECTIOUS DISEASES.—During the attack there is often but little change in the number of red corpuscles and the percentage of hemoglobin, while during convalescence a moderate or severe grade of anemia presents itself. This is explained by the assumption that the blood is inspissated in the febrile stage of the disease by increased action of the skin and lungs or by diarrhea. When anemia develops, the reduction in hemoglobin usually exceeds that of the number of corpuscles, and at times this disproportion is marked. The number of leucocytes differs in various diseases, being increased in some, and unaffected or decreased in others. Among those in which a decrease (or at least no leukocytosis) is observed, are r6theln, variola in its earlier stages (Pick), mumps (Cabot), influenza, malaria, typhoid fever, tuberculosis (before excavation and in miliary tuberculosis), and varicella (Loos and Engel). Very slight causes may determine a moderate leukocytosis in any of these as in healthy children. In other infectious processes and in those above named when complicated by inflammatory or other conditions considerable and often excessive leukocytosis may be met with.

With regard to the variety of cells mainly involved in such infectious leukocytosis, Weiss and Gundobin found the polymorphonuclear cells especially increased in diphtheria, scarlatina, erysipelas and pneumonia. Gundobin in addition found that the increase of the leucocytes occurred some time before the eruption in scarlet fever, measles and erysipelas. C. S. Engel found 67 per cent. of polymorphonuclear elements and no eosinophiles in varicella and three days later, when the skin lesions had healed, only 47 per cent. of polymorphonuclear cells and as many as 16 per cent. of eosinophiles. In measles Weiss failed to find increase of eosinophiles. In typhoid fever the number of leucocytes is decreased in childhood as in adults, and there may be at the same time a decrease of the hemoglobin and the red corpuscles. The number of leucocytes is relatively increased or properly speaking the polymorphonuclear elements are the ones actually deficient, the mononuclear cells, large and small, being present in about the normal number.

The hematological conditions in *pneumonia* are particularly interesting. There is nearly always some degree of leukocytosis and often excessive grades. When the condition is absent, the prognosis is unfavorable in childhood as in adults. Gundobin found in six cases an average leucocytic count of 24,300 with the following differential count: lymphocytes 25 per cent., mononuclear, 6 per cent. polymorphonuclear 70 per cent., eosinophiles 2.5 per cent. Engel found the polymorphonuclear cells excessive and the eosinophiles wanting during the febrile period of the disease, the latter forms reappearing after the crisis. Rotch found that leukocytosis develops at from six to twelve hours before physical signs are discoverable, and that a leucocytic crisis may antedate the crisis of temperature by twenty-four hours. A blood lysis is, however, more common.

In *hereditary syphilis* there is a more or less pronounced grade of anemia according to the severity of the symptoms. Usually the anemia is quite marked. In a careful study of the subject, in which Gundobin, Weiss, Monti and Berggrun, Bięanski and Engel are quoted, Loos arrives at the following conclusions:

1. Hereditary syphilis is accompanied by an anemia which under certain conditions may become very great.
2. The anemia is characterized by a decrease of erythrocytes with great degenerative changes (poikilocytosis) and especially the occurrence of microcytes and macrocytes, by the presence of polychromatophilia and nucleated erythrocytes which may be very numerous at times.
3. A leukocytosis at times reaching very high grades and showing a predominance of the small lymphocytes is usually seen.
4. The presence of myelocytes is noted.
5. Hemoglobin greatly decreased.

These changes indicate nothing that may be regarded as peculiar to hereditary syphilis as Rotch and Weiss have pointed out.

Engel found in 15 cases a low percentage of polymorphonuclear forms, 16 per cent. to 11 per cent., while the lymphocytes were considerably increased, and as many as 14 per cent. of eosinophiles occurred in some cases. Nucleated red corpuscles were found in some cases. Loos found myelocytes in 4 cases. Gundobin found the lymphocytes absolutely and

relatively increased. This predominance of lymphocytes over the polymorphonuclears may disappear when malnutrition or complications in the gastrointestinal tract and lung occur.

DISEASES OF THE RESPIRATORY TRACT.—Slight acute inflammatory processes of the respiratory tract may cause oligochromemia and oligocythemia; chronic processes scarcely ever do. The leucocytes generally increase in number according to the severity of the process; slight leukocytosis occurring in the acute catarrhal processes and enormous increase in number when more tissue is involved and the severity of the process is pronounced.

In conditions producing cyanosis there may be increase in the number of red and white corpuscles and in the percentage of hemoglobin. Grawitz found such to be the case in asthma and heart diseases. The polymorphonuclear cells usually contribute the leucocytic increase; the eosinophiles are either not affected or absent altogether in the majority of processes, excepting in asthma of the bronchial type when they are generally spoken of as prominent. Schreiber in his lectures claims that they are not peculiar to this type but are found in all types in the blood and secretions.

In bronchitis there may be slight leukocytosis with especial increase of the lymphocytes or mononuclear cells. The average count and differential count of cases reported by Gundobin is: total 17,500; lymphocytes 42 per cent., mononuclear 8 per cent., polymorphonuclear 50 per cent., and eosinophiles 2 per cent. Weiss found in cases not specially classified as acute or chronic moderate leukocytosis with particular increase of the mononuclear forms. In one of the cases in which nasal complications existed he found an increase of the eosinophiles.

GASTROINTESTINAL DISEASES.—The condition of the blood varies according to the extent of the process, the duration, and the existence or non-existence of diarrhea and vomiting. Profuse diarrhea or vomiting may for a time thicken the blood by loss of water. Hoch and Schlessinger found that such inspissation with consequent increase of specific gravity does not occur until the drain has existed for some time and the tissues as well as the blood have been affected. There is no change in the blood, according to their investigations, when the amount of water lost is equalled by the quantity ingested. When the ingestion

is less than the excretion the tissues first contribute and the blood secondarily.

The differential count of the leucocytes, according to Weiss, shows an especial increase of the lymphocytes and transitional leucocytes.

RACHITIS.—In rickets there is no typical blood-picture. The changes found vary with the severity of the affection, its duration, and the involvement of the inner organs. In the moderate grades there is usually a reduction of red corpuscles and a decrease of the hemoglobin with an accompanying leukocytosis. In severe cases these conditions become pronounced. Weiss found increase of the mononuclear forms and transitional leucocytes. The neutrophils were decreased. Loos found nucleated reds, myelocytes, polychromatophilia. The red corpuscles in some cases show enormous reductions in a comparatively short space of time (v. Jaksch, Luzet.)

CUTANEOUS DISEASES.—Increase in the number of eosinophiles has been observed in a variety of skin diseases, but the cause of the increase is entirely unknown.

NERVOUS DISEASE.—In the functional disorders of childhood there may be a moderate grade of anemia, though this is often less marked than the appearance of the skin would indicate. Burr has found that the blood in chorea is not as a rule anemic.

METHOD OF EXAMINATION.

In our own examinations of the blood in childhood, we have enumerated the corpuscles and estimated the hemoglobin in all cases and have made differential counts of the leucocytes. In some cases we have estimated the specific gravity of the blood, but have not pursued this as a routine. In the histological examination of the blood, various methods of preparation were used; the films were fixed with heat, mixtures of absolute alcohol and ether, solutions of bichlorid of mercury, picric acid, etc. These various methods were employed because we were particularly desirous of discovering any signs of nuclear change which might escape detection by the ordinary method of fixation with heat. The stains used were eosin and hematoxylin, Canon's stain, and Ehrlich's triple stain.

Our examinations have shown practically no differences in the morphology of the red corpuscles in childhood as compared

with the adult. Polychromatophilia and irregularities of shape and size of the red cells were perhaps more conspicuous in the moderate anemias than in the adult and nucleated red corpuscles were found in some cases in which the degree of anemia would not have led us to expect their occurrence in adults. In no case was granular basic degeneration observed.

In the study of the white corpuscles certain peculiarities were observed that merit especial mention. There was a decidedly greater tendency to basic staining than we had been accustomed to observe in adult blood. The lymphocytes stained with Canon's mixture in many cases presented a coarse granular protoplasm while the nucleus stained a light blue. Occasionally this granular character assumed the appearance of distinct granulations and in some instances these granulations were extruded from the cell, projecting as little knob-like masses. These of course suggested artefacts, but if so the occurrence of the coarse granular bodies in the protoplasm indicated that there was before the extension a differentiated condition of the protoplasm and that the extruded particles represented performed elements and not artefacts pure and simple. In the large mononuclear cells we found in a number of instances minute basic or amphophilic granules. Even when amphophilic these rather inclined to basic than acid affinity. These granules were closely set and gave the protoplasm of the cell a fine dusted appearance. Coarse basophilic granules were occasionally found in these cells, but never distinct mast-cell granules. The polymorphonuclear cells in a few instances contained very sharply defined and quite abundant basophilic granules. These were larger than the neutrophile granules usually observed, but were smaller than mast-cell granules. They stained with great intensity and therefore gave the cell a very striking appearance. Mast-cells were found in some cases but were not abundant in any instance. Upon the whole, the basophilic granules were much more conspicuous in the blood of childhood than they have usually been found or we have found them in the blood of adults.

Myelocytes were observed in a number of cases (10 out of a total 49) as will be seen in the special notes. We could find no particular significance in their occurrence. In connection with what has been said before regarding the prognostic significance of myelocytes, it may be noted that one of the most

severe cases of pneumonia ending fatally showed as many as 2.2 per cent. of myelocytes at one of the examinations.

The blood counts in general have shown no striking peculiarities. The number of leucocytes was usually high as compared with the numbers found in adults excepting in the case of typhoid fever in which the leucopenia usually observed was found. Transitional leucocytes were estimated with the large mononuclears.

We may now refer to the cases in detail and summarize the observations after the histories of the cases.

PNEUMONIA.

CASE I.—Helen D., aged nine years, was admitted to the hospital with croupous pneumonia. There is nothing of interest in the clinical history which was incomplete.

The blood count showed: 4,460,000 red blood corpuscles; 29,200 white blood corpuscles; 85 per cent. of hemoglobin. The differential count showed: 87 per cent. polymorphonuclears, 9.4 per cent. mononuclears, 3.6 per cent. lymphocytes, 0.4 per cent. myelocytes.

The following notes were made regarding the appearance of the stained specimens: Canon stain—protoplasm of the leucocytes not well stained but nuclei dark; mononuclears and lymphocytes sometimes difficult to differentiate. Specimens fixed with heat showed some polychromatophilia. Triple stain—distinct myelocytes were discovered.

CASE II.—Lazer T., aged two years and three months. The patient was admitted with pneumonia of the right side, and there were râles throughout the other lung as well. The child was rachitic and the temperature was constantly high. The spleen and liver were both easily palpable, and the former considerably enlarged. Purpuric spots developed on the abdomen. The abdomen subsequently became swollen by tympany. After an illness of some weeks, the child died. No autopsy.

The blood count soon after admission showed: 4,332,000 red blood corpuscles; 68,000 white blood corpuscles; and 56 per cent. of hemoglobin. The differential count showed: 59.6 per cent. polymorphonuclears, 6.4 per cent. mononuclears, 30.4 per cent. lymphocytes, 1.4 per cent. eosinophiles, 2.2 per cent. myelocytes. The second examination, some days later, showed 87,200 white blood corpuscles and 55 per cent. of hemoglobin.

The differential count was then 49.6 per cent. of polymorphonuclears, 8.8 per cent. mononuclears; 39.6 per cent. lymphocytes, 1.4 per cent. eosinophiles (polymorphonuclear), 0.1 per cent. mononuclear eosinophiles, 0.5 per cent. myelocytes. The last examination made towards the end of the illness showed: 3,440,000 red blood corpuscles, 27,824 white blood corpuscles; 46 per cent. of hemoglobin. The differential count showed 47.5 per cent. polymorphonuclears, 13.9 per cent. mononuclears, 37.4 per cent. lymphocytes, 0.8 per cent. eosinophiles, 0.4 per cent. myelocytes.

Examination of the stained specimens showed as follows: triple stain—red blood corpuscles irregular in shape; some large flabby forms; some polychromatophilia; large and small nucleated reds with clover leaf multipartite nuclei. No karyokinesis. Picric acid specimens stained with eosin and hematoxylin showed about the same conditions, and one nucleated corpuscle with a karyokinetic figure. Canon stain (fixed by alcohol and ether)—same conditions of red corpuscles and leucocytes; some of the polymorphonuclear forms contain sparse basophilic granules which stand out very distinctly; some of the lymphocytes show the same granules, the latter were decidedly more coarse than the δ -granules of Ehrlich. Practically, the same conditions were found in the specimens fixed by heat, and in those fixed with bichlorid of mercury.

CASE III.—Sarah M., aged four years, had had measles which was followed by a loose cough and dulness of the left lung. The first examination of the blood showed: 4,540,000 red blood corpuscles; 35,200 white blood corpuscles; 85 per cent. of hemoglobin. The differential count showed 71.6 per cent. polymorphonuclears; 10.5 per cent. mononuclears; 17.9 per cent. lymphocytes. The second examination, ten days later, when the child was convalescing, showed: 4,312,500 red blood corpuscles; 18,600 white blood corpuscles; and 90 per cent. of hemoglobin. The differential count showed: 70.5 per cent. of polymorphonuclears, 13.3 per cent. mononuclears, 16.2 per cent. lymphocytes, and 0.2 per cent. myelocytes.

The examination of the stained specimens at the first examination showed slight polychromatophilia, but nothing else of consequence. At the second examination, some poikilocytosis and a few shadow corpuscles were discovered.

CASE IV.—William M., aged four and a half years, was admitted to the hospital with double lobar pneumonia, and developed pericarditis and acute general peritonitis. The examination of the blood soon after admission showed 5,025,000 red blood corpuscles; 34,688 white blood corpuscles; 78 per cent. hemoglobin. The differential count showed 86.1 per cent. polymorphonuclears, 6.2 per cent. mononuclears, 7.6 per cent. lymphocytes, and 0.1 myelocytes.

The microscopic examination showed as follows: Canon stain (fixed by heat)—red corpuscles irregular, some shadow forms, and some polychromatophilia; no nucleated forms; occasional distinct coarse granules in mononuclears and lymphocytes; transition between the polymorphonuclear and the ordinary transitional leucocytes less sharply defined than in normal blood; myelocytes very large. Specimens fixed with picric acid, bichlorid and alcohol and ether showed nothing additional. In the specimens stained with the triple stain, typical myelocytes were found.

CASE V.—Annie S., aged eighteen months. Tuberculous history in mother. Child's illness began with a convulsion, followed by repeated convulsions. No retraction of head. Croupous pneumonia developed. Doubtful meningitis. No autopsy. The blood count showed: 4,962,500 red blood corpuscles; 32,160 white blood corpuscles; and 70 per cent. of hemoglobin. The differential count showed: 84.3 per cent. polymorphonuclears, 8.1 per cent. mononuclears, 7.6 per cent. lymphocytes.

The microscopical examination showed: Canon stain—red corpuscles normal in appearance, though the central parts stain unusually little; mononuclear leucocytes were of two kinds—(1) some with large pale nucleus and slightly granular protoplasm, (2) others of smaller size with dense granulation. A few excessively large, but otherwise typical mononuclear cells were seen; the lymphocytes frequently had a granular zone about the nucleus. Specimens stained with other methods showed nothing additional.

CASE VI.—Josephine G., aged about six years, was admitted with pneumonia of the right lung and had an axillary abscess on the left side. The blood count showed: 3,386,000 red blood corpuscles; 20,400 white blood corpuscles; 69 per cent. of

hemoglobin. The differential count showed: 52.6 per cent. polymorphonuclears, 15.9 per cent. mononuclears, 31.5 per cent. lymphocytes, and there were one thousand nucleated red corpuscles per cubic millimeter.

The microscopical examination showed: Canon stain—slight poikilocytosis; distinct nucleated red corpuscles with clover leaf and multipartite nuclei. Many of the nucleated cells showed polychromatophilia. Mononuclear leucocytes often had distinctly basophilic granular protoplasm. Nothing additional was discovered by other methods.

CASE VII.—Jacob H., aged five and a half years, had had pneumonia at two years of age and was weakly. His present attack began a week before admission. The child was rachitic, and there was a mucopurulent discharge from the nose. Croupous pneumonia of the right apex was discovered. The blood count showed: 3,506,200 red blood corpuscles; 50,917 white blood corpuscles; and 83 per cent. hemoglobin. The differential count was 73 per cent. polymorphonuclears, 11.3 per cent. mononuclears, 14.7 per cent. lymphocytes, 0.9 per cent. eosinophiles and 0.1 myelocytes.

The stained specimens showed: Canon stain—red corpuscles somewhat irregular in shape, but not definitely altered; mononuclear leucocytes slightly granular; some quite large forms with indefinite pale nucleus, probably myelocytes; granular ring surrounded nucleus of lymphocytes; eosinophiles contain very small granules. Nothing additional in the other methods of staining.

In the seven cases myelocytes were found in five though usually in small numbers. In Case II. the percentage reached 2.2 per cent., but this case occurred in a rachitic child and there was besides a hemorrhagic tendency that may have been due to other causes than the pneumonia. Nucleated red corpuscles were found in two of the cases aged respectively two and a quarter and six years. In the former the anemia was marked but in the latter in which the number of erythroblasts was very considerable the anemia was not pronounced. The discovery of a nucleated red corpuscle showing karyokinesis in the one case was noteworthy, though no special significance can be given to this fact. In these cases eosinophile cells were found during the course of the disease when they were discovered at all, but in five of the cases none were found at any stage.

TYPHOID FEVER.

CASE I.—Selina N. P., aged eight years, was admitted with typhoid fever. In addition there was intense bronchitis, with occasional blood-tinged expectoration. This may have been due to bleeding in the mouth. The history is incomplete and the diagnosis somewhat in doubt. Examination of the blood showed: 4,122,500 red blood corpuscles; 27,636 white blood corpuscles; and 77 per cent. of hemoglobin. The differential count showed: 78 per cent. polymorphonuclears, 13.5 per cent. mononuclears, 8.5 per cent. lymphocytes.

The microscopic examination: Canon stain—red and white corpuscles normal in appearance. Some of the lymphocytes present dark basophilic granulation of protoplasm. A few of the red corpuscles are of unusual size.

CASE II.—Theresa K., aged twelve years. The blood count showed: 5,025,000 red blood corpuscles; 6,966 white blood corpuscles, and 77 per cent. of hemoglobin, before a tub bath. The leucocytes counted after a tub bath numbered 13,066. The differential count of the specimen, before the bath, showed: 85.7 per cent. polymorphonuclears; 8.1 per cent. mononuclears; 6 per cent. lymphocytes and 0.2 per cent. myelocytes. After the tub bath there was an increase of the polymorphonuclear leucocytes.

The microscopic examination showed great irregularity in the quality and in the size of the polymorphonuclear cells, as well as in the number and distinctness of the granules. A few definite myelocytes, and several cells of doubtful classification, but probably myelocytes were found. The red corpuscles were rather irregular in shape.

CASE III.—Rachel H., aged twelve years, was admitted in a relapse of typhoid fever which proved of short duration. The blood count showed: 3,320,000 red blood corpuscles; 6,948 white blood corpuscles; and 78 per cent. hemoglobin. The differential count: 55.3 per cent. polymorphonuclears; 9.4 per cent. mononuclears; 34.3 per cent. lymphocytes; 0.9 per cent. eosinophiles.

The microscopic examination showed great irregularity in the size and depth of color of the red corpuscles. Numerous poikilocytes were found, but no nucleated forms or polychromatophilia.

CASE IV.—Ambrose L., aged eleven years, was admitted in the early stages of typhoid fever. Four days after admission, there was some pain in the region of the heart and a rough sound suggesting pericarditis, was discovered. It disappeared, however, in two or three days without effusion. The blood count upon admission showed: 4,565,000 red blood corpuscles; 4,207 white blood corpuscles; and 70 per cent. hemoglobin. The differential count was: 75.4 per cent. polymorphonuclears; 11.6 per cent. mononuclears; 12.4 per cent. lymphocytes; 0.6 per cent. myelocytes. Two hours later after a tub bath there were found: 3,800 white blood corpuscles, and the differential count was 78.7 per cent. polymorphonuclears; 9.5 per cent. mononuclears; 10.2 per cent. lymphocytes; 0.8 per cent. eosinophiles; 0.8 per cent. myelocytes. The examination of the blood during convalescence showed: 4,830,000 red blood corpuscles; 12,320 white blood corpuscles; 80 per cent. hemoglobin. The differential count: 66.5 per cent. polymorphonuclears; 11.7 per cent. mononuclears; 21.6 per cent. lymphocytes; 0.2 per cent. eosinophiles.

The microscopic examination: the red corpuscles were somewhat distorted, and showed a tendency to polychromatophilia, though this was not marked. The lymphocytes were very small and with excessively dark nuclei. A few myelocytes were found and one of these was of excessive size.

CASE V.—Bessie J., was admitted rather late in the course of typhoid fever. The blood count showed: 3,716,000 red blood corpuscles; 6,880 white blood corpuscles; and 70 per cent. of hemoglobin. The differential count showed: 36.3 per cent. polymorphonuclears; 27.3 per cent. mononuclears; 35.8 per cent. lymphocytes; 0.6 per cent. eosinophiles. A short relapse occurred, and the blood count during this (and after a tub bath) showed: 3,850,000 red blood corpuscles; 9,840 white blood corpuscles; and 70 per cent. hemoglobin.

The microscopic examination of the stained specimens showed: Canon stain—a tendency to basophilic protoplasm in the mononuclear cells. There were two mononuclear cells with distinct basophilic granules.

CASE VI.—Thomas McK., aged ten years, had been in bad health for several months, with some cough. When admitted he was evidently in the first week of typhoid fever. There was

rather more bronchitis than usual, and the mucopurulent expectoration was occasionally blood stained. The blood count showed: 5,120,000 red blood corpuscles; 9,266 white blood corpuscles; and 75 per cent. of hemoglobin. The differential count: 69.4 per cent. polymorphonuclears; 10.6 per cent. mononuclears; 20 per cent. lymphocytes.

The microscopic examination: Canon stain—red corpuscles uniformly somewhat purplish in color. The leucocytes were large and small and the former were rather difficult to distinguish from the mononuclear cells. In the latter, the nucleus was deeply stained and the protoplasm light colored. In one case, however, a very large mononuclear contained a pale nucleus and deeply stained protoplasm. In the specimens fixed with bichlorid, one polymorphonuclear cell was found with distinct basophilic granules. A few cells were found which are recorded as “doubtful myelocytes.”

CASE VII.—Laura G. had typhoid fever and developed a bronchopneumonia. The blood count was made late in the case when the convalescence was practically established. There were 5,200,000 red blood corpuscles; 20,928 white blood corpuscles; and 76 per cent. of hemoglobin. The differential count showed: 17.3 per cent. polymorphonuclears; 50.7 per cent. mononuclears; 32 per cent. lymphocytes.

The microscopic examination showed marked irregularity in shape and some excessively large red blood corpuscles; a few shadow cells and all of the red corpuscles poorly stained.

CASE VIII.—Harry B., aged about six years, was admitted in the second week of typhoid fever. There was slight bronchitis. The blood count was as follows: 4,200,000 red blood corpuscles; 7,000 white blood corpuscles; 78 per cent. hemoglobin. The differential count: 53.1 per cent. polymorphonuclears; 16.7 per cent. mononuclears; 30.2 per cent. lymphocytes. A second count was made during the convalescence from the typhoid fever and the following figures were obtained: 4,360,000 red blood corpuscles; 8,342 white blood corpuscles; 68 per cent. hemoglobin. The differential count: 52.9 polymorphonuclears; 16.4 per cent. mononuclears; 30.7 per cent. lymphocytes.

The microscopic examination of the stained specimens showed: red corpuscles large, irregular in shape and in size,

and one distinct nucleated corpuscle of a rather large size with central deeply staining nucleus, surrounded by a clear space. Among the leucocytes were several large forms with excentric nuclei having irregular outlines; they resembled myelocytes. A number of fragmented leucocytes were seen. In the specimen stained with Canon stain some polychromatophilia was seen. The microscopic examination of the specimen during convalescence showed nothing abnormal.

CASE IX.—Benjamin S., aged eight years, was admitted with well developed typhoid fever, and had a few râles indicative of bronchitis. There was paroxysmal cough which developed into distinct pertussis and an eruption of varicella occurred a week after admission. Examination of the blood at the time of admission showed: 3,808,000 red blood corpuscles; 20,800 white blood corpuscles; and 83 per cent. hemoglobin. The differential count: 81.6 per cent. polymorphonuclears, 6.2 per cent. mononuclears, 10.4 per cent. lymphocytes, and 1.8 per cent. eosinophiles.

The microscopic examination showed: red corpuscles normal in appearance for the most part but one distinct megaloblast, a number of microblasts, and some shadow corpuscles and fragmented cells were found.

In these cases the absence of leukocytosis, noted in adults, was found in all excepting three; and in these complications (severe bronchitis, pneumonia, and pertussis and varicella) were sufficient to explain the increased number of leucocytes. The differential counts of leucocytes were not characteristic but the occurrence of myelocytes in at least three of the cases is notable.

(To be concluded in the May number.)

Phimosis.—G. Marion (*Semaine Médicale*, October 24, 1900) adds to the usual steps of this operation an elongation of the frenum. It consists of a transverse incision parallel with the corona, in length to correspond to the degree of lengthening desired. When sutured the incision is converted into a suture-line in the long axis of the organ, thereby gaining its own length at the frenum.—*Medical News.* Vol. lxxvii., No. 22.

ENTERIC FEVER IN CHILDHOOD.

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A fever having the present characteristics of typhoid was in the seventeenth century called continued fever. Later it was named infantile remittent. The Germans gave the name abdominal typhus. As post-mortem examinations of typhoid fever became more common the intestines were found to constantly present enlarged Peyer's patches or ulceration of the same. Hence in 1847 G. B. Wood, of Philadelphia, proposed the title of enteric fever. This, to my mind, is the logical name for the disease.

The purpose of this article is to report the cases of clinical interest that have occurred in my practice during the past twelve years. The cases were observed in my service as visiting physician for Demilt Dispensary and also in one epidemic at Randall's Island Hospital. The dispensary cases were all in tenements, some of them clean and modern in construction, others old and unsanitary. A few patients were first brought to my class at the New York University Medical College.

The records cover 77 cases, of which 61 were in children and 16 in adults. This article is based on the children's cases. Such a predominance of children over adults would not be found in general practice and is due to my work being especially in pediatrics. As the youngest child was only nine months old it shows that infancy is not exempt from the danger of this infection.

In the *Medical Record* of March 16, 1895, is a table in which grouped 85 cases of typhoid in children less than three years old, of which 70 were from the literature, while of the remainder 5 were my own and 10 were reported to me by friends. Some of them are to be taken entirely upon the statement of the authors making the reports, but others have considerable clinical history. Nearly all of the fatal cases showed swollen or ulcerated Peyer's patches as seen in adults. Ulcers of the bowel are common in follicular enteritis and tuberculosis of the intestine, but in neither disease is the clinical history like typhoid. In only two of the

cases reported above was there an examination for bacilli: one was positive and one was negative. Eberth found typical bacilli in a fetus of twenty weeks from a patient in the third week of typhoid.

This collection of cases so widespread as to time and countries shows that competent clinicians meet typhoid even to the time of birth. During the past few years there have been many reports of examinations of and cultures from the fetus. Widal's announcement of the clumping together of bacilli in the serum test has added to the certainty of diagnosis. Morse, of Boston, has collected and thoroughly analyzed the cases with bacteriological findings published since 1895 (*ARCHIVES OF PEDIATRICS*, December, 1900). He shows that the reaction is transmissible through milk. Clinical beliefs are therefore proven by bacteriologic demonstration.

ETIOLOGY.—Here in New York the typhoid cases are usually sporadic and although 1,000 occur annually few can be traced to their source of origin. Our death rate from this cause is 2.2 per 10,000 population, that in Philadelphia 6.6 per 10,000.

In one instance in my list two children were sick at the same time in a dirty tenement. Two little friends spent much time with them and later they too were stricken. Carelessness in sharing food in dirty surroundings is the probable explanation here.

A girl one year old, a janitor's child, had the fever at the same time that the father and mother were ill. The mother was a typical case, the father was a walking case. The father had worked trying to clear a stopped drain in the yard connecting with the closets. As there had been typhoid next door he considered that his infection came from the drain.

An infant of seventeen months was with its mother, who was caring for her sister, ill with the fever. The mother came home also with typhoid, and ten days later the infant began its illness. After being ill for three and a half weeks it was well for a week and then relapsed or was reinfected and passed through a second cycle of typhoid symptoms.

A family of four children, three, seven, ten and twelve years old, had the fever in September and October, one a fatal attack. These probably had a common origin.

Two boys, three and five years old, showed the typhoid symptoms at the same time, so the disease started from a

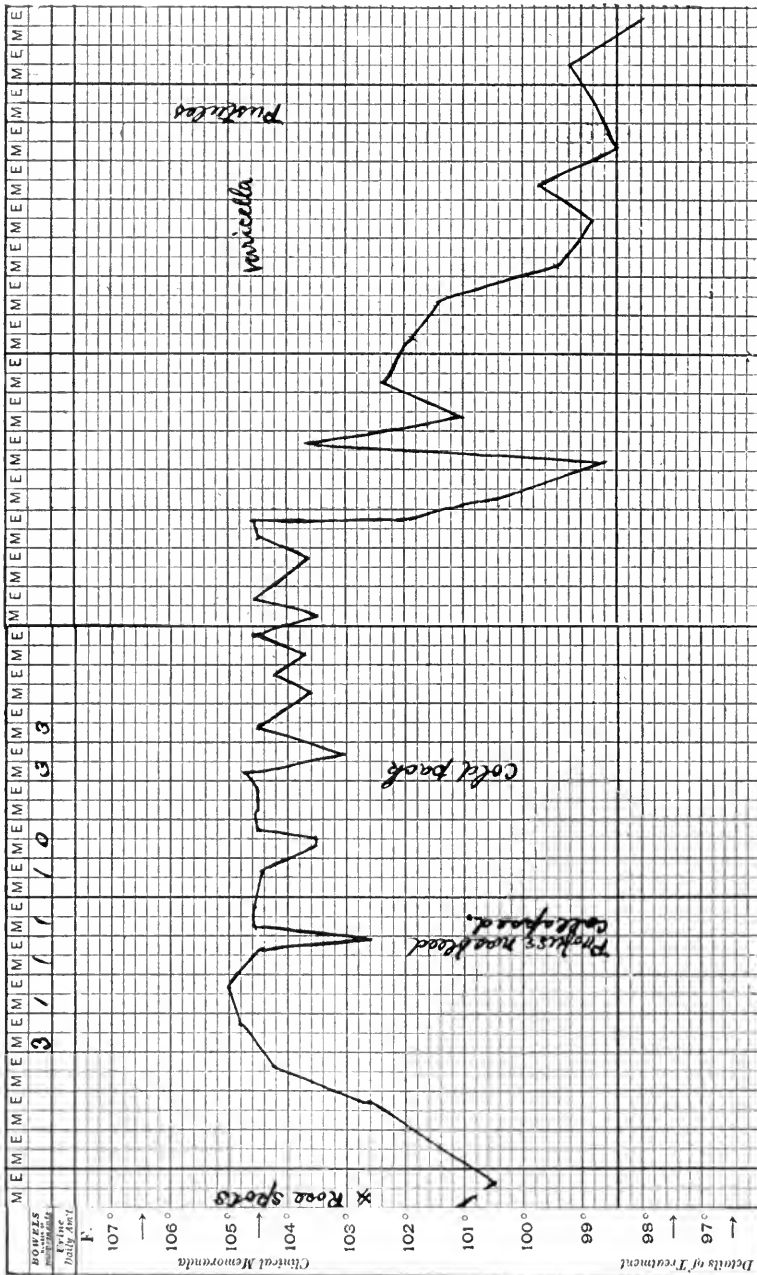


CHART I.—CHARLES B., AGE 9½ YEARS, ILL FORTY-EIGHT DAYS; COMPLICATED BY VARICELLA; BROTHER ILL WITH TYPHOID AT THE SAME TIME; TEMPERATURE WAS 105° SIX DAYS BEFORE RECORD WAS BEGUN.

common source. One responded to Widal's test. In the other it was not tried.

The epidemic among the idiots at Randall's Island offered a good place for the study of etiology but baffled all inquirers. It occurred between June and September in an entirely new building soon after it was opened. The children never left the island. The milk and food came from the common kitchen, yet but one dormitory was affected. The water supply is the city Croton.

CONTAGION.—Twenty-four of my cases occurred in ten family groups. The time elapsing between cases and the younger following the older or their parents strengthens my belief that in many cases carelessness in the home caused the spread of disease rather than an identity of origin. In hospital practice, where cleanliness and care are insisted upon, contagion is uncommon. In the London Fever Hospital 5,988 cases were treated during twenty-three years, only 17 of which originated in the institution. All cases are due to personal neglect or ignorance, and are therefore preventable.

AGE.—The youngest case I diagnosed was nine months old. Two infants, twelve months and seventeen months old respectively, had a mother also ill with typhoid. One occurred at two years old and three at three years old. Six cases presented at the seventh, ninth and eleventh year, while fewer occurred on the even years, a curious coincidence. After the twelfth year there were but one or two cases per year until the seventeenth year.

SEX.—Of the dispensary, *i.e.*, home cases, 17 were females and 28 males.

TEMPERATURE.—The typical temperature chart shows an elevation of a degree each day for about a week, a terrace or step-ladder outline, an even temperature, except morning remission for a week, then a gradual or sudden falling in the third week. Children very commonly depart from the typical temperature range.

For example, Case XI. (See Chart I.)—C. B., age nine and a half years, began with 105°. On the seventh day, when the rose spots first appeared, the temperature was 100.5°, but rose to 104°, about which it stood for fourteen days without varying more than one degree. It then fell by lysis. This boy had a

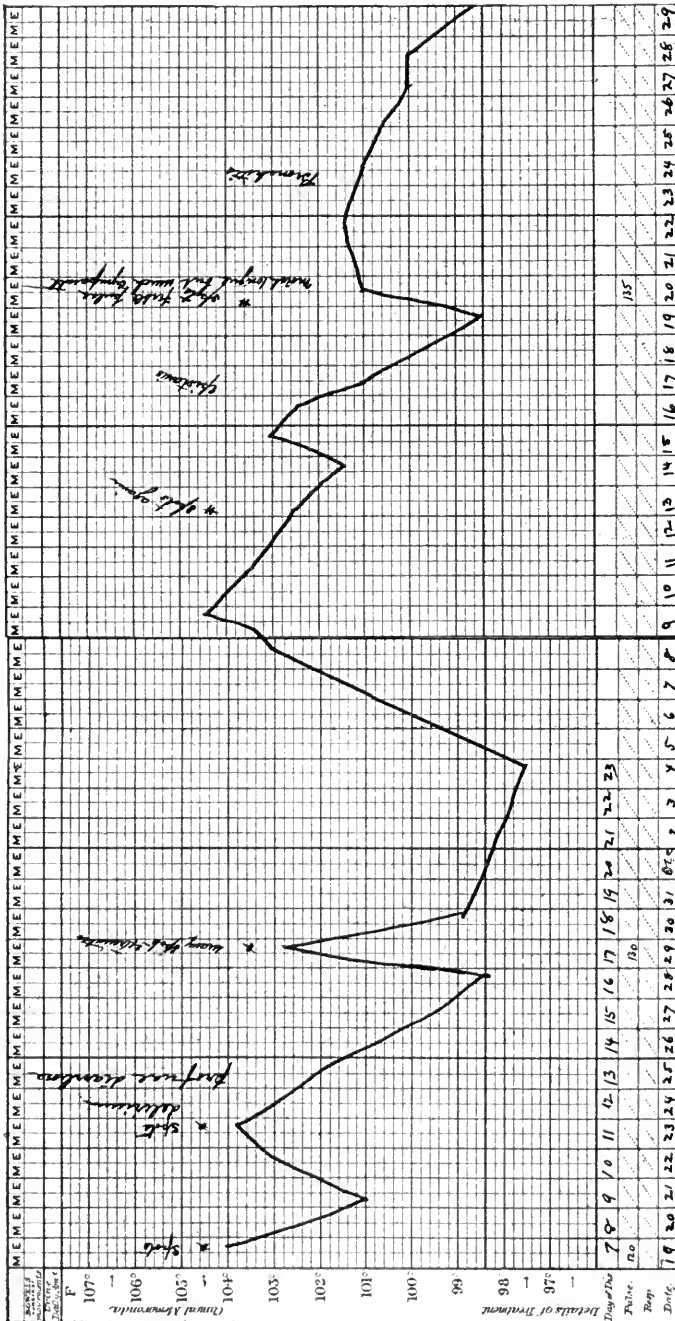


CHART II.—KATE D. AGE 8 YEARS; REINFECTION; CHART SHOWS THE SIMILARITY OF TEMPERATURE AND SYMPTOMS IN BOTH ATTACKS; ILLNESS LASTED FIFTY-TWO DAYS; BROTHER ILL AT THE SAME TIME.

violent nose-bleed at midnight of the fourteenth day. He then went into collapse that seemed as though it would be fatal. This did not affect the standard day temperature. This is the boy in whom varicella proved a serious complication.

K. D., age eight years, shows a temperature chart (see Chart II.) with wide jumps up and down and a relapse with repetition of symptoms, there being little if any intermission between the series.

K. B., four years old, shows a representative hospital case (similar to Chart III.) with temperature record every three hours.

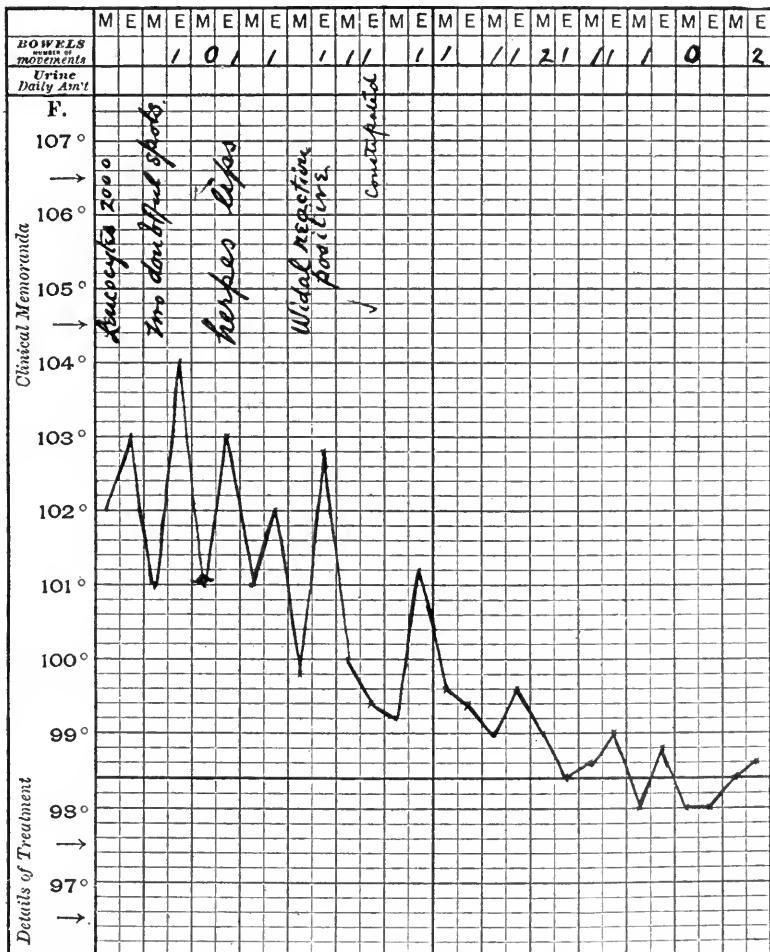


CHART III.—MARY L. AGE 6 YEARS; HOSPITAL CASE; TEMPERATURE RECORDED FROM THE FIRST DAY CHILD WAS FOUND TO BE ILL.

The temperature line cannot be said to follow any definite plan in rising or falling, yet there was a typical typhoid with Widal reaction in addition to spots, diarrhea, etc.

Two girls had low temperature during the entire illness, one ranging from 99° to 101°. One of them did not have diarrhea. The diagnosis was made chiefly by the flabby and tremulous tongue, feeble pulse, etc. It was confirmed by the Widal reaction.

The temperature may fall by lysis or crisis. A girl of eight years had a fever that fell first by crisis, but after a relapse or second infection the temperature fell by lysis.

NERVOUS SYMPTOMS.—The nervous system of the child is less developed than that of the adult and not so well under control, yet convulsions are not frequent, nor is delirium a constant symptom. One epileptic girl began with fits and had others during the fever. An epileptic girl of eight years had no epileptic seizures during the fever, but was remarkably delirious for many days. She was determined to get out of bed and was only quiet after a bath or when drugged.

Apathy and mental dulness are common to children, even the very young. Headache was present often in my cases, perhaps more in those with high temperature than without.

Two brothers were affected very much alike with the usual symptoms except that the eight-year-old one became delirious in a peculiar manner. He screamed loudly day and night in spite of hypnotics. He was covered with sudamina and did not seem relieved by sponging, but was quiet after free doses of pilocarpin. Henschel relates a similar case in which it was necessary to administer chloroform.

EPISTAXIS is very common, usually during the first week. It is sometimes one of the very first symptoms and relieves the early headache. It is rarely serious, though one case bled so freely as to go into collapse. The occurrence of nose-bleed is especially mentioned in six cases. Vogel speaks of it as a rare occurrence.

ERUPTION.—Twice I have seen the eruption almost universal. It is said never to come on the palms of the hands. The favorite day for the appearance of the eruption is the eighth; in other words, about the time the temperature has reached its height. I have found the rash on the sixth day and have looked carefully

until the twelfth before finding it. During the third week the spots fade, yet I recall one boy four years old who showed spots that were typical ten days after he was well clinically. He responded to the Widal test. During the relapses the eruption comes out again as in the primary attack.

Beside the rose spots there may be other eruptions, as erythema in the beginning or herpes of the lips if pneumonia occurs as a complication. Sudamina existed in the boy above mentioned who screamed so constantly. It is seen in cases with high rather than with low temperature.

THE PULSE.—The compressibility and non-resistant qualities are diagnostic. To an experienced touch there is something characteristic about the pulse even though it has not become dicrotic or intermittent, as often happens late in the disease. A certain ratio is usual between pulse and temperature, *e.g.*, a temperature of 104° will probably be accompanied by a pulse of 140 or more. There seems to be certainty of the pulse being 120 even in low temperatures as 99° or 100°.

THE BLOOD undergoes changes, both leucocytes and erythrocytes being diminished in number. Dr. Light, the house physician at the Randall's Island Hospital, made numerous blood counts of the hospital cases. The leucocytes in one case numbered 3,000 and the red cells 3,712,000. In a girl of six years the white cells fell to 2,000. These counts are much below the normal 8,000 white and 5,000,000 red cells.

Pneumonia produces a great increase in leucocytes, 40,000 to 50,000 per c.mm. This difference might, in some instances, help to decide a doubtful diagnosis, especially in a case of typhoid with severe bronchial symptoms. Thayer of Johns Hopkins, has found the corpuscles to fall as low as 1,300,000 per c.mm. during the third week of typhoid. The hemoglobin is greatly reduced ranging from 25 per cent. to 60 per cent. The anemia of typhoid is fortunately of a type from which recovery is rapid.

THE WIDAL REACTION.—In twelve cases during my hospital service, two gave a positive reaction on the fourth day, one on the fifth and the others later. Three cases having positive clinical symptoms gave negative results with the first Widal trial, but showed positive reaction later. In 95 per cent. of cases the serum reaction is positive. The only disadvantage of the test is the fact of its being more certain late than early.

DIGESTIVE SYSTEM.—The tongue is moist and coated early in the illness. During the second week it becomes dry and sometimes fissured. The coating peels off and leaves the papillæ denuded—"the beefy tongue." Sordes collect on the teeth unless there be constant care. This condition indicates a severe case of fever. The appetite fails during the first days and is lost by the time the fever is well developed. As the fever increases the digestive power fails. Tympanites is less constant in children than adults. It was very marked in a girl of twelve years who had a dry, beefy tongue and generally severe attack. A boy of nine years was so distended that it interfered greatly with breathing; in fact, it seemed that he would die from the distension if from no other cause. Gurgling at the ileocecal valve is common. It is also found in simple enteritis. It may be both felt and heard, but cannot be counted a diagnostic point. Excessive tympany indicates loss of tone to involuntary muscle fibers, and is usually a precursor of death. If it develops very suddenly the possibility of perforation should be borne in mind.

A boy of sixteen years after getting out of bed died in collapse on the twenty-eighth day. He probably had a perforation, but a post-mortem examination was refused. I have not had a case of perforation in a young child.

HEMORRHAGES FROM THE BOWEL.—A girl of eleven years had bloody stools, and as also did a youth of seventeen years. I saw in consultation a girl of twelve who was at death's door from hemorrhage. I infer that hemorrhages are more common and likely to be fatal in adults.

Murchison collected 435 autopsies showing 13.8 per cent. with perforations. Simon reported three perforations in twenty-one years' practice. They were children eight or nine years old, of whom two recovered. Now operation will save the majority of these, as shown by Keen's collection of 83 cases operated on with a mortality of 19 per cent. Osler reports 1 case operated upon three times with recovery.

DIARRHEA.—Children are prone to be constipated during the first week and usually have from one to three loose stools daily during the second week. The stools are thin and yellowish or greenish having the "pea soup" appearance, or are brownish. Diarrhea was noted in 32.6 per cent. of my cases.

THE SPLEEN.—Earle observed enlargement of the spleen in 70 per cent. of his cases. The enlargement is at its height during the third week, returning to normal during early convalescence. Osler has even found the spleen smaller than normal at autopsies. If the spleen is much enlarged it is often tender. The same is true of the liver though it does not enlarge much. A majority of my cases presented tender and enlarged spleen but the notes do not warrant stating a percentage.

THE KIDNEYS.—In the kidneys as elsewhere there is disturbance of function. Albumin is said to be present as a rule, and in proportion to the amount of fever. It was not so in my hospital cases. Two girls with a temperature of 106° failed to show albumin. In 1882 Ehrlich brought forward the diazo-reaction as a diagnostic aid. The same reaction occurs in some other fevers especially miliary tuberculosis. Notwithstanding this the reaction is a helpful diagnostic test. The usual specific gravity of the urine in my cases was 1020; it was not, therefore, much concentrated.

COMPLICATIONS.—Observers have noted perforation of the cornea, measles, diphtheria, scarlet fever, gangrene of the lung, gangrene of the extremities and infarction of the kidney. My notes include varicella, parotitis, bronchitis, pneumonia, intestinal hemorrhage and perforation of the bowel.

Relapses occur in varying percentages. Rilliet and Barthez had relapses 3 times in 111 cases. Henoch, 38 in 302 cases; 3 of 77 cases under my care had relapses.

A girl of eight years and another of four years were epileptic. The fever had no appreciable influence over the epileptic attacks nor *vice versa*.

A girl of six years gave evidence of scorbutus, especially about the gums. There was also herpes labialis. At this time there was consolidation of the right lung. She recovered.

Parotitis is recorded once in a girl thirteen years old. She was very delirious, had the beefy tongue, spots on the extremities, epistaxis, etc., yet she recovered entirely in three weeks.

The boy who had varicella had been ill forty-eight days and was badly nourished. The varicella vesicles in many places suppurated and became small abscesses. His brother, seven years old, was ill just four weeks with the regular symptoms, diarrhea, rose spots, nose-bleed and temperature maintained at 103° to 104° . Clinically he had malarial fever at the same time,

beginning with a chill January 12, 1892; three chills January 29th; a chill February 10th, at 2 A.M., at which time the temperature fell from 103.5° to 98°. It did not again rise above normal and he had a final chill on February 16th. The blood was not examined.

Pneumonia occurred on the fifteenth day in a boy of twelve years. It was of the croupous form at the right apex. He recovered in twenty-five days, the temperature falling by lysis. A girl of four years had marked pneumonia, diarrhea, six to ten stools daily, and jaundice. She recovered after a long time. Alopecia was marked in a ten year old girl, who had not been especially ill. It was complete in a child eight years old.

DURATION OF THE DISEASE.—One boy was ill forty-one days without any complication. A girl with a relapse was ill fifty-two days. The average was twenty-three and one-half days.

MORTALITY.—Hilton Fagge reports for Guy's Hospital a mortality of 14.3 per cent. under five years, and 12 per cent. under fifteen years. Osler gives the mortality of Johns Hopkins Hospital as 7.1 per cent. for all ages. My mortality in 61 children is nil. Of the 77 cases mentioned, 3 died, but they were aged nineteen, twenty-two and eighteen years. One died of perforation of the bowel, one of exhaustion and one of tuberculosis after being ill three months.

TREATMENT.—We may do very much for the little patient's comfort and so guide the case as to husband strength and favor speedy convalescence. Place the patient in a large airy room with the best hygienic surroundings. During the first week digestion is weak, hence give easily assimilated preparations. I give hot or cold milk as is most agreeable to the little patient. Milk is taken as a fluid, but it should not be forgotten that a large curd may form in the stomach, and a simple drink become a solid mass to irritate and annoy. Dilute the milk with vichy, seltzer or lime water, and if the fever is high partly peptonize. For older children change to koumyss or matzoon occasionally. During the early stages bouillon, broths and meat juices are suitable, but must be withheld when diarrhea is present, as they increase the number of stools. Give custards and gelatin preparations early and also in the later stages. Next to milk come eggs as a simple and ideal food. They should be thoroughly beaten and given with milk. To aid in their digestion use hydrochloric acid and pepsin. A liberal acid treatment is

always agreeable to the feverish patient. Lemonade may be used freely or iced coffee and iced cocoa. I also allow ice-cream. It is better for the child to have iced drinks such as mentioned than for it to suck cracked ice alone. The child should be fed every three hours, and not be allowed to go without food because the desire for it is lost. Patients are more comfortable and prosper best if liberally supplied with water. Ellis says that the keynote of success is to preserve the powers of the stomach.

THERAPEUTICS.—Intestinal antiseptics is of prime importance. Though the symptoms are caused by the toxin from the bacilli already absorbed, there is no reason why we should not do all possible to prevent further absorption. Laxatives are called for during the first few days. Calomel one-tenth of a grain every hour is antiseptic to some degree and promotes glandular activity in the liver and intestines. Salol has been my favorite, almost a routine, drug. This is an excellent antifermentative and antiseptic. It is true it breaks up in the intestine and becomes carbolic acid and salicylic acid, but neither has ever produced untoward results in my practice. Naphthalin and thymol are powerful enemies of typhoid germs and destroy the ptomaines, but I prefer salol. During the first week give children citrate of magnesia. I have had good results from using the well-known tablets of podophyllin, calomel, guaiacol, menthol, etc., but never aborted a case thereby. During the third week the soft compressible pulse of a flagging heart needs help. Strychnia, digitalis, camphor and ammonia will spur it on by increasing the systole. Coffee may be given by mouth or per rectum.

Children are very susceptible to the effect of alcohol on the nervous system, not to mention its interfering with digestion. An examination of the latest literature shows clearly that its use is less a routine than formerly. To quote: "It is an excellent food in fever, but it may be used so as to exhaust the system." "In childhood alcohol is neither required nor missed." *Watson's Cyclopædia of Medicine*, 1899, says: "In uncomplicated typhoid the writer has long since given up its use during the pyrexial period, reserving the administration as a dietetic for convalescence." This is exactly my own position, except that I have given it up entirely in children, at least in the form of whiskey or brandy. Liquid peptonoids I use freely because the alcohol is combined with food elements in a form to undergo

digestion rather than immediate absorption. Its supporting qualities outrank its stimulating effects. To quiet the delirium give a Dover powder at night. To older children I give $\frac{1}{3}$ grain of morphia with half a grain of camphor in a pill or capsule.

Occasional doses of antipyretics of the coal tar group may be given in particular cases and be very helpful, but their effect on the circulation should be watched. In a girl whose temperature kept at 105° F. in spite of constant sponging with cold water and alcohol, two doses of five grains of acetanilid lowered the temperature, stopped the nervous disturbance and changed the dry beefy tongue to a moist one.

In robust children I do not hesitate to give a suitable dose of acetanilid occasionally if the child is really suffering from the high temperature. Fighting fever simply because it is high on the thermometer brings no good results. One child may be more seriously ill with a temperature of 103° than another is at 105° or 106° .

In 1887 Brand reported 1,223 cases with a mortality of 1 per cent. In strong adults the Brand treatment works well, but children do not show the same benefit or even tolerance. My own practice is to rely upon sponging. From this there is no fright nor danger of collapse in the very weak. When the temperature reaches 103° I have the patient sponged with alcohol and cold water until it falls to 102° or less.

To prevent further spread of the disease I use freely of solution of mercuric bichlorid 1 to 1000 for washing the hands, thermometer, etc. If permanganate of potash is added, it lessens the chance of mistaking the solution. For the excreta I use chlorid of lime, as it penetrates instead of forming an albumenate as mercury does. A stock solution should be made of eight ounces to a gallon of water. Of this solution one ounce added to a gallon of water is suitable for disinfecting stools or soaking soiled linen.

I give very little medicine, none as a routine. Use care in ordering the diet during illness and convalescence. Whether the nourishment is fluid or solid is not so important a consideration as whether the food will be digested and assimilated. Reserve heart stimulants and alcohol until actually needed, preserve the patient's strength and guide the disease you cannot stop.

Clinical Memoranda.

AN UNUSUAL CASE OF ERYTHEMA MULTIFORME.

BY FLOYD M. CRANDALL, M.D.,

New York.

It is a well recognized fact that there are infectious diseases of mild type, which are not only unclassified but unnamed. The practitioner frequently encounters conditions apparently due to microbic infection to which he can give no specific name, but is under the necessity of classifying them under some generic name of rather doubtful significance. The local manifestations in such disorders are usually seen in the throat or on the skin. Not infrequently they appear in both locations. In fact, a cutaneous eruption is a frequent accompaniment of pharyngeal or tonsillar disease. As one watches these cases, the inference is strong that they are the result of bacterial action and that the throat is the portal of entrance of the pathogenic germs. A most striking case of this kind is the one here reported. In this instance the cutaneous eruption assumed a form well known to dermatologists—one, it may be added, which has elicited some discussion as to its etiology. Like many other eruptions it is probably not due to a single cause. The appearance of a marked and very peculiar angina coincident with the first appearance of the rash in this case and the subsequent course of the disease lead very strongly to the belief that the pathological conditions which appeared in both throat and skin were due to the same cause, viz.: some pathogenic micro-organism. There is, however, no mathematical demonstration for this belief and it is possible that the occurrence of the two conditions was a coincidence.

On October 7th, 1896, A. C. O., a boy of eight and one-half years, previously healthy, became ill with feverishness and sore throat. Three days before this, he had played with a child who had just recovered from an illness marked by fever and some form of eruption, the exact nature of which could not be ascertained. When I saw him in the forenoon, he had a temperature of 99° and complained only of sore throat. There was neither

coryza, cough, pain, nausea, nor vomiting. The throat was uniformly red but there was no exudate nor enlargement of the cervical lymph nodes. There were several red blotches of uncertain character on the face.

On the following morning the temperature was 102°; the child was restless and complained more of the throat; the bowels, which had been for several days constipated, had acted freely as the result of a dose of calomel given the day before. There was no coryza, cough, or nausea. Examination of the throat showed an exudate of grayish white color, which covered about half of the left tonsil. On the right side there were three rounded grayish spots. The fauces and pharynx were of a deep purple color. There was no enlargement of the lymph nodes at this time or subsequently.

The middle and upper portion of the face was covered with an eruption, consisting of blotches of a bright brick-red color, ranging from one-fourth to one-half inch across. The backs of the hands and feet were covered with a similar eruption and there were a few spots on the front of the arm. The elbows and knees presented a remarkable appearance. Each knee was completely covered by a cap of brick-red color, having distinct, even margins. These areas were slightly elevated and were suggestive of erysipelas. The elbows were covered by a cap of similar appearance. There was no eruption on the body.

In the afternoon the temperature was the same but the child seemed more ill. He was extremely restless and complained of great burning at the site of the eruption. The throat was also very sore and examination showed that the exudate had extended remarkably. The fauces, in fact, seemed to be filled with a thick, spongy, pultaceous exudate of a grayish color. This exudate was so peculiar in its appearance that contrary to my usual custom I ordered a dilute solution of peroxid of hydrogen for local use.

At eleven o'clock that evening, the child was seen in consultation by Dr. W. P. Northrup. For two hours he had seemed better and complained less of his throat. Greatly to my surprise the exudate had nearly disappeared, the left side being almost wholly clear. The throat was, however, intensely congested. The eruption had extended along the front of the legs from the ankle to the knee and formed a most peculiar looking band about two inches wide. It had also extended above the

knee. There were a number of outlying spots along the legs, on the abdomen, and front of the chest. They rested on normal skin and were almost round. They were slightly elevated and had clearly defined edges. There was also a thick eruption on the front of the forearm and back of the neck. The color had thus far been a uniform brick-red.

The peroxid of hydrogen was stopped and a bland throat wash and spray were ordered.

On the following day, the child felt better. The temperature had fallen to 99°; the throat was less sore; there was slight coryza. Examination showed the throat to be entirely free from membrane and somewhat less red.

The eruption was somewhat paler at its first points of appearance but had extended over the abdomen and front of the chest. Several of the older spots had increased in size and were now of a bright red color at the periphery, and shaded off to a yellowish blue at the center. Over the hands, feet, and larger joints, the eruption formed a solid erysipelatous looking mass.

On the fourth day the throat was improving and gave no further trouble. The eruption, however, had extended. It thickly covered the abdomen and chest and was appearing on the back, and during the next twenty-four hours covered every portion of the body. Many of the older spots now presented a perfect iris appearance, being red at the periphery and shading off through purple, blue, and yellow, to normal skin in the center. During this and the following day, where these spots coalesced, long, waving, serpentine lines could be traced for several inches. This was most marked over the abdomen and chest, where the body presented one mass of brilliant coloring, which I have never seen equalled. Every peculiar form of erythema multiforme could be recognized—iris, marginatum, and annular. The face was thickly covered, but the eruption was there chiefly of a red color, being erythematous or macular in form. The eruption gradually faded in the order in which it came and was practically gone at the end of a week, but staining of the skin was present for ten days or more. The recovery was complete and there has been no recurrence.

On the morning of the second day a culture made from the throat was sent to the laboratory. Although it was taken directly from the exudate, it was reported as unsatisfactory,

owing apparently to contamination. I believe that this was due to some peculiarity in the exudate and not to extraneous contamination. A culture taken on the following day showed no diphtheria bacilli.

There was at no time any coryza or conjunctivitis and very little cough. Neither was there any vomiting. Except for a scattered blotchy eruption on the face, the rash appeared first upon the knees and elbows, and never at any time showed a punctate appearance, nor in the slightest degree resembled scarlet fever. During the first six hours of its appearance in each locality, there was intense burning and itching, so much so at times as to cause the little boy to cry with distress. In the later stages there was but little itching, and when it presented its most remarkable appearance caused little or no discomfort. The fever lasted but thirty-six hours and was at no time above 102°.

The throat was by no means the least peculiar feature of the attack. I have never before seen so extensive and so thick a membrane appear and disappear so suddenly. Altogether, the attack was a most peculiar one and the inference was very strong that the angina and eruption were a part of the same disease, and were the result of some unusual infection.

113 WEST NINETY-FIFTH STREET.

Chorea of the Heart,—Galli (*Gazzet. degli osped. e del. clinich*, November 11, 1900) states that under this designation Roger included all affections of the heart, whether organic or functional, which accompany chorea. The author reports the case of a child aged eight years. A systolic murmur of fairly rough quality was heard at the apex and transmitted to the left, and there was a certain amount of arrhythmia in the heart's action, yet there was no tachycardia, no dyspnea, no palpitation, and the area of cardiac dulness was nearly normal. Arrhythmia and a murmur may be present together or separately in chorea, and it is not difficult to distinguish an arrhythmia, but the murmur is not always distinguishable from a functional *bruit*. In the present case the heart murmur disappeared with the choreic symptoms, and, when seen a year later, the patient showed no disturbances on the part of the heart.—*The New York Medical Journal*. Vol. lxxii., No. 25.

DUODENAL ULCER IN AN INFANT OF TEN MONTHS.*

BY VANDERPOEL ADRIANCE, M.D.,

New York.

There is nothing startling in the clinical history of this case, the only item of importance being the age of the infant, and it is solely on that account that it is presented to your attention.

E. R., male, born December 6, 1899, admitted to the Nursery and Child's Hospital on August 23, 1900, and died on October 6, 1900, when ten months of age.

FAMILY HISTORY.—Negative.

INFANT'S HISTORY.—First tooth appeared at five and a half months of age. At the time of admission five teeth had erupted. The eyes were bright, the mental condition normal, but there were evidences of a slight anemia. The mother was a hard drinker. Although the baby was nursed up to the time of admission, a bottle of carelessly prepared cow's milk and barley water was given almost every day, and at different times a variety of solid food was administered. The infant escaped any ill effects of these indiscretions and it is probably only because the mother's milk was the main staple that real illness was avoided up to the date of admission, when it was stated that the baby had had no gastrointestinal symptoms.

The restlessness of the infant was apparent as soon as he came under observation in the ward. He cried considerably. Gastrointestinal symptoms appeared. There were three or four curdy and slimy movements passed in twenty-four hours. Then the stomach rebelled. At first feedings were refused and then vomiting set in. Things went from bad to worse in spite of careful treatment, and at last even the food was vomited which was introduced by the stomach tube. In the meantime the infant was crying almost continually and the hands were placed upon the distended abdomen as if it were the seat of pain. Administration of morphia seemed to be the only way of relieving and quieting the baby. The face became pinched, by degrees nutrition failed, and two pounds three

*Reported to the Section on Pediatrics, the New York Academy of Medicine, January 10, 1901.

ounces were lost during the first two weeks of hospital life. At the end of that time the intestinal symptoms were somewhat milder and during the next two weeks the loss of weight was arrested. During this period there was no vomiting, although the feedings were taken poorly.

After the first two weeks of failure and the subsequent two weeks during which the baby held his own a relapse occurred, and at the end of this third period of two weeks the baby died. This relapse began on September 21, when two feedings were vomited and four curdy movements passed. On the following day nothing was retained and from this time the gastrointestinal symptoms continued without relief. There was almost constant vomiting and the frequent passage of slimy and curdy movements. Meanwhile the general condition of the patient failed, and in the two weeks preceding death there was a loss of two pounds and one ounce. Four days before the end a saline rectal irrigation brought away some blood, which was succeeded by slightly blood-stained movements, and on the following day two of similar character. Two days before death a considerable amount of blood was passed at five different times. The infant died October 6, 1909, at 3 A.M., but between midnight and that hour he vomited blood three times.

AUTOPSY:

Fifty-seven hours after death.

INSPECTION.—The body is that of an emaciated infant twenty-six inches long. There is a marked loss of subcutaneous fat and the skin is lax and flabby particularly over the arms and inner sides of the thighs. There are a number of small petechial spots over the abdomen. The body is anemic. There are no signs of rickets.

PLEURÆ, PERICARDIUM, PERITONEUM AND DIAPHRAGM.—Normal.

LUNGS are pale and emphysematous over the anterior borders, while posteriorly they are poorly aerated, collapsed and congested.

HEART.—Normal.

STOMACH contains bright red and partially digested blood. The rugæ of the stomach are irregularly blood-stained.

DUODENUM.—Just below the pylorus is a small oval ulcer measuring 1 x 2 cm. It is situated on the posterior wall of the duodenum. Its base is formed by the head of the pancreas to

which it is firmly adherent. The margins are sharply cut, showing no induration. The rest of the duodenum as well as the neighboring blood-vessels appear normal. *Microscopically* the mucous membrane of the duodenum is normal. The ulcer has completely destroyed all signs of the layers of the wall of the gut and has attacked the contiguous cells of the pancreas. This portion of the organ stains poorly and many of the cells have lost their nuclei.

The remaining portion of the small intestine contains considerable discolored blood. There is no enlargement of Peyer's patches.

THE LARGE INTESTINE is pale and the wall is not thickened; there is no congestion or evidences of acute inflammation but there are numerous poc-like marks which are evidently ulcerated solitary follicles. *Microscopically* the mucous membrane shows an increase of connective tissue between the tubules and a hyperplasia of the lymphoid cells of the solitary follicles. The apices of many of the follicles show ulceration and discharge of the cells, but there are no other evidences of acute inflammation. The mesenteric lymph nodes are moderately enlarged.

LIVER.—Three-quarters of an inch below free border of ribs: It is large, pinkish-yellow, of putty-like consistency. The cut surface is greasy, and fat is seen upon the blade of the knife. The gall bladder contains viscid green bile.

PANCREAS.—Pale. The head is attached quite firmly to the base of the duodenal ulcer.

THE KIDNEYS, SUPRARENALS, SPLEEN AND BLADDER are normal.

BRAIN.—Pia edematous. Ventricles contain a moderate amount of clear serum. Tissue of brain anemic but consistency is normal.

VERDICT.—Ulcer of duodenum. Chronic ulcerative follicular colitis. Fatty liver.

105 EAST THIRTY-NINTH STREET.

Perforating Appendicitis in an Infant.—Goyens (*Annal. de la Soc. Med. Chir. de Liege*, April, 1900).—An infant six weeks old, fed with boiled milk, suffered from diarrhea, and a tumor was noticed in the right inguinal region. The autopsy showed a gangrenous, perforated appendix with consequent peritoneal infection and septicemia.—*The Journal of the American Medical Association*. Vol. xxxv., No. 4.

APPARENT CURE OF A CASE OF FREQUENT
CONVULSIONS, PROBABLY EPILEPSY.*

BY ANNA R. LAPHAM, M.D.,

Chicago.

Dorothy D., aged three years and four months, was brought to Wesley Hospital, November 20, 1899, by her physician, Dr. A. J. Newell.

PREVIOUS HISTORY.—About one month prior to her admission to the hospital, while playing, the girl fell down stairs. A week later she began having convulsions, and these convulsions still appeared with great regularity at intervals of an hour or thereabouts. Two days before entrance she had seven in fifty minutes. A dose of sweet oil was administered and the next seizure was delayed one and one-half hours. The bowels were habitually constipated; the appetite was good and she had a special liking for sweets which had been unwisely indulged. Any dietary indiscretion increased the frequency and severity of the attacks. It is not known whether or not there was a convulsion at the time of the fall.

FAMILY HISTORY.—The father is engaged in literary pursuits, is of a nervous temperament and is not in robust physical health. The mother is a neurasthenic and has been for years a sufferer from uterine disorders. When a young child, about three years of age, she was for a time subject to periodic convulsions, in character closely resembling those in this case. A paralysis supervened, but both paralysis and convulsions disappeared in the course of a few months. The convulsions were never so numerous as in the present instance.

The paternal grandmother is a neurotic, and the child had spent the summer of 1899 with her.

PHYSICAL EXAMINATION.—The child was well developed, well-nourished and unusually bright. All the organs seemed to be in perfectly normal condition except the bowels, which were habitually constipated. Convulsions occurred very regularly, almost exactly an hour apart. They began with a twitching of the right eye-lid, then both lids became involved. The hands

* Read before the Chicago Pediatric Society, February 7, 1901.

were outstretched, the fingers clutching at the air. The legs were involved to a slight degree, shown by a slight rigidity. The head and body rotated to the left in any effort to turn over. Consciousness was entirely lost. By the time she had reached the ventral decubitus, consciousness would return. The seizures would last about one and one-half minutes and left her in a dazed, bewildered condition, from which she invariably emerged weeping. She referred to these attacks as "*dizzy* spells." There was neither frothing at the mouth nor biting of the tongue. There never was a warning cry nor subsequent somnolent stage.

The child was seen by three neurologists who all agreed that the only hope of cure lay in operative measures; believing the fall she sustained to be the etiological factor.

The hospital records, condensed, show the facts in the case to be as follows: The patient was admitted to the hospital at 6 P.M., November 20, 1899. She was given a light, cheerful room and a special nurse. She was placed on a diet of fruit, cereals and milk. Meat was interdicted because of the increased uric acid and the presence of indican and the ethereal sulphates in the urine. She was kept in bed most of the time to prevent useless waste of nervous energy, but was surrounded by an ample array of books and toys. Fresh air and exercise was not wanting, and when the weather permitted she was taken for a short ride. The bowels were kept free by the use of calomel as necessary. Patient left the hospital December 12th at 2 P.M. During the time she remained at the hospital, less than twenty-two days, she had a total number of 387 convulsions, or an average of over 18 daily. The line of treatment carried out was the administration of the bromids, both alone and in combination with the tincture of *passiflora incarnata*. Trional and codein were also given with the mixed bromids. As shown by the records, trional, potassium and sodium bromid and codein alone had no effect on the number of seizures. The addition of tincture *passiflora incarnata* gave no better results. When codein and trional were alternated with the bromid compound and the dose increased, the seizures were reduced to one a day. The later development of an acute cold with febrile symptoms raised the number to 4 and then 7 daily.

At this juncture the mother paid her daughter a visit and becoming alarmed at the drowsiness of the child, refused to

allow her to receive further medication, and the number of convulsions at once became as frequent as before, 21 during the 24 hours. More dissatisfied than ever, the mother removed the child from the hospital.

For several weeks the parents tried every cure they could hear of, but always with the same result. Meanwhile a paresis had developed, and at last, in despair, the child was removed to her country home and entrusted to the care of a nurse who carefully regulated her diet. All medication was abandoned. In May, 1900, the father stated that Dorothy had for months been without a convulsion and but for a slight hyperesthesia, was perfectly well. The paresis had entirely disappeared. A letter of recent date from Dr. Newell informs me that the parents have removed to a distant state, but his latest report from the case was that the girl continued in health and had no return of the convulsions.

There are two remarkable features in the case: First. The undoubted direct heredity, the mother having suffered in the same manner but to a less degree, and having made a complete recovery. Second. That the child having had such an extraordinary number of convulsions—she had 387 during her three weeks' residence at the hospital, while under careful treatment—should recover completely without medication or treatment of any sort other than dieting.

Tekontief in the *Journal de Medicine de Paris*, February 6, 1898, cites the case of a boy ten years old who had from 15 to 20 fits daily, with enfeebled mind, having had the disease two years. This boy made an apparent recovery, but under prolonged and systematic treatment with adonis, bromids and codein. This case is the nearest parallel that I have been able to find in the literature of epilepsy, and his seizures never went beyond 20 a day; while my patient had as many as 28 a day while at the hospital, and the number had not fallen below 20 before her entrance.

In the light of later developments we are forced to the conclusion entertained from the first by Dr. Hatfield, that though there is an element of undoubted heredity awakened by the traumatism of the fall, yet the immediate cause of the nervous explosions was a toxemia due to intestinal ptomains. Such cases, according to the literature of the text books, are rare.

However, there may be another element which bears relation to toxemia as effect to cause, and lies much nearer the great nervous center. One recently advanced theory seems worthy of consideration. This idea was presented by Dr. Wm. House (*Buffalo Medical Journal*, 1898). He speaks of increased cerebrospinal fluid as an element in the production of epilepsy. In the *Philadelphia Medical Journal*, March 3, 1900, he compares the convulsions of alcoholism, paresis and hemorrhage to those of epilepsy. From these facts he arrives at the conclusion that an increase in cerebrospinal fluid is responsible for epileptic convulsions, because: First. There are no adequate pathological lesions to explain all the symptoms. Second. An increase of fluid is found in the crania of alcoholics and paretics and an effect similar to that caused by abscess and hemorrhage would be produced by an increase in the cerebrospinal fluid. Third. Cerebrospinal fluid is subject to normal variations, and under pathological conditions could easily produce convulsions. Fourth. Increase in the fluid accounts for the several stages of a seizure. Slight increase produces the aura. Greater increase gives the actual convulsion. Absorption of the fluid gives the somnolent stage. A second or a series of succeeding waves produces the "status epilepticus." Fifth. Increase of fluid is favored by heredity, toxemia, circulatory disturbance or any of the usual predisposing factors.

PROGNOSIS.—Little encouragement can be gathered from any of the authorities for such a case as the present one, it presenting so many features of sinister import. Heredity, the history of trauma, the toxic element, the early development of the disease, the great number of convulsions, all augured unfavorably. As to the hope of a permanent cure, Dr. Pritchard, in discussing what constitutes a cure, says: "Freedom from attack one, two, five, or even ten years cannot be considered as final evidence of a cure, since it has been the experience of every neurologist to note recurrence after such intervals or remission."

TREATMENT.—I have nothing new to offer under this heading. Recent literature suggests nothing that has not been tried, proven and disproven, from surgical interference to bromids and the colonization plan. From our own experience in this case, we can draw no conclusions either pro or contra. At the

moment we felt that ground had been gained, our progress was impeded by the interference of the family and all that we had accomplished was lost. The plan carried out at the last and which finally proved successful, was, in fact, a continuation of the line of treatment laid down at the hospital, minus medication, and under the more favorable environment to be found in a rural district. Whether the cure is permanent or not it is too early to say, but arguing from the analogous case of the mother, there is no reason to believe that the disease may not recur. If there is one suggestion more than another to be offered after a study of this interesting case, it is that in any case of petit mal, no matter how aggravated, diet, fresh air, light but pleasant occupation and cheerful companionship should be given a thorough and systematic trial before resorting to more radical measures.

A Case of Empyema in a Boy, Aged Two Years, Treated by a Modification of Levascheff's Method.—Dr. A. A. Kissel states (*Vratch*), that in tuberculous pleurisies and in very young or very weak children the ordinary operation of resection of one or more ribs is not often successful. The author thinks that the presence in the chest wall of a wound that gives more or less trouble is a depressing element in these children. He tried the method of Levascheff in such cases with the idea of avoiding the operation and the open wound. This method consists in replacing the purulent exudate in the pleural cavity with some neutral fluid. The present patient was a boy with empyema who was in such a condition on admission to the hospital that an operation was not to be thought of. There was a family history of tuberculosis. The treatment consisted in the administration of guaiacol and of cod-liver oil, and of successive aspirations of the pus in the chest, followed by the injection of warm normal salt solution into the pleural cavity. This was done four times on the same day, and the last time only a turbid fluid was obtained on aspiration. From this day on the patient rapidly got well.—*The New York Medical Journal*. Vol. lxxii., No. 3.

A CASE OF HEAD-NODDING ASSOCIATED WITH SPASMODIC TORTICOLLIS.*

BY JOHN H. JOPSON, M.D.,

Surgeon to the Bryn Mawr Hospital, Out-Patient Surgeon to the Children's, Presbyterian and Episcopal Hospitals, Philadelphia, Penn.

Anna C., a female infant aged eleven months, came under observation at the Children's Hospital with the following history: Father and mother are healthy. There were four other children, one of whom died of influenza with meningeal symptoms. Another child is said to have been nervous. The patient has been breast-fed, and was never ill until one month previous to her visit to the hospital when she had a fall down stairs, a distance of several steps. She cried vigorously, but was not apparently much injured. The following day she developed bronchitis and was ill for a week or ten days, but not so ill as to cause the parents to summon a physician. A few days after recovery from this condition the mother noticed that the head was kept inclined to the right side. At first the nodding movements of the head were not observed, but for the past two weeks these have been present. The digestion is good. There was some sweating around the head at the end of the illness spoken of above, and the baby is cutting her molar teeth. Examination shows her to be a plump, healthy-looking and good-tempered baby, with well-developed muscles of good tone. She sits upright without difficulty. Examination for stigmata of rachitis shows such to be absent or very slightly developed. The costo-chondral articulations are perhaps a little more palpable than normal; the anterior fontanelle is almost closed; the radial epiphyses are scarcely enlarged.

There is present a marked contraction of the right sternocleidomastoid muscle causing an inclination of the head toward the right shoulder and a turning of the face to the left. This position is not constant, the muscle sometimes being more relaxed and the head held straighter. It is not, therefore, due

* Presented to the Philadelphia Pediatric Society, February 12, 1901.

to permanent contracture. With this there is associated a typical nodding spasm of the head, the movements being almost purely of a to and fro or "mandarin doll" type, decreasing or stopping when the infant's attention is arrested, but soon being resumed. There is present a double horizontal nystagmus, the vibratory movements of the eyes being very fine and rapid. This last symptom was not noticed at first examination by day-light, but at the second, made by artificial light in the evening, it was very apparent. Both the torticollis and nodding spasm, the mother states, are increasing in severity.

There are a few points about this case which seem to me of special interest. The first concerns the question of etiology. In Miller's* very careful paper on the subject, in which he analyzes 78 cases of this unusual affection, he gives as predisposing or exciting causes, first, rachitis, which was present in 50 per cent., and which he regards as most important. Other elements are various acute affections, as gastrointestinal disorders, measles, pertussis, etc., and in 11 cases there was a history of antecedent convulsions in the child, and in 12 cases in other members of the family—in other words, a neurotic family history. He found a history of a fall in 28 per cent. of his cases, and quotes Peterson and Hirsch as looking on this as the most important exciting cause. Hadden† in his very valuable papers on this affection comments on the frequency with which a fall preceding the onset is mentioned in the case histories, but thinks that in the majority of cases it was not a causative element, and indeed is inclined to regard the falls as due to visual impairment, vertigo, or even sudden fits of unconsciousness, the results of the condition itself.

John Thomson‡ gives as etiological features: Age, from four to twelve months; a debilitating illness, as bronchitis, bronchopneumonia or measles; eye strain from defective lighting of the house, a feature he regards as almost essential and invariably present in the cases he investigated, the large majority of which

* "Three Cases of Head-Nodding and Head-Rotation in Rachitic Infants." ARCHIVES OF PEDIATRICS, August, 1900.

† "Head-Nodding and Head-Jerking." *Lancet*, 1890, I. 1293. Also St. Thomas Hospital Reports, N. S., Vol. xx., 1890.

‡ "On the Etiology of Head-Shaking with Nystagmus (Spasmus Nutans) in Infants." John Thomson, M.D., Jacobi "Festschrift" New York, 1900.

began in December or January, the darkest months in the year in Edinburgh. Residence in towns is an etiologic feature, he explains, on the same grounds; head injury and fright and especially rickets are the remaining factors. The association of rickets with eye-strain at the above-mentioned age constitutes a complex series of predisposing causes that is very common. In the present case rachitis was present in a very mild grade, if at all. There is a history of a fall, a mild attack of illness, and active eruption of teeth occurring in a child of the usual age, predisposing to the disease, with possibly a neurotic family taint, and the beginning of the symptoms in mid-winter. The child was kept in a rather dark kitchen the greater portion of the day. With all due allowance for the frequency with which a history of a fall is elicited in children suffering from any affection, the fact that it is often present here should lead one to put at least some weight upon it until further proof is adduced that it has no causative connection. A fall or blow may act by producing fright, as Thomson suggests.

The association of a more or less persistent spasm of the right sternocleidomastoid muscle is of some interest, and does not seem to have been dwelt upon as a frequent symptom. In many cases there has been described a peculiar cocking of the head to one side while attention is fixed upon an object, but this is a different condition. This child shows a genuine spasmodic wry neck, and from the history this symptom was present before the nodding movements began. At a subsequent examination this contraction of the sternomastoid was almost entirely absent, showing that it varied from time to time. Spasmodic torticollis can, of course, result from either central or peripheral irritation. As the pure nodding spasm depends largely on innervation of the sternomastoid muscles, it is not difficult to imagine an associated continuous spasm of one muscle arising from the same cause. In only twelve of Miller's cases was the head movement a pure backward and forward one as in this case.

When examined one week after the first visit, at which time the baby had been placed on small doses of the tincture of belladonna, the condition was as follows: There is still some contraction of the right sternocleidomastoid muscle, but less marked than one week ago.

The nodding movements are very much less marked. Occasionally they are resumed with equal frequency as at first, but the larger part of the time the baby is quiet. Nystagmus is not present by natural light, but by artificial light can be elicited at times by directing the baby's attention toward the lamp. The baby has been taken out into the sunlight more frequently during the past week, and it is probably to this as well as to the natural tendency of the condition toward spontaneous recovery rather than to the internal medication that the improvement is due.

Athyrosis in Infancy.—Quincke reports (*Deut. Med. Woch.*, November 29, 1900) the case of a child who had the following history: It was born in 1896 of tuberculous parents. It had had some skin eruption when six weeks old, but no other definite signs. When about six months old the child was brought to the clinic because it swallowed badly. The tongue was thick, the child was lethargic, did not know the mother, had a coarse voice, had a cretin-like face, the nose was broad, the body was moderately nourished. The thyroid gland was found to be a small hard tumor about the size of a pea. The child was given iodothylin with some improvement. Afterwards thyraden was added, and the child improved very greatly. When the thyraden was stopped the child grew worse again, and when the thyraden was once more ordered there was again a very marked improvement. The child had distinctly improved, when three years after first seen it disappeared from observation. Even at that time, however, the improvement had been only moderate. The child died in 1900 of an intestinal affection. The autopsy showed brownish stumps of teeth, the fontanelle was only imperfectly ossified, the thymus was found very small, and the thyroid gland was absent. The adrenals were not discoverable. Quincke directs attention to the fact that there was evidently a progressive atrophy of the thyroid gland in this case, so that it was entirely gone when the child died, in its fourth year. In other words, that the change was a progressive pathological process in the gland, and not congenital absence of the gland. The cretin-like symptoms appeared in the first six months of life. It was notable that the skin was not like that of myxedema, but soft, though somewhat thickened. Unusual symptoms were nystagmus, a shaking movement of the head, and it was notable that the child's height was not below the normal. The case is additional proof of Kocher's view that cretinism is due to a qualitative or quantitative change in the thyroid function. It is possible that special toxins are active in the disease, and that they damage both the thyroid gland and other organs, so that the picture of the disease is due not only to damage of the thyroid gland, but to the effect upon other organs.—*The Philadelphia Medical Journal.* Vol. vii., No. 4.

ARCHIVES OF PEDIATRICS.

APRIL, 1901.

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ECZEMA FROM THE STANDPCINT OF BACTERIOLOGY.

Until quite recently dermatologists have pointed with something like pride to the finished state of our knowledge of eczema in contrast with our almost complete ignorance of most of the other dermatoses. Eczema was the simple catarrh of the skin, completely analogous to catarrhal processes of the mucous membranes and bacteriology was unnecessary to account for its existence. Within the past few years, however, there begins to be something like unanimity among dermatologists in various countries in the opinion that eczema is after all a disease of microbic origin. The conclusions appear to

have been reached by a combination of the deductive and inductive methods. Since the original discovery of the pyogenic cocci it had naturally been taken for granted that these germs were responsible for most of the suppurative processes in the skin, but there was for a long time no hint of further pathogenicity. Gradually we learned that these familiar microorganisms may cause many manifestations which are unaccompanied by any formation of pus whatever—such as a focus of gangrene or a bulla of pemphigus; while conversely the power of producing pus was found to be possessed under certain circumstances by a large number of other bacteria. This suggestion of the wide range of pathogenic activity possessed by the staphylo- and streptococci naturally led to the question, “do not these familiar germs play the leading rôle in the most familiar of all the diseases of the skin?” This question has apparently been answered in the affirmative. Sabourand of the Pasteur Institute at Paris; Scholtz and Raab, assistants of Neisser; Jadassohn and others appear to have furnished the proofs independently; and one of the features of the dermatological section at the recent Paris Congress was a reiteration of this fundamental truth. Jadassohn believes that the first step in the genesis of an eczema is the appearance of an erythema of the skin due to mechanical or chemical irritation, and that the pyogenic bacteria infect this primary lesion exactly as they infect a simple wound, save, perhaps, for the fact that in the former case the germs pre-exist in the skin, while in the instance of the open wound the microorganisms are doubtless carried to the exposed surface from without. These saprophytic germs within the epidermis, roused to a mild degree of virulence by the incidence of some simple irritation, are able to provoke the various clinical phenomena which we distinguish by the term eczema.

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A work of this character is an encyclopedic dictionary to be taken up when a title or date is wanted. As such the book is a marvel of research into the literature of milk and allied topics. Bacteriology, sterilization, modification, and in fact all subjects connected with dairies, care of dairies and the use of milk are indexed. References to the literature are given from the sixteenth century to the end of the nineteenth and over 8,400 authors are named. Besides well-known chemists, teachers and bacteriologists are to be found inventors who have described weighing machines for milk, milk coolers and milk separators.

A full index of names and a list of periodicals for reference complete this unique and valuable book.

To the student of infant feeding this beautifully printed volume is a mine of suggestive headings.

The Feeding of Infants. Home Guide for Modifying Milk. By Joseph E. Winters, M.D., Professor of Diseases of Children, Cornell University Medical College. Pp. v.-47. New York: E. P. Dutton & Co. 1901. 50 cents.

This small volume might be styled a primer of infant feeding for the laity and medical students, for its concise and didactic statements present the subject in outline as seen and taught by the author. It credits Meigs and Frolowsky with the discovery of the principles upon which the system is based, and states that although many years have elapsed there has been no dissemination of these principles.

The dangers of bottle feeding and the unsuitability and risks of "infant foods" are clearly stated. Tables of quantities, hours of feeding, also percentage formulæ for the progressive feeding

of a healthy infant from birth to one year of age are given, together with the rules which govern the furnishing of a clean, fresh milk in the dairy and the requisites for the preparation of home modifications. So far as they go the principles inculcated are sound and useful. The author assumes the use in every case of an ideally clean and pure milk. Pasteurization and sterilization are mentioned merely to be condemned. There are no directions or recommendations for their employment where ideal milk cannot be obtained. The pages therefore are evidently designed for mothers and nurses more than for physicians.

To practitioners who have already studied the subject the book offers little that is new, but it will be a practical and serviceable primer for those who are not scientific and for those physicians who need a safe guide for their patients.

The Care of the Consumptive. A Consideration of the Scientific Use of Natural Therapeutic Agencies in the Prevention and Care of Consumption, Together with a Chapter on Colorado as a Resort for Invalids. By Charles Fox Gardiner, M.D. New York and London: G. Putnam's Sons. The Knickerbocker Press. 1900. Pp. 182.

This little book contains many points of interest relating to the prevention and care of tuberculous patients. One chapter deals with consumptives' children. In this there is much good advice which is generally known but not always appreciated. Among other items are the directions that the consumptive mother should not nurse her baby, that particular care should be taken that the mother does not infect the child by kissing or by the use of the same utensils. The milk given to a susceptible child should be of the very best quality. Harris and Beale, and Crozer Griffith are quoted in the dietaries.

Dr. Gardiner has had every opportunity to study the climatic and dietetic treatment of consumption, and his book is recommended for the practical details it contains.

Society Reports.

THE NEW YORK ACADEMY OF MEDICINE—SECTION ON PEDIATRICS.

Stated Meeting, January 10, 1901.

WILLIAM L. STOWELL, M.D., CHAIRMAN.

CONGENITAL STENOSIS, SPASMODIC, OF THE PYLORUS; RECOVERY.

DR. THOMAS S. SOUTHWORTH reported this case. (See page 1, January, 1901.)

DR. CHARLES HERRMAN said that he had had such a case recently at the Good Samaritan Dispensary. The child had been first seen when five weeks old, and the vomiting had begun two weeks previously. Examination revealed a marked, but very slow, peristalsis in the epigastric region, the peristaltic wave being an hour-glass formation. Palpation seemed to show to the right of the median line a mass like a thickened pylorus. After steadily losing ground for some time, the infant had suddenly begun to improve, and now, at the age of four months, was doing well. The speaker said that while no doubt the majority of these cases were spasmodic, the records of certain autopsies showed that there might be a true stenosis of the pylorus in exceptional cases. One theory as to the cause of the spasm was that it was the result of an irritation arising from hyperacidity, yet this surely could not be the true reason, as cases of spasmodic stenosis of the pylorus had been reported in which the acidity had been normal or even diminished. Again, spasm of the pylorus would not account for a vomiting occurring immediately after the ingestion of food, for it was well known that the normal pylorus is closed during the early stage of the digestive process. For the spasmodic cases he thought camphor should prove useful, and where the vomiting was obstinate, all feeding by mouth should be stopped and nutrition should be maintained solely by rectal feeding.

DR. WALTER LESTER CARR doubted if it was proper to call all of these cases "congenital." Undoubtedly if the pylorus

remained spasmodically contracted for a long time a true hypertrophic stenosis might result. He agreed with the last speaker that an important part of the treatment should be the complete withholding of food by mouth.

A CASE OF AMAUROTIC FAMILY IDIOCY.

DR. SARA WELT-KAKELS exhibited a child, twenty-one months old, having no family history of tuberculosis or syphilis, and being the third child born into the family. From the mother's careful description it seemed almost certain that the second child had presented similar symptoms. This little one when first seen had had very imperfect vision and had made no effort to move the body or head. Since last October there had been frequent tonic and clonic convulsions. At present, she was greatly emaciated, and there was a luxuriant growth of hair on the body and legs. All the muscles were rigid. There was a dark patch at the fovea of each eye, and both optic nerves were pale. According to Dr. William Hirsch these cases involve the entire nervous system and arise probably from a milk toxemia.

DUODENAL ULCER IN AN INFANT OF TEN MONTHS.

DR. VANDERPOEL ADRIANCE reported this case. (See page 277.)

DR. D. BOVAIRD, commenting upon the rarity of such ulcers in early life, said that the records of thousands of autopsies at the New York Foundling Hospital failed to show a single similar case.

MEMOIR OF DR. J. HENRY FRUITNIGHT.

DR. THOMAS S. SOUTHWORTH made some fitting remarks commemorative of this well-known pediatricist, formerly chairman of this Section, of whom an obituary notice appeared in ARCHIVES OF PEDIATRICS, January, 1901.

INFANTILE COLIC AND COLIC IN INFANTS.

DR. H. ILLOWAY read this paper. He said that flatulence could only excite colic when the distention of the bowel was only moderate. The causes of infantile colic were: (1) Flatulence; (2) influences acting through the mother; (3) indigestion; and (4) refrigeration. Slow or imperfect digestion would result in flatulence. If the mother were constipated, the infant was

apt to be afflicted in the same way; moreover, the milk of the constipated woman was apt to cause flatulence. Indiscretions in the mother's diet, and the use of such purgatives as salts and senna were common causes of colic in the nursing infant. Mental worry and sexual excitement might also deleteriously affect the mother's milk, even the strain of a prolonged toothache might act in a similar manner. But probably the commonest causes of colic in the infant were over-feeding, too frequent feeding and the use of food of improper quality. Occasionally colic might arise from a deficiency of food. Refrigeration was another important factor in the production of colic, and arose commonly from allowing the infant to sit or walk on a wet floor, lie in a wet diaper, or remain with the abdomen exposed in a draft of cool air. A point worthy of note in connection with the differential diagnosis was that in cases of colic associated with grave pathological conditions there would not be the kicking of the legs observed in simple colic, and the child would not alternately cry and smile. The treatment naturally divided itself into: (1) The immediate relief of the pain; and (2) the removal of the cause. By the external application of heat and irrigation of the lower bowel with hot water much could be done to relieve the colic. It was inadvisable in protracted cases to resort to opiates because of the ease with which the little ones become addicted to the use of such drugs. In his own practice he especially prized the freshly prepared milk of asafetida in cases of infantile colic. It should be given in a dose of one-third to one-half a teaspoonful, with a little fine sugar on a spoon, and may be repeated in fifteen or twenty minutes if necessary. Warm fennel tea, given just before nursing, would sometimes avert the attack of colic. The routine use of alkalies was not to be recommended, as they tend to impair digestion. The removal of the cause had been partially considered under the head of etiology. Where milk in any form disagrees, it must be discontinued, and meat broths and cereals substituted. Hiccough could often be relieved promptly by putting a few grains of fine sugar in the baby's mouth.

DR. SOUTHWORTH recalled the fact that Dr. Jacobi had pointed out that colic in the new-born may arise from the passage of renal sand. Restless infants were often said to be

colicky, when in reality they were uncomfortable because of constipation or hyperacidity of the urine. Some children thought to be colicky were really only spoiled and peevish from this cause. It was well to regard colic in infants as a reflection on the method of feeding. In the case of a nursing infant the mother's diet should be carefully regulated and she should be encouraged to take more out-door exercise. Much could be learned by the physician by a personal inspection of the stools. As a temporary measure, prescribing digestive agents might be useful, particularly when there was special difficulty in the digestion of proteids.

THE CHAIRMAN spoke of the swallowing of air as a common cause of infantile colic, and said that this usually occurred in those babies fed carelessly with a bottle provided with an improper nipple. The benefit derived from fennel tea and similar preparations he believed was attributable to the heat rather than to the particular substance employed.

The Infantile Type of Speech as a Sign of Hereditary Syphilis.—Dr. R. A. Katz, (*Vratch*, September 9, 1900), calls attention to the fact that Fournier, who described in detail the phenomena of hereditary syphilis, does not mention an important characteristic of this condition, namely, the persistence of infantile speech in hereditary syphilitics of advanced age. Fournier's son, in his recent work on the subject, mentions stammering as a symptom of hereditary syphilis; and among the many histories which he cites there are many cases in which there was a marked deficiency or a total absence of the power of speech. The present author reports two cases of hereditary syphilis in which the speech of the patients reminded one of the "baby talk" of infants. In commenting upon these cases he says that while he will not pretend to assert that there is a causal connection in these instances between hereditary syphilis and the infantile type of speech, such a connection is by no means improbable. Hereditary syphilis is often accompanied by retardation in the physical and mental development of the individual, and infantile speech is a result of such retardation.—*The New York Medical Journal*, October 20, 1900.

THE NEW YORK ACADEMY OF MEDICINE—SECTION ON
ORTHOPEDIC SURGERY.

Stated Meeting, January 18, 1901.

DR. GEORGE R. ELLIOTT, CHAIRMAN.

DR. HOMER GIBNEY presented a girl aged seventeen years, tall, with a round back or posterior curve of adolescence, of which he exhibited a tracing. He had applied the plaster jacket she now wore, only a few hours before, by placing her in the recumbent position, the body resting upon two uprights, one under the pelvis and the other under the point of greatest prominence of the back. Her head and shoulders were allowed to sag backwards and downwards. The position maintained, which caused the patient some suffering, was a marked over-correction. Another jacket would be applied later. The patient did not bear the operation well, on account of cardiac complication.

DR. HENRY LING TAYLOR said he had not understood what diagnosis had been made, but the girl seemed unusually tall for the age assigned, and asked if the possibility of gigantism had been considered, as a marked round back was common in such conditions.

DR. ROYAL WHITMAN said he was familiar with the history of the patient. She had some cardiac disease, was rickety, overgrown and badly nourished. He considered her condition merely the round spine of adolescence partly due to her height and heart weakness, and called attention to the patient showing lack of ordinary intelligence.

DR. GEORGE R. ELLIOTT asked Dr. Gibney how much force in pounds he had used to correct the deformity.

DR. GIBNEY replied that little force beyond gravity was used, the sagging of the body between the supports appeared to give the necessary extension.

DR. W. R. TOWNSEND said that he had put up a case of spondylose rhizomelique last week in a much straightened position followed by a feeling of relief to the patient.

DR. TAYLOR remarked that Kietley had described anterior crutches to hold the shoulders back, which would seem to answer the purpose of epaulettes as used in this jacket, without their disadvantages.

EPICONDYLAR FRACTURE OF THE ELBOW.

DR. HOMER GIBNEY presented a small boy who had sustained a fracture of the elbow three months previously. The fracture was above the condyle. When the patient presented himself at the hospital the elbow was fixed at an angle of 105° with but little movement. The joint was cut down upon by Dr. V. P. Gibney and the detached fragment sutured into place.

DR. V. P. GIBNEY said the epicondyle and nearly the entire condyle had been displaced, interfering with motion. He had cut down upon the joint and separated it with an osteotome, cleaned off the site of the fragment and pushed it down suturing with kangaroo tendon; he then put the arm in a straight position, left it for four or five weeks and then allowed active motion. Passive motion was not employed.

DR. T. HALSTED MEYERS commented upon the excellent result and remarked that children were often allowed to go on with fracture at the elbow united in poor position in the belief that they would outgrow the disability in great degree which was true, but it was better to correct the deformity entirely, even resorting to open operation when necessary. He called attention to Dr. Lloyd's excellent reports.

COXA VARA.

DR. TOWNSEND presented a boy aged fourteen, with the history that three years ago, without apparent cause, began to limp and noticed that one leg was a little shorter than the other. The condition increased and he has had some pain. There was one inch of actual shortening. Radiographs were shown. He diagnosed coxa vara of the ordinary type. He said there were two points to note: one, good flexion and extension with little adduction; the other, the smaller size of the limb.

DR. TOWNSEND showed another skiagraph of a patient in which he had made the diagnosis some time ago of coxa vara. In this case under observation for three years there had been a progressive shortening of about one-eighth to one-fourth inch each year, now amounting to three-fourth inch.

DR. WHITMAN called attention to the importance of the limitation of motion, that although the patient still retained ten per cent. of abduction, there was an apparent shortening of two inches. This shortening and consequent disability was due to the limitation of abduction. This deformity might be overcome, after preliminary stretching of the contracted muscles, by a cuneiform osteotomy at the base of the trochanter, which would re-establish the angle of the neck and thus relieve the strain upon it. He advised this operation in Dr. Townsend's patient, though the best results were to be looked for in younger patients, or at an earlier stage of the deformity.

DR. ELLIOTT asked Dr. Whitman how large a wedge of bone he would remove.

DR. WHITMAN suggested cutting a paper model of the bone as shown in the skiagraph, and measuring on that the size of wedge to be cut out; he thought one with a base of three-fourths of one inch would be sufficient in the patient under discussion.

DR. ELLIOTT asked if the length of the limb would be much increased.

DR. WHITMAN replied that the actual increase in length would be slight, possibly one-half inch; the important point was that there would be no apparent shortening because there would be complete relief of the limitation of motion which caused the apparent shortening.

DR. TOWNSEND said he had performed the operation referred to by Dr. Whitman in two cases with good results, and saw no reason why it should not be done in this case. In one patient, however, a little girl aged seven years, who had slight coxa vara, he had applied a traction splint and did not see in this particular case why it was not as good as the osteotomy advised by Dr. Whitman. He thought apparatus worn for a few years would give good results in the mild cases.

DR. MEYERS agreed with Dr. Townsend that it would be better in the beginning of these cases to use some sort of supporting apparatus that would not need bandage or plaster, thus avoiding pressure atrophy. He thought the Campbell brace especially adapted for such cases. It removed part or all of the body weight and was inconspicuous.

DR. V. P. GIBNEY asked just what the Campbell brace was.

DR. MEYERS illustrated it by a drawing showing it extending to the hip.

DR. GIBNEY asked if the Campbell brace had always extended to the hip as drawn by Dr. Meyers.

DR. MEYERS said that it had for the last eighteen years.

DR. TAYLOR said that this brace reminded him of the Dow's brace which was valuable when it was desirable to use a perineal crutch and allow motion at the knee. He cited cases which had done well under the use of the hip splint, but could not give final results as the patients had not returned after treatment was discontinued. He had recently seen a case of coxa vara in consultation where four out of six surgeons consulted were in favor of the splint treatment.

DR. WHITMAN did not favor the use of apparatus as a routine treatment, believing that after its discontinuance the distortion was likely to increase. The nutrition of the parts was likely to be lessened rather than increased by the use of braces. He had been disappointed in the final effect in cases in which apparatus had been used. Finally braces could not rectify the deformity, at best would but relieve the symptoms and check progress. His operative results had been satisfactory. The patients after operation did not limp. Nearly all of his operative cases were between the ages of six and ten years.

DR. TOWNSEND asked if the boy in question would walk perfectly if the adduction were overcome.

DR. WHITMAN said if there were no limitation of abduction, the boy would walk almost perfectly, whatever limp persisted would depend upon the actual shortening.

DR. ELLIOTT wished to know what would be the prognosis if the case was left untreated.

DR. WHITMAN replied that the patient would not get much worse, might get some better; as a rule, after the more acute symptoms had subsided the patients adapted themselves to the deformity and got along very well with a greater or less degree of limping. He stated that several of the German writers were

apparently opposed to either mechanical or operative treatment.

DR. LOUIS A. WEIGEL, of Rochester, N. Y., thought apparatus might be used to advantage in the earlier stages of coxa vara for the removal of superincumbent weight which is an etiological factor. He believed the difference in size of the femora as shown in the radiographs was due to a true atrophy or arrest of development. If coxa vara is due to defective nutrition, development of the affected side would be retarded.

DR. WEIGEL exhibited a radiograph of an unusual deformity of the tibia and fibula, following a probable fracture during infancy. The mother had noticed a slight angle middle one-third of tibia when child was three months old. This had increased. The original fracture may have occurred in utero.

DR. WEIGEL also presented a series of radiographs showing congenital absence of bones in members of the same family. In the five extremities shown, some bone of the hand or arm was absent. In one case, there was a rudimentary humerus, an imperfect thumb and three fingers. The mother had no thumb and gave a history of having borne twelve children, four of whom were deformed. The mother attributed her own deficiency to maternal impression, stating that her mother while pregnant was shocked by seeing a man at her house without a thumb.

DR. WEIGEL exhibited another radiograph of a case of extensive osteomyelitis involving the whole of the tibia on one side. The patient had been treated for articular rheumatism. He thought it possible in most cases to make the differential diagnosis between marked suppuration and thickening or eburnation. When there is pus formation he stated that in a radiograph it is difficult to get a clear definition of bone structure on account of the osteoporotic condition usually present.

DR. WEIGEL also exhibited a radiograph of a tubercular focus in a child's foot together with another radiograph taken two months later showing the reparative process already well under way. This patient was treated by fixation and rest, any radical surgical interference being contraindicated.

DR. TOWNSEND asked for a differential diagnosis between sarcoma of bone and osteomyelitis.

DR. WEIGEL said that such a differential X-ray diagnosis might be difficult to make without an opportunity of comparing a series of cases.

DR. ELLIOTT showed a skiagraph of congenital dislocation of the hip which was taken after only fifteen seconds of exposure. The shortness of time exposure was important. With restless children long exposure was often impossible without an anesthetic.

Some Observations on Intubation of the Larynx. After using the O'Dwyer method of relieving laryngeal stenosis in 75 cases (*American Gynecological and Obstetrical Journal*, April, 1900) West is convinced that it is the best means yet at our command for the needed mechanical treatment of these cases. Of this number 73 were cases of laryngeal diphtheria; in 2 the dyspnea was due to laryngitis following measles, and in 1 to obstruction due to erysipelas. The mortality was $45\frac{1}{3}$ per cent. and was the greatest under two years; beyond that, age did not seem to affect the mortality. It is highly important that the operation should be brief in duration, that there should be care as to bruising the tissues, and that it should be performed as promptly as possible after the dyspnea becomes great. The average time of leaving the tube in position in the cases which recovered was 6 days, and the best method of feeding during this period is with a nursing bottle which may be used with large as well as small children. The apparently great mortality must not be regarded as a serious objection when one takes into consideration the almost hopeless condition of the cases treated; also the great relief from suffering afforded even to those who did not recover must not be forgotten. In conclusion West says that no professional work he does affords him greater satisfaction than the successful relief of a case of laryngeal stenosis by intubation, and nothing provokes a deeper longing for "a better way" than a fatal result in spite of it.—*Philadelphia Medical Journal*. Vol. vi., No. 9.

Current Literature.

DERMATOLOGY.

Whitfield, Arthur: A Note on the Bacteriology of One Form of Eczema. (*British Journal of Dermatology*. No. 145.)

He has pursued special researches into the bacteriology of dry eczema, dry seborrhea, etc., of the face in children. Clinically the eruptions studied are characterized by small, well-defined discs of varying size, seated chiefly upon the cheeks, chin and neck, with a special predilection for the skin about the mouth. In the latter locality the horny layer becomes fissured by the movements of the skin, and the scales which form are firmly adherent. The patches on the face show no tendency to symmetry of arrangement. While there may be extension at their periphery there is no tendency to heal in the center. Although several cases may be seen in one family we have no evidence that this form of eruption is contagious. On the other hand it is certainly seen more commonly after cold winds than at other times.

A patch of eruption was curetted and bouillon cultures obtained from the scrapings. A coccus was recovered in specimens from every individual examined, which grew freely upon gelatin without liquefaction. This germ was non-pathogenic to guinea-pigs and was unable to produce any eruption when inoculated into the human arm. Nevertheless the author believes it to be a form of staphylococcus, and, further, identical with the germ claimed by Merrill as the cause of seborrheic eczema. This microorganism was the only one constantly present in these cases.

PATHOLOGY.

Class, W. J.: The Etiology of Scarlatina. (*The Journal of the American Medical Association*. Vol. xxxv., No. 13.)

In 300 successive cases of scarlet fever a diplococcus was cultivated from the throat secretions, blood and scales; and Class believes this diplococcus scarlatinæ to be the specific cause of the disease. Both segments of the diplococcus are globular; single cocci and streptococcus forms are occasionally, though

rarely met with. The morphology varies according to the medium in which it is grown. Earth-agar was the special medium devised by the author, and on it very large, biscuit-shaped forms develop, distinguishing this coccus from other germs. It is pathogenic for mice, swine and guinea-pigs. Intravenous injections in swine produce typical symptoms of scarlet fever, the diplococcus being obtained from the blood during life and from the organs after death. The disease produced in animals by inoculation with this coccus is contagious for other non-inoculated animals. The blood of scarlet fever patients inhibits the activity of the germ.

During an epidemic of scarlet fever the diplococcus frequently gives rise to an acute tonsillitis without any eruption, although these cases are often followed by nephritis and sometimes by desquamation. This form of angina is nothing more nor less than scarlet fever without the presence of an eruption, and patients affected by it are immune from scarlatina. The coccus grows in milk without producing any visible change in the fluid.

MEDICINE.

Koplik, Henry: Rötheln; Its Differentiation from Measles or Scarlet Fever. (*Journal of the American Medical Association.* Vol. xxxv., No. 19.)

It appears that the personal experience of individual authors has been extremely limited, and that the methods of research have often been defective. He has therefore kept close watch over his cases for the past seven or eight years as he has had opportunities for the study of numerous epidemics, and generally speaking, his experience with this disease has been extensive. He has often known rötheln to prevail side by side with measles, but this was due to pure coincidence, as one disease does not protest against the other. It is highly contagious but natural or unknown immunity is occasionally seen. It attacks adults as well as infants. While the conjunctiva may be suffused before the appearance of the rash, there is no real conjunctivitis. The great majority of patients are never seen by the physician before the outbreak of the eruption. The rash greatly resembles that of measles. In all the author's cases it was deep rose-red and papular, remaining discrete throughout.

This essential rash may be preceded by an erythematous blush which may occupy the entire face. The rose-red papules have a crescentic arrangement, exactly as in the exanthem of measles. The rash of rōtheln disappears in from 1 to 3 days, and the question as to whether desquamation really occurs is extremely difficult to answer. Rōtheln, however, is not a disease which affects the mucous membrane, and the writer has never seen the coincidence of coryza, cough or bronchitis. The pharynx is always slightly injected and the tonsils somewhat swollen; in other words, we have a mild angina. Various authors have described spots on the hard and soft palate and cheeks, presumably analogous to the cutaneous papules. He has studied this alleged phenomenon with especial care, but the spots encountered are neither characteristic nor constant, while they may also be encountered in other diseases. On the other hand, the absence of "Koplik's spots" in the buccal mucous membrane is held to be the crucial test in the diagnosis of rōtheln.

There is no definite relationship between the temperature curve and the course of the eruption. The fever may abate while the rash is extending. The maximum of about 100° F. is usually attained when the preliminary eruption appears on the face. The enlargement of the lymph nodes of the neck is not only a prodrome and a phenomenon of the disease proper, but has even been the sole symptom: that is in individuals who had been distinctly exposed to the disease, this adenopathy was noted, yet no rash appeared. Special research shows that the lymph nodes of the axilla and groin may also be affected.

For treatment the writer simply counsels keeping the children indoors, which answers both for isolation and the prevention of possible complications.

Muggia, Alberto: On the Semeiotic Value of the Great-toe Reflex in Children. (*La Pediatria.* Anno viii., No. 10.)

He concludes that the Babinski phenomenon does not have any decisive significance up to the age of six months. Beyond that period it may be present with evidences of rickets, but without the coincidence of any nervous disorder. In some cases it accompanies meningitis, and may serve to differentiate that affection from the "meningism" which accompanies infectious diseases. In infantile hemiplegia it may distinguish the

latter from neuritis or poliomyelitis, and may similarly serve to differentiate organic from hysteria. The weakness of this reflex in cerebellar tumors, and its total absence in coxitis, idiopathic amyotrophy, etc., may aid in the differentiation of these from other affections. Babinski's reflex thus deserves recognition in infantile semeiology. It will be necessary, however, to bear in mind the great individual variations in this reflex, and that what would be normal in one subject would be pathological in another.

Packard, Frederick A.: The Antecedents of Organic Heart Disease in Children. (*Journal of the American Medical Association.* Vol. xxxv., No. 25.)

He includes under this head not only infectious diseases with definite symptoms, but the minor affections incidental to childhood, such as angina, gastrointestinal disorders and even ordinary colds. In fact, the exciting germ of any local infection may get into the blood and set up endocarditis.

He has analyzed the histories of 75 cases of organic heart disease in children. Of this number 34 had had rheumatism, either alone (16) or with collateral history of measles, whooping-cough, chorea, etc. Measles had been present in 24 histories, whooping-cough in 19, and chorea in 16. Comparison of these statistics with those of a similar number of non-cardiac cases shows that many of the infectious diseases are as common, or even more common in the latter, although this does not hold good for chorea which occurred in but 2 non-cardiacs. The frequency of postdiphtheria and scarlatina in cardiac cases is slight and not in excess of that seen in non-cardiacs; and the same statement holds good for such affections as mumps, typhoid, varicella, etc. It appears, therefore, that a history of rheumatism and other infections is insufficient to account for all or even for the greater part of these cases of organic heart disease, and that we must therefore attribute many cases to colds, various skin diseases, affections of the mucosæ of the throat and nose, and perhaps also to chance infection in connection with bronchitis, nephritis, meningitis, etc.

West, S.: Enlargements of the Spleen in Children. (*British Medical Journal.* No. 2070. 1900.)

Specific fevers, septic diseases, malaria, heart disease, infarcts, embolism, and amyloid disease often cause enlargement

of the spleen; new growths and portal obstruction are rare in childhood. Leucocythemia is comparatively uncommon in children and very rare in the very young. Hodgkin's disease is very rare before the age of eight years and unknown in infants. Chronic tuberculosis may cause the spleen to be considerably enlarged. A very important group of cases, badly named splenic anemia, is that in which profound anemia is associated with enlargement of the spleen. The child is not emaciated, but is very feeble; the lymph nodes are little or not at all enlarged, and the blood shows the changes of simple anemia only. There is a general tendency to bleeding. Usually no pyrexia occurs, though there may be a moderate degree of an irregularly hectic type. Many of the children are rickety and some are syphilitic.

Histologically the lesion in the spleen in a simple hyperplasia with slight fibrosis. If the blood shows any leukocytosis it is the lymphocytes which are increased; and this stands in direct relation, it appears, with the fever.

The affection runs a chronic course, lasting some months; but in the end many cases get quite well. Death may be due to asthenia or intercurrent disease. The disease commences almost invariably in infants or in very young children, and when first discovered in older children it has probably dated from infancy. The treatment is that of anemia. Syphilis is occasionally, and rickets frequently, associated with splenic anemia; but the association is not constant in either case. Neither is the sole cause of the anemia, and probably they only act indirectly by leading to ill health. The true relation between the anemia and the splenic enlargements is not yet explained satisfactorily.

Symes, Langford: On the Symptoms or Phenomena Formerly Known as Croup. The Diseases Which Produce Them, etc. (*Dublin Journal of Medical Sciences.* No. 343.)

He discusses the three affections, laryngeal diphtheria, laryngitis and laryngismus. When first confronted by a case with croupy symptoms, it is difficult and often impossible to make an exact diagnosis. All of these affections may appear with the same onset. He agrees with certain other pediatricists in suspecting the presence of diphtheria in all of these cases, until the contrary view can be safely upheld.

The special features which point to diphtheria are: 1. A gradual onset, with a history of sneezing, malaise, fever, etc.,

extending over several days. The crisis, with localization in the larynx, appears at the fourth or fifth day. A characteristic of this prodromal period is that the symptoms constantly tend to become worse. 2. The cervical lymph nodes may be enlarged, hard and tender. 3. Examination of the heart may reveal dilatation. 4. A history may be obtained of exposure to vegetable decomposition—foul drains, sewers, manure heaps, etc., or of proximity to an infected individual. 5. General illness and albuminuria. 6. Coincident membrane in pharynx.

The presence of a septicemic rash, or absence of kneejerks, suggests diphtheria. The temperature, while elevated, is low considering the degree of systemic implication. The general symptomatology of simple laryngitis and of false croup is given.

He concludes as follows: There is no such disease as croup, croupy symptoms proceeding most commonly from diphtheria or stridulous laryngitis; in all doubtful or severe cases we should employ antitoxin at the start; recession of the chest and restlessness are unfavorable prognostic symptoms; antitoxin reduces the mortality of diphtheria and enables cases to be carried over the crisis by intubation; deaths from croup are always due to diphtheria.

Fisher, William N. : Resolution as an Etiological Factor in Postcritical Temperature of Lobar Pneumonia in Children. (*Philadelphia Medical Journal.* No. 142.)

He has recently studied 4 cases of croupous pneumonia in very young children, with especial reference to the rise of temperature which may follow the crisis. The conclusions justified appear to be as follows:

A postcritical rise of temperature was present in every case, the fever being somewhat uniform as to time, height and duration. The ratio between the respirations and pulse during consolidation having become much reduced was again increased after the crisis, which argued the existence of a common cause for these postcritical phenomena. The rise in temperature bore a direct relation to the physical signs which mark beginning resolution; and the rapidity with which this secondary rise reached its highest point, bore a direct relation to the extent of liquefaction. In other words the rise of temperature corresponded to an improved state of the affected area, and returned

to the normal mark with further improvement in the diseased tissue.

Heretofore a rise of temperature after the crisis has been thought to indicate either the implication of the pleura or the extension of the pneumonic process in the lung proper. The author's study, therefore, adds a third and benignant cause for the febrile movement which follows the crisis. The maximum postcritical temperature in the author's 4 cases was 103° in the first three patients and 100.5° in the fourth. The fever appeared immediately after the period of subnormal temperature which accompanies and follows the crisis, some thirty-six or forty-eight hours after the first appearance of the latter phenomenon. The duration of the postcritical rise appeared to be about twenty-four hours.

Thursfield: Preliminary Rashes in Measles. (*The Lancet.* No. 4016. August 18, 1900.)

A ward containing nineteen children was exposed to infection with measles. Ten patients had already had the disease and escaped re-infection; one died of sarcoma during the incubation stage; a young baby did not become infected; and the other seven caught the disease. Preliminary rashes were present in 5 of these 7 cases, being the earliest manifestation of the illness (apart from the temperature) in 4. Koplik's spots were looked for, but not found. This preliminary rash appeared one day before the true measles rash in three cases, and three days before in the other two. It was either a fine papular eruption on the face, behind the ears and on the neck, or else scarlatiniform over the neck, shoulders and arms. The latter form was blotchy instead of uniform.

These rashes were very obvious and striking, and are of importance both as a means of diagnosing measles before the appearance of the true rash, and of misleading the diagnostician in the scarlatiniform varieties.

Looft, C.: Accidental Cardiac Murmurs in Young Children. (*Rev. Mens. des Mal. de l'Enf.* Vol. xviii. No. 10.)

The heart was carefully examined in 15 cases of anemia, the children being from three months to two and one-half years old. Fourteen were rachitic. In every case examination of the blood confirmed the diagnosis of anemia. The area of cardiac dulness was normal, but all had a systolic murmur, generally

soft in character, not transmitted to the axilla nor to the back, and for the most part of greatest intensity in the region of the apex, occasionally also in the second or in the fifth left intercostal space. One child was cured of its anemia, and its heart murmur disappeared in consequence. The second pulmonary sound was not accentuated in any one of these 15 cases, but in almost all a bruit was heard over the vessels in the neck on the right side.

The name "accidental inorganic murmurs" is proposed for these heart sounds. The diagnosis of an organic heart lesion cannot be based upon the presence of a systolic murmur alone, but other physical signs (*frémissement*, propagation of the murmur, etc.) must be present as well.

Comby, J. : Uricemia in Children. (*Arch. de Méd. des Enf.* Vol. iv., No. 1.)

Uricemia is arthritism *in embryo*,—the sum of the disturbances caused by the uric acid diathesis in early and later childhood. The most marked of its symptoms are periodic cephalalgia and cyclic vomiting, apparently due to an autointoxication with uric acid or similar substances. Hereditary taint is present in the majority of cases, and alimentary hygiene plays a great part in the production of acquired uricemia. Boys are more often affected than girls, later childhood than early infancy, and the wealthy more than the poor. The nervous symptoms are cephalalgia, ostealgia, arthralgia, eclampsia, insomnia, night terrors, neurasthenia and pseudomeningitis. The digestive system is affected, and vomiting, colic, diarrhea, constipation, or mucomembranous enteritis may occur. Urinary disturbances, like lithiasis, albuminuria, glycosuria, hematuria, vesical spasm or incontinence appear. The respiratory system may participate with coryza, epistaxis, laryngitis, bronchitis or asthmatic attacks. Tachycardia, cardiac arrhythmia or hypertrophy prove that the circulatory system is involved. The skin may show prurigo, lichen, eczema or sweating. Uricemic fever is of the intermittent quotidian type.

The prognosis is not grave, but sooner or later arthritic manifestations appear. Both prophylaxis and treatment are based upon alimentary hygiene (especially vegetable diet and the drinking of water), care of the skin (friction, hydrotherapy, exercise), and the avoidance of a sedentary life and excessive

mental stimulation. Alkalies, lithia, nux vomica and laxatives are the drugs which prove useful. The acute attacks require absolute rest, diet, and the injection of artificial serum in grave cases.

Fenner, E. D. : Typhoid Fever in Childhood with a Report of Three Cases. (*New Orleans Medical and Surgical Journal.* Vol. liii., No. 2.)

All three of the author's cases gave negative malarial and positive Widal reactions (dilution of the latter 1-100 and 1-150). The treatment consisted essentially of cool full baths, the original temperature being 95°, given every three hours. The only drugs used were salol in 2 grain doses, as an antiseptic, and strychnin sulphate, grain 1-96, as a stimulant, every four hours.

Baginsky, A. : Secondary Infection in Scarlet Fever. (*Transactions of the XVI Meeting of the Gesellschaft für Kinderheilkunde.*)

A child about one and three-quarters years of age was admitted with a typical scarlatinal exanthema. The course was natural until the ninth day when a peculiar diffused eruption appeared on the back in large patches, some of them as large as a penny, others only the size of a millet seed. On the tenth day death occurred. The post-mortem examination of the blood taken from the spots in the skin, as also from the heart, showed the presence of large and small diplococci which proved very virulent when injected into mice. These diplococci seemed to have a tendency to run in chains. The author believes that the spots on the skin were small emboli, showing the characteristic invasion of the diplococcus.

Baginsky, A. : Contribution to our Knowledge of Medullary (Myelogenic) Leukemia in Children. (*Jacobi Festschrift.*)

The patient, a male child nine years old, entered the hospital very pale and emaciated, with flabby muscular tissues and a very flat thorax. No apparent enlargement of the lymph nodes. The mucous membranes were very pale. There was an enormous splenic tumor extending to the middle of the abdomen, and downward to Poupart's ligament. The circumference of the abdomen was 67 cm. below the border of the ribs, 61 cm. around the umbilicus. No fluid in the abdomen. The urine did not contain albumin nor other pathological products.

The blood examination showed specific gravity, 1049; hemoglobin, 35 per cent.; red blood corpuscles, 1,640,000; white blood corpuscles, 410,000; relation of white and red as 1-4. There was found an enormous increase of the mononuclear leucocytes and also of the eosinophiles. The child was given Levico water.

The blood examination made about six weeks after the above showed the following: Specific gravity, 1046; hemoglobin, 30 to 35 per cent. Fleischl; red corpuscles, 2,133,000; white corpuscles, 986,000; relation of red to white as 1-2.2.

The clinical picture given in detail by the author presents the fact that he was dealing with a case of myelogenic leukemia originating in the marrow following the new classification of Ehrlich. Here the large splenic tumor was passive.

Some very interesting symptoms were noted during the course of this disease, as for example the peculiar variations in the respiration, changing from a severe cyanosis to intense orthopnea. Frequently the symptoms were so alarming that asphyxia seemed imminent. Sensibility and mobility were not in the least disturbed. Peculiar febrile manifestations were observed without any real reason for the fever being found.

The amount of nitrogen was estimated in the urine according to the Kjeldahl method, and found to be: Total nitrogen, Dec. 13, 12.88 grams; total nitrogen, Dec. 14, 16.17; total nitrogen, Dec. 15, 15.85; total nitrogen, Dec. 16, 12.43, thus showing considerable variations. The patient showed some improvement after treatment with the cold pack in addition to oxygen inhalations.

Wahrer, C. F.: Measles and the Exanthemata. Shall Children be Kept Therefrom? (*Journal of the American Medical Association.* Vol. xxxv., No. 19.)

He questions the absolute wisdom of keeping children from the infection of certain diseases. Measles is more of a calamity in the adult than in the child; and infantile measles bears the same relation to adult measles as does vaccinia to variola. If a prevalent epidemic of measles is of a mild type he would expose to it any child between the ages of two and twelve years. The high mortality of measles in the adults would thereby be materially lessened. It is hardly necessary to state that this line of reasoning is not applicable to scarlatina, diphtheria and pertussis.

Bissell, W. G. : Three Varieties of Membranous Anginas Produced by Microorganisms Other than the Klebs-Löffler Bacillus, and Their Sanitary Significance. (*Buffalo Medical Journal.* Vol. xl., No. 5.)

A case of membranous angina due to the streptococcus ended fatally from toxemia; diphtheria antitoxin had been administered because the disease had been considered diphtheria at first. Another fatal case was caused by the micrococcus of sputum septicemia. The *oidium albicans* produces pseudomembranous exudates easily mistaken for a Klebs-Löffler inflammation. In the experience of the Buffalo Health Department no such case has ended fatally.

From a sanitary standpoint, as regards quarantine, anginas due to the streptococcus pyogenes, micrococcus of sputum, septicemia and the *oidium albicans*, require little consideration.

Thomson, John, and Turner, A. Logan : On the Causation of the Congenital Stridor of Infants. (*British Medical Journal.* No. 2083.)

They conclude that the primary element in the causation of this condition is a disturbance of the coordination of the respiratory movements, due probably to some developmental backwardness of the cortical structures which control them. The change of form is merely an exaggeration of the normal infantile type, and is mainly, if not wholly due to a constantly recurring sucking-in of the upper aperture of the soft larynx, which is induced by the ill-coordinated and spasmodic nature of the breathing. It is, in fact, an acquired deformity strictly analogous to pigeon-breast. There is no evidence of the existence of any congenital malformation of the larynx. The fact that any baby will give a very similar "crow" when coming out of chloroform anesthesia is held to militate against the necessity for an actual deformity in these cases. The sounds cannot be produced by the pharynx, because the pitch is too high and the stridor also persists if the nostrils are closed, when the mouth is closed by the mother's nipple, during the act of yawning, during the depression of the tongue by a spatula, etc. The possibility of thymic compression is somewhat discounted by the failure of autopsy reports to mention this condition. There have been cases of compression of the trachea by enlarged bronchial lymph nodes, but in this affection the symptoms are

unlike those produced by the form of stridor now under consideration. In the compression from enlarged glands the stridor was mainly expiratory, and the larynx did not move up and down during respiration; the dyspnea was also more intense. There is no evidence that congenital stridor is in any way dependent upon adenoids or other reflex.

The authors agree with Drs. Sutherland and Lack in ascribing this stridor to a "valvular action of the upper aperture of the larynx, a falling inwards of its lateral walls during inspiration," which is due in a part to the "flaccidity of the parts in infants." But they differ with these writers in denying the existence of any congenital malformation of the larynx.

Guthrie, J. B.: Report of a Case of Acute Phosphorus Poisoning with Demonstration of Post-mortem Findings. (*New Orleans Medical and Surgical Journal.* Vol. liii., No. 5.)

A two-year-old boy ate a piece of bread smeared with phosphorus paste used for the extermination of vermin. Vomiting, watery stools, stupor and rapid pulse (140) were the symptoms, and they continued until death occurred in collapse sixteen hours later. Stomach washing, calcined magnesia and hypodermics of strychnin were used, but to no purpose. Jaundice had not appeared.

The autopsy showed ecchymoses on the skin, pulmonary congestion, fatty areas in liver and kidneys, friable and enlarged spleen, and congestion of the gastric mucous membrane; there were no erosions of the gastrointestinal mucosa. Urine found in the bladder contained albumin, leucocytes, many epithelial cells, hyaline and granular casts. Microscopical examination showed fatty degeneration of the heart muscle, liver, and extreme granular degeneration of the kidney.

Schamberg, Jay F.: A Clinical and Pathological Study of the Rash of Scarlet Fever. (*Journal of the American Medical Association.* Vol. xxxv., No. 19.)

The rash of scarlatina varies in different individuals, and at different times in the same. Accurately speaking, it is never scarlet and only occasionally bright red. More commonly it is a dull red with an appreciable element of brown. In addition to the erythema, other lesions may be made out, viz.: puncta, vesicles and papules of goose-flesh. These phenomena are fairly constant, and vesicles are much more commonly encount-

ered than is generally believed. The amount of desquamation bears a definite relation to the degree of vesiculation, which may be so great as to lead to an erroneous diagnosis.

Desquamation begins with the formation of scales of the size of pin-points seated above the desiccated vesicles. Irregular or jagged rings of desquamation then form and enlarge until the horny layer is completely shed. Histologically the rash of scarlet fever is a dermatitis exhibiting deep and extensive changes in the corium. The greatest degree of inflammation is exhibited about the hair-follicles which may be disintegrated by exudation. The depth of the cutaneous lesions accounts for the length of the period of desquamation and the infectivity of the scale.

SURGERY.

Weigel, L. A. : Spontaneous Dislocation of the Hip Occurring During Typhoid Fever. (*St. Louis Courier of Medicine.* No. 138.)

He states that this complication of typhoid fever is very rare, this infrequency justifying the reporting of the following case: The patient, a girl aged eight years, had bed sores over the buttocks early in the history of the case. About the sixth week she began to complain of pain in both hips, which was more marked and persistent in the right, the joint on that side becoming swollen and tender. The diagnosis of coxitis appeared to be justified, but it was impossible to examine the patient with due care. After recovery from the fever proper, the child went about on crutches. When it became possible to make a careful examination, it was found that the trouble was not coxitis but upward dislocation of the head of the femur. This diagnosis was confirmed by a radiograph.

Despite the teaching of authorities to the effect that reduction is difficult and often impossible in these cases, the author succeeded in restoring the head of the femur to its proper place. The dislocation immediately recurred and after a second reduction a long traction hip splint was applied and the patient was sent to her home. The brace, however, could not be worn, and the luxation became, in a measure, permanent, owing to the resistance of the hip muscles which had become strengthened since the period of convalescence. Henceforth a brace

was worn simply to keep the bone from further luxation. Meanwhile it has become apparent that the acetabulum is becoming obliterated, while nature is establishing a false joint higher up. The actual amount of shortening is three-quarters of an inch. This persistent recurrence of the luxation, with ultimate formation of a false joint should not be attributed, in the author's opinion, to relaxation and distention of the tissues and loss of suction-power of the joint. It is more probable that the ligaments become lengthened, so that the head of the femur may slip out of the acetabulum without producing a rupture of these structures. In attempting to replace the head of the bone, some of the slack tissue of the capsule doubtless interposed between the latter and the acetabulum. An operation is therefore indicated which the child's parents refuse to permit.

Elder, J. M. : A Case of Carcinoma of the Pharynx with Marked Involvement of the Cervical Glands in a Boy Fourteen Years of Age. (*The Montreal Medical Journal.* Vol. xxix., No. 12.)

A poorly nourished boy, whose mother died of cancer of the liver and stomach had suffered from nasal catarrh and difficult nasal breathing. For a year a swelling on the right side of the neck had steadily increased to the size of a pigeon's egg, and consisted of hard, enlarged lymph nodes, not painful. On the left side the lymph nodes were less enlarged. Upon removal under anesthesia, the hard mass on the right side shelled out readily. Microscopical examination showed carcinoma of the scirrhus type. The pharynx was then examined to find the primary growth if possible. Most of the vault of the pharynx was involved. A piece was excised and showed the same carcinomatous growth that the cervical lymph nodes did. The boy is rapidly losing flesh and strength, the prognosis being hopeless.

As for the etiology, the long continued nasal catarrh may have been a factor.

Ochsner, A. J. : Treatment of Hernia in Children. (*Journal of the American Medical Association.* Vol. xxxv., No. 25.)

He concludes the factors which contribute to the production of hernia are partly inherited (faulty development or insufficient strength of tissues composing the abdominal wall) and

partly acquired. Chief among the latter is increase in intraabdominal pressure, which may be due to gaseous distention, to violent efforts in connection with defecation and urination, and finally to severe and protracted cough. It becomes evident, therefore, that hernia in childhood should tend to recover spontaneously if the intraabdominal pressure is relieved, and in practice this result is often obtained. The best way to reduce this pressure is to keep the child in bed for six weeks with the foot of the bedstead elevated. The diet should be so regulated that gaseous distention and constipation are prevented. The same prophylactic principle should be applied to coughs. As phimosis tends to increase the intraabdominal pressure, its operative relief is indicated. The following varieties of hernia require operation: Strangulation, hernia rendered irreducible by adhesions, hernia in which a truss cannot give relief by reason of large size of ring, and finally reducible hydrocele. The non-operative management naturally becomes indicated after surgical intervention. In cases where the bed treatment cannot be carried out, the child must wear a truss night and day until protrusion has been absent for at least six months.

Dickerman, Edward T. : Papillomata of Larynx in Children. (*Journal of the American Medical Association.* Vol. xxxv., No. 17.)

He states that papilloma is the neoplasm most frequently found in the larynx of the child, although the lesion occurs but rarely in practice. He finds one case of laryngeal papilloma in childhood in about 1200 miscellaneous cases of ear, nose and throat disease. In all he has had opportunity to study five cases of this sort.

In the first patient, a girl of six years, the entire cavity of the larynx was found filled with a cauliflower growth. After a preliminary tracheotomy the larynx was opened, the tumor—which adhered to both the true and false cords—was removed with scissors and curette and its base cauterized with chromic acid. The patient was prematurely withdrawn from observation, but it was afterwards learned that the tumor underwent recurrence, so that the trachea, which had healed up, had to be reopened.

The second case occurred in a boy aged nine years who was a singer. Five successive endolaryngeal operations were

performed, which, with the subsequent daily application of 5 per cent. salicylic acid in alcohol with 3 per cent. of resorcin added, appears to have brought the affection to a standstill, no recurrence having asserted itself for two years.

The third case occurred in a girl aged three years. Tracheotomy was first required. The author succeeded in removing the growth piece-meal, many sittings having been required. The apparatus for removing the growth was Voltolini's snare and sponge. In the fourth case, in a boy aged two years, the treatment consisted only of palliative tracheotomy. The tumor appeared to improve after this intervention. The fifth patient died of suffocation during the operation of tracheotomy.

He concludes, from a study of the recorded material, including his own cases, that papilloma of the larynx is a rare affection which may often undergo spontaneous cure. If dyspnea is not a marked feature we should interfere by the intralaryngeal method alone; but in the other case we should first perform tracheotomy, and then proceed by the intralaryngeal route. The patient should wear a tube for six months after the disappearance of the growth. Thyrotomy should be employed only as a last resort.

Mackenzie, T. C.: A Case of Tracheotomy in a Child of Four Months; Recovery; Note on Difficulties in Reestablishing Natural Respiration. (*British Medical Journal.* No. 2077.)

He states that successful tracheotomy under the age of one year is rare; in fact some statistics compiled in 1883 gave a mortality of 100 per cent. Isolated cases, however, are found in literature of survival after tracheotomy at the age of six weeks, nine weeks and similar tender ages. The chances of recovery after the age of seven months appear to improve materially over those of earlier ages.

His own case occurred as follows: A female child aged four months was admitted to the hospital in a state of exhaustion and collapse, with a temperature of 101.2°; rapid, irregular and labored breathing; rough, croaking stridor and recession of the chest wall. The lips were blue and alæ nasi widely dilated. The throat contained no membrane nor were there any signs of pulmonary mischief.

After two hours and a half spent in the application of milder measures, tracheotomy was performed. The operation itself

was difficult, owing to the amount of fat and small size of the parts corresponding to the early age of the patient. Immediate improvement followed the opening of the trachea, but no membrane was expelled. Cultures made from a sterilized swab contained a slender bacillus which was not the microorganism of diphtheria. During the first two days after the operation the condition of the child was precarious, but improved under assiduous nursing. After the eighth day the tube became plugged several times necessitating removal. On the eleventh day the tube was permanently removed. The opening was covered by a pad of moist light gauze, thin enough to admit air. The child was discharged cured, with the wound healed in three weeks.

HYGIENE AND THERAPEUTICS.

Whitridge, Andrew H.: The Importance of Instruction in Medical Schools Upon the Modification of Milk for Prescription Feeding. (*Maryland Medical Journal.* No. 991.)

The suggestion is made that during the summer months all colleges which lay any claim to a high standard of education should appoint qualified men to instruct both students and graduates in the practical knowledge of this work. The community would gain inestimably if the practitioner could secure an expert knowledge of the cow, her milk, its care and the bacteriological aspects of the case. The establishment of chairs for this purpose would be a distinct advance in pediatrics.

Veasey, C. A.: A Plea for the Earlier Recognition of Squint in Children by the Family Physician and the Earlier Application of the Methods of Treatment. (*Medical News.* No. 1455.)

He would immediately test squinting eyes for possible errors of refraction. This may be accomplished without apparatus by simply paralyzing the accommodation with atropin; when, if the squint has been kept up by accommodative strain it will disappear. Glasses are of course indicated, but should the age of the child be a barrier, the occasional instillation of atropin will have a therapeutic result. If glasses fail to produce the desired result, benefit may sometimes be obtained from the use of the stereoscope, which serves to exercise the muscles at fault and produce binocular vision. This method answers best in mild cases. If these "orthoptic exercises" do not produce

the desired result, it is time to think of operation. There are tenotomy and advancement, used singly or in combination according to circumstances. In operating for convergent squint we should aim to leave a slight divergence and *vice versa*.

Noer, Julius: Substitute Infant Feeding in General Practice. (*Clinical Review.* Vol. xiii., No. 4.)

He states that failure with dairy milk is to be ascribed to one or more of three causes, viz.: An unfavorable state of the cow, contamination of the milk by excrement, blood, pus, etc., and improper haphazard methods of modification. His positive conclusion is that percentages are of less significance than the question of purity of the milk. If he finds that an infant has been thriving upon an unscientific modification of milk he would not seek to correct the percentages, but would accept the health of the baby as a sufficient guide for the wisdom of continuing the use of the nutriment.

McClanahan, H. M.: Treatment of Fever in Infants. (*Medical Fortnightly.* Vol. xviii., No. 12.)

All fever cannot be accounted for by the presence of bacterial toxins, for, in children at least, it may sometimes be due simply to defective elimination. While mental emotion may not be able to produce fever outright it may cause an exacerbation in a rise of temperature already present. Some infants tolerate the presence of considerable fever while in others the most alarming symptoms are induced. Intestinal irrigation is an efficacious mode of exhibiting cold water to feverish children. The water should be warm, and, as it flows, cold water should be gradually added. The aim should be to cause the retention of a pint of cold water for a sufficient length of time to abstract some of the surplus animal heat. This step is to be repeated until the temperature comes down. The buttocks should be compressed in order that the water be retained. A case is cited in which a temperature of 106.5° was brought down to 100° within an hour. In some cases the sheet-pack answers better than irrigation, while the cool bath is especially useful in scarlet fever with high temperature. Prescribe for the cause of the fever, and for any circumstance which contributes to its maintenance. When hydrotherapy fails we must employ phenacetin. Chloral is the best remedy for restlessness, and citrate of potash maintains the activity of the kidneys.

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Original Communications.

THE BLOOD IN INFANCY AND CHILDHOOD.*

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(From the Pepper Laboratory of Clinical Medicine.)

(Concluded from April number.)

PERTUSSIS.

CASE I.—Marie G., aged twenty-two months, a rachitic child, was admitted with a cough, which had existed for six weeks. Sibilant râles were discovered in both lungs and characteristic whoops developed in a few days. The blood count showed 5,700,000 red blood corpuscles; 12,145 white blood corpuscles; 82 per cent. hemoglobin. The differential count: 40.8 per cent. polymorphonuclears; 27.8 per cent. mononuclears; 24 per cent. lymphocytes; 5.6 per cent. eosinophiles; 1.8 per cent. myelocytes.

Microscopic examination showed: the red corpuscles were equal in size and well-stained. There was much variability in the appearance of the individual types of leucocytes; some of the mononuclear being very similar in appearance to lymphocytes; others more typical according to the ordinary description. Similarly, the lymphocytes varied from small bodies in which the nucleus and protoplasm were scarcely distinguishable to large forms approaching the large mononuclear. Both neutrophilic and eosinophilic myelocytes were observed.

CASE II.—X. Y., aged about four years, was admitted with whooping-cough. The blood count showed: 4,545,000 red blood corpuscles; 34,667 white blood corpuscles; 88 per cent. hemoglobin. The differential count: 29.2 per cent. polymorphonuclears; 17.4 per cent. mononuclears; 52.6 per cent. lymphocytes; 0.8 per cent. eosinophiles; 0.1 per cent. myelocytes.

*Read by title before the American Pediatric Society, Washington, D. C., May 1, 2, 3, 1900.

Nothing of consequence beyond the existence of myelocytes in the microscopical examination.

CASE III.—Theodore W., aged six was first admitted to the hospital with malaria, but subsequently developed pertussis. At that time the blood count showed: 4,187,500 red blood corpuscles; 16,218 white blood corpuscles; 73 per cent. hemoglobin. The differential count: 41.4 per cent. polymorphonuclears; 19.5 per cent. mononuclears; 36.9 per cent. lymphocytes; 2.2 per cent. eosinophiles. The microscopic examination: normal red cells; a number of degenerated mononuclear cells; otherwise no abnormality.

In three cases the most striking peculiarity was the marked increase of lymphocytes. This may be of interest in connection with the supposed disease of the lymph glands in this disease.

VARICELLA.

CASE I.—William G., aged seven and a half years, developed varicella in the house. The child was of rather strumous appearance. During the attack, the blood count showed: 4,743,700 red blood corpuscles; 7,466 white blood corpuscles, and 75 per cent. hemoglobin. The differential count: 56.5 per cent. polymorphonuclears; 19.1 per cent. mononuclears; 23.4 per cent. lymphocytes; 1 per cent. eosinophiles.

The microscopic examination showed some inequality of red corpuscles with occasional macrocytes and slight polychromatophilia.

CASE II.—Harry B., aged two years and eight months, was first admitted to the hospital with typhoid fever from which convalescence was rapid. He developed varicella two weeks and five days after admission, and had a copious eruption. During the attack, the blood count showed: 7,440 leucocytes. The count of red corpuscles and the amount of hemoglobin were not preserved. The differential count showed: 46 per cent. polymorphonuclears; 16.4 per cent. mononuclears; 36.4 per cent. lymphocytes; 1 per cent. eosinophiles; and 0.2 per cent. myelocytes. There was nothing of any consequence in the microscopical examination.

CASE III.—William M., aged six months, ill developed child, with some cough, and bronchial râles, developed varicella in the hospital, and afterwards had pneumonia and died. During the period of varicella, the blood count showed: 5,300,000 red

blood corpuscles; 19,360 white blood corpuscles; and 98 per cent. hemoglobin. The differential count showed: 70.2 per cent. polymorphonuclears; 16.6 per cent. mononuclears; 12.8 per cent. lymphocytes; 0.4 per cent. eosinophiles.

The microscopic examination showed well stained and normal red corpuscles; one nucleated red corpuscle was found. The mononuclear leucocytes were frequently degenerated or fragmented in appearance; some were distinctly so and had jagged outline. There was occasional hyperchromatosis.

CASE IV.—William S., aged four years, developed varicella in the hospital. The blood count showed: 5,330,000 red blood corpuscles; 12,800 white blood corpuscles; and 90 per cent. hemoglobin. The differential count showed: 44.9 per cent. polymorphonuclears; 20.5 per cent. mononuclears; 33.8 per cent. lymphocytes; 0.8 per cent. eosinophiles.

The microscopic examination: red blood corpuscles stained poorly, and were somewhat irregular in shape. The mononuclear cells were very variable in size and many were excessively large. Some of these large forms contained granular basophilic protoplasm; others were entirely clear. The same characters of protoplasm were observed in the lymphocytes, and attached to the latter were occasionally granular particles entirely outside of the cells but attached by small threads.

TUBERCULOUS CARIES WITH COLD ABSCESS.

Edward F., aged about ten years, was admitted to the surgical ward with a mass in the abdomen which was regarded as a solid growth, but which subsequently showed itself to be fluctuating, and eventually was found to be a tuberculous collection secondary to necrosis of the lumbar vertebræ.

The blood count showed: red blood corpuscles 4,500,000; white blood corpuscles 20,579; hemoglobin 66 per cent. The differential count showed: polymorphonuclear cells 70.3 per cent.; mononuclear 18.1 per cent.; lymphocytes 10.7 per cent.; eosinophiles 0.9 per cent.

The microscopic examination of the stained specimens showed some distortion of the red corpuscles. Several polymorphonuclear cells with distinct basophilic granules were discovered. These were quite distinctly different from the basophilic granules of the mononuclear cells, which were fine

and indistinctly stained. The ones in the polymorphonuclear on the contrary were coarse and occasionally larger than the granules of the eosinophiles. The mononuclear cells generally showed a basophilic protoplasm with occasionally fine but indistinct granulation. The differentiation of the mononuclear cells and lymphocytes was very difficult, and the differential count is possibly erroneous in giving too great a proportion of mononuclear cells. There was no polychromatophilia.

ACUTE RHEUMATISM.

Jacob F., aged five years, was admitted with pain in the back and legs. The legs were exceedingly tender to the touch. The ankles were slightly swollen and tender; there was constipation. The history indicated a subsiding articular rheumatism.

The blood count showed: 4,355,000 red blood corpuscles; 7,022 white blood corpuscles, and 75 per cent. hemoglobin. The differential count showed: polymorphonuclears 59 per cent., mononuclears 22.4 per cent., lymphocytes 17.6 per cent., eosinophiles 1 per cent.

On microscopic examination of the stained specimens the red corpuscles were found deeply colored but entirely normal in appearance. Among the polymorphonuclear leucocytes, several were found with deeply staining protoplasm (somewhat acidophilic) and with vacuoles. Vacuolated mononuclear cells were also seen. One of the latter forms contained numerous vacuoles and another mononuclear cell contained very distinct and rather coarse basophilic granules scattered throughout the cell and over the nucleus.

NOMA.

CASE I.—Helen O'D., aged about seven years, was admitted with a history of vague illness beginning about two weeks before entrance into hospital. There had been slight cough and abdominal pain. The temperature on admission was 103.2° F. The spleen was slightly enlarged, and there were a few suspicious spots on the abdomen. Tongue coated but not characteristic; lungs clear. The appearance was like that of a typhoid case, but the history was uncertain and Widal test negative. Delirium occurred and the face became swollen. A bad tooth was discovered and noma developed. Cured and cauterized. Rapid progress, extreme gangrene and death after eleven days.

The blood counts showed:

- 1st count on admission: Red blood corpuscles, 5,380,000; leucocytes, 9,822; hemoglobin, 80 per cent.
 2d count three days later: Red blood corpuscles, 4,185,000; leucocytes, 5,058; hemoglobin, 65 per cent.
 3d count day before death: Red blood corpuscles, 3,260,000; leucocytes, 12,144; hemoglobin, 58 per cent.

The differential counts were as follows:

- 1st count: Polymorphonuclears, 86.4 per cent.; mononuclears, 7.4 per cent.; lymphocytes, 5.8 per cent.; eosinophiles, 0.4 per cent.
 2d count: Polymorphonuclears, 72.5 per cent.; mononuclears, 13 per cent.; lymphocytes, 14.5 per cent.
 3d count: Polymorphonuclears, 74.5 per cent.; mononuclears, 16.3 per cent.; lymphocytes, 9.2 per cent.

The microscopic examination at the time of the first count showed some poikilocytosis and dark chromatin masses in the polymorphonuclear leucocytes. At the second count nothing of note was observed excepting a fine chromatin net work in the protoplasm of many polymorphonuclear cells, suggesting basophilic granules; and a similar condition in lymphocytes as well as projecting strands with distinctly bulbous extremities; occasional hyperchromatosis was found in the mononuclears. The neutrophilic granules varied in coarseness in different polymorphonuclear cells.

Third examination: Irregularity of the red corpuscles in size and shape; uneven staining. Occasional pseudovacuation and slight polychromatophilia; megalocytes. All forms of the leucocytes when stained with Canon's stain showed here and there basophilic granules, which in some of the mononuclears seemed quite clearly to be nodal points in a protoplasmic network. The polymorphonuclear cells frequently contained basophilic granules and some had very pronounced granulations of this sort.

BRONCHITIS.

CASE I.—Louise B., aged four years, was admitted to the hospital with fever and the evidences of pulmonary disease. There were scattered moist râles on both sides and a suspicion of dulness at the right base, but no positive dulness. The diagnosis of catarrhal pneumonia was made. Examination of

the blood showed 5,126,000 red blood corpuscles; 14,619 white blood corpuscles; 92 per cent. hemoglobin.

CASE II.—Jennie H., aged five years, had suffered with purulent otitis since her first year. Her mother had died of phthisis, and there had been five or six miscarriages. Five or six children died young. The diagnosis of bronchitis and sub-acute pneumonia was made. The blood examination showed 3,875,000 red blood corpuscles; 15,300 white blood corpuscles, and 65 per cent. hemoglobin. The differential count: 63.4 per cent. polymorphonuclears; 12.5 per cent. mononuclears; 22.9 per cent. lymphocytes, and 1.2 per cent. eosinophiles.

The microscopical study of the specimens: Canon's stain—red corpuscles normal; mononuclear leucocytes very large with poorly stained nucleus, and occasionally deep granular protoplasm; lymphocytes both large and small; protoplasm stained deeply with methylene blue. Nothing of interest observed in the specimens fixed and stained by other methods.

CASE III.—Mary McC., aged four years, was admitted with acute bronchitis and slight diarrhea. There were râles on both sides of the chest; also some slight acute tonsillitis and pharyngitis, with enlargement of the lymphatic glands of the neck. The blood count showed 5,390,000 red blood corpuscles; 19,226 white blood corpuscles, and 96 per cent. hemoglobin. The differential count: 74.7 per cent. polymorphonuclears; 11.2 per cent. mononuclears; 12.9 per cent. lymphocytes; 1.2 per cent. eosinophiles.

The stained specimens: Canon's stain—red corpuscles about normal; white corpuscles showed nothing striking, excepting the pallor of the nuclei of the mononuclear forms and a tendency to granular basophilic protoplasm in the same cells. Nothing of consequence in the specimens prepared by other methods.

CASE IV.—Louis S., aged three years, was admitted with acute bronchitis. The blood count showed 5,010,000 red blood corpuscles; 12,909 white blood corpuscles; 63 per cent. hemoglobin. The differential count: 69.4 per cent. polymorphonuclears; 12.6 per cent. mononuclears; 18 per cent. lymphocytes.

The examination of the stained specimens: Canon stain—red corpuscles normal in appearance; mononuclear leucocytes frequently presented an unusually pale nucleus and granular protoplasm.

CASE V.—Theodore W., aged six years, was admitted with acute bronchitis. The blood count showed 4,958,000 red blood corpuscles; 12,691 white blood corpuscles; 83 per cent. hemoglobin. The differential count: 61.3 per cent. polymorphonuclears; 6.9 per cent. mononuclears; 29.9 per cent. lymphocytes; 1.9 per cent. eosinophiles.

The examination of the stained specimens: Canon stain—red corpuscles normal; lymphocytes occasionally had basophilic granules, but more often the protoplasm was profusely basophilic.

CASE VI.—Veronica D., aged three years, was admitted with subacute bronchitis. She had had pneumonia, but the impairment of the lung and the active signs of pneumonia had entirely disappeared. There was enlargement of both tonsils. The blood count showed 3,775,000 red blood corpuscles; 14,507 white blood corpuscles; 82 per cent. hemoglobin. The differential count: 87 per cent. polymorphonuclears; 9.4 per cent. mononuclears; 3.6 per cent. lymphocytes.

The microscopical examination: the red corpuscles were normal; white corpuscles—there were two distinct varieties of lymphocytes, large and the small; the protoplasm of the former being without granules, that of the latter stained a bluish color. The larger forms were difficult to distinguish from mononuclear cells.

CASE VII.—Bessie B., aged seven and one-half years was admitted to the hospital with acute bronchitis and had moderate continuous fever. The child also had seat worms. The blood count showed 3,880,000 red blood corpuscles; 12,835 leucocytes and 78 per cent. of hemoglobin. The differential count showed: 52.3 per cent. polymorphonuclears; 15.1 per cent. mononuclears; 25.3 lymphocytes; 7.3 per cent. eosinophiles. The microscopic examination showed: some irregularity in the staining, and size and shape of the red corpuscles, with occasional polychromatophilia. The white corpuscles showed no peculiarities.

The moderate leukocytosis is the only notable condition discovered. In two or three of the cases it is likely that there were patches of bronchopneumonia, though none could be classed as an instance of pneumonia in a strict sense.

PLEURAL EFFUSION.

CASE I.—Harry B., aged twenty-three months, was admitted with pleural effusion. There was marked dyspnea and slight cyanosis, and the right pleural cavity was filled to the second rib. The legs were moderately edematous; the hands less so. The blood count showed: 3,755,000 red blood corpuscles; 13,610 white blood corpuscles; 70 per cent. hemoglobin. The differential count: 37.2 per cent. polymorphonuclears; 34.5 per cent. mononuclears; 27.1 per cent. lymphocytes; 1.2 per cent. eosinophiles.

Microscopically, the red corpuscles were found unequal in size. Some distinct megaloblasts and microcytes were observed; a few polychromatophilic corpuscles were seen. The leucocytes showed no abnormalities.

ENTERITIS.

CASE I.—Eva P., aged ten months, was admitted with marked enteritis. The stools were filled with mucus, and were occasionally blood-streaked. There was a slight cough, and also a slight vaginitis. The blood count showed: 4,060,000 red blood corpuscles; 27,666 white blood corpuscles; and 65 per cent. hemoglobin. The differential count showed: 29 per cent. polymorphonuclears; 38.3 per cent. mononuclears; 31.8 per cent. lymphocytes; 0.9 per cent. eosinophiles.

The microscopical examination: Canon stain—red blood corpuscles slightly irregular in size; some polychromatophilia. Lymphocytes contained very dark nuclei; their protoplasm was usually granular and generally basophilic. Sometimes the nuclei presented themselves in ring forms.

CASE II.—Jennie M., aged six years was an ill developed child with a bad family history. The child was very anemic, and there were enlarged glands in the axilla, groins and cervical region. The appearance was that of profound inanition. The blood count showed: 5,050,000 red blood corpuscles; 16,081 white blood corpuscles and 68 per cent. hemoglobin. The differential count was 76 per cent. polymorphonuclears; 10.8 per cent. mononuclears; 13.2 per cent. lymphocytes.

The microscopic examination: red corpuscles normal; white blood corpuscles, some of the large mononuclear presented a curious vacuolated appearance, and a distinction between nucleus and protoplasm could not be made. The

appearance was that of degenerated cells. The lymphocytes also presented occasional vacuolation. The specimen stained with triple stain showed many degenerate white cells.

CASE III.—Edith W., aged three months, was admitted as a case of general malnutrition. There was a tubercular history, and the child had been fed on condensed milk. Sometime after its entrance to the hospital, the child developed varicella and finally it died of inanition. At the autopsy, chronic enteritis was the lesion found. The blood count prior to the varicella showed: 4,640,000 red blood corpuscles; 26,800 white blood corpuscles; 97 per cent. hemoglobin. The differential count showed: 59.6 per cent. polymorphonuclears; 15.3 per cent. mononuclears; 24.9 lymphocytes; 0.2 eosinophiles.

The microscopic examination showed no abnormality of the red corpuscles, but the leucocytes were occasionally vacuolated.

CASE IV.—William G., aged seven and a half years, was admitted to the hospital suffering with enteritis due to oxyuris. The blood count showed: 5,125,000 red blood corpuscles; 9,499 white blood corpuscles, and 94 per cent. hemoglobin.

MITRAL HEART DISEASES.

CASE I.—Emily B., aged eleven and a half years, was admitted to the hospital with double mitral valvular disease. There were occasional attacks of cyanosis; no edema nor other signs of failing compensation. The blood count showed: red corpuscles 4,390,000; leucocytes 13,658; hemoglobin 79 per cent. The differential count showed: polymorphonuclears 68.6 per cent.; mononuclears 13 per cent.; lymphocytes 18.2 per cent.; eosinophiles 0.2 per cent.

The microscopic examination showed as follows: picric acid, eosin, hematoxylin specimen: protoplasm of mononuclears and lymphocytes stained dark blue; some vacuolation; lymphocytes large and small; red corpuscles normal. Canon stain of heat—fixed specimen: protoplasm and nucleus of mononuclears hard to distinguish; slight basic granulation of the protoplasm; lymphocytes of two sizes, the larger being the paler nucleus; protoplasm in both forms dark blue.

CASE II.—Thomas S., aged six years, had rheumatic valvular disease, double mitral. He was subject to attacks of dyspnea and anasarca. The blood count showed: red corpuscles 4,975,000; leucocytes 20,587; hemoglobin 70 per cent. The differen-

tial count: polymorphonuclears 58.4 per cent.; mononuclears 13.8 per cent.; lymphocytes 25.4 per cent.; eosinophiles 2.2 per cent.; myelocytes 0.2 per cent.

The microscopic examination showed as follows: Canon stain with heat fixation. The mononuclears were of two kinds, one with pale nucleus and granular protoplasm, the other with a dark nucleus and unstained protoplasm, a few contained distinct basophilic granulations; lymphocytes were variable in size: the larger showing a basophilic protoplasm; one distinct myelocyte was found.

RACHITIS.

CASE I.—Emma F., aged nineteen months, had marked signs of rickets. The blood count showed: red blood corpuscles 5,170,000; white blood corpuscles 11,911; 78 per cent. hemoglobin. The differential count showed: polymorphonuclears 42 per cent.; mononuclears 18.4 per cent.; lymphocytes 36.6 per cent.; eosinophiles 2.6 per cent.; myelocytes 0.4 per cent.

The microscopic examination of the stained preparations showed normal red corpuscles, but several distinct peculiarities in the leucocytes. The polymorphonuclears were variable in size, the larger forms having pale nuclei and the smaller ones nuclei of the ordinary appearance. Several contained distinct basophilic granulations which were deeply stained. The same form of granules was found in several mononuclear cells. The lymphocytes were present in two varieties, some being very small with a densely stained nucleus and little protoplasm, and others large and containing pale nuclei with basophilic protoplasm. The eosinophile cells were very large and unusually full of granules. The myelocytes were exceptionally large with oval nuclei placed to one side of the cell in fine granules.

CASE II.—William G., aged twenty months, was admitted with coryza, cough, and gastric disturbances. There was some diarrhea, and the child was greatly emaciated. It was reported that he had whooped, but no confirmation of this could be obtained. There were crackling râles in the chest. The child was decidedly rachitic.

Examination of the blood showed: red blood corpuscles 6,180,000 (?); leucocytes 29,557; 64 per cent. hemoglobin. The differential count showed: polymorphonuclears 44.7 per cent.; mononuclears 19.6 per cent.; lymphocytes 34.5 per cent.; eosinophiles 1.2 per cent.

The large proportion of lymphocytes and mononuclears

in these cases was the most notable condition. Several other cases of the series examined were rachitic, but this condition was subordinate to some other disease and the cases have therefore been placed under other headings.

ECZEMA.

William L., aged two years and three months, had facial eczema which had lasted for three months. Later there were patches on the abdomen and other parts of the body.

The first blood count showed: red blood corpuscles 5,200,-000; white blood corpuscles 22,000; 76 per cent. of hemoglobin. Two subsequent counts of the leucocytes showed 17,541 and 10,947. The differential counts at these three examinations showed: No. 1.—37.1 per cent. polymorphonuclears; 21 per cent. mononuclears; 35 per cent. lymphocytes; 7.9 per cent. eosinophiles. No. 2.—59 per cent. polymorphonuclears; 11.6 per cent. mononuclears; 23.7 per cent. lymphocytes; 5.7 per cent. eosinophiles. No. 3.—61.2 per cent. polymorphonuclears; 17.0 per cent. mononuclears; 14.0 per cent. lymphocytes; 7.8 per cent. eosinophiles.

The microscopic examination showed some irregularity in the red blood corpuscles with distinct microcytes. The leucocytes stained well, while the protoplasm of the polymorphonuclears was pinkish in the eosin and methylene blue stains. The protoplasm of the lymphocytes was basophilic. Occasionally dark basophilic granules were found outside the lymphocytes and attached by narrow pedicles. These had the appearance of extrusion. The protoplasm of the mononuclear cells was faintly basophilic and occasionally distinct mast-cell granulations were found. The eosinophiles were prominent and of large size.

FOCAL EPILEPSY.

Harry B., aged eight years, was admitted with a history of convulsions beginning in the leg. There was no palsy nor atrophy. His station was good and reflexes normal.

Examination of the blood showed: 4,662,500 red blood corpuscles; 11,911 white blood corpuscles; and 85 per cent. hemoglobin.

The differential count showed: polymorphonuclears 48.5 per cent.; mononuclears 20 per cent.; lymphocytes 30.3 per cent.; eosinophiles 1.2 per cent.

CONVULSIONS.

A. D., aged two months, was admitted to the hospital with a history of having had convulsions. Nothing very definite was known regarding the nature of these. There was some looseness of the bowels, but not any distinct signs of disease.

The blood count taken 20 minutes after a convulsion showed: red blood corpuscles 2,520,000; leucocytes 8,800; hemoglobin 60 per cent. The differential count showed: polymorphonuclears 42.8 per cent.; mononuclears 23.2 per cent. lymphocytes 33.6 per cent.; eosinophiles 0.4 per cent.

The microscopic examination showed irregularity, degeneration, and polychromatophilia of the red corpuscles. Several of the polymorphonuclear leucocytes contained distinct basophilic granules.

SPASTIC CEREBRAL PALSY.

Victoria D., aged about five years, has been in the hospital for some time with symptoms of spastic cerebral paralysis. There were no convulsive seizures.

The blood examination showed: 4,276,250 red blood corpuscles; 15,808 white blood corpuscles; and 85 per cent. of hemoglobin.

The differential count showed: polymorphonuclears 40.6 per cent.; mononuclears 9.9 per cent.; lymphocytes 49.1 per cent.; eosinophiles 0.4 per cent.

The microscopic examination of the stained specimen showed well stained and slightly irregular red corpuscles. White corpuscles normal in every respect.

CHRONIC MENINGITIS.

Margaret M., aged three and a half years, had doubtful symptoms of chronic meningitis with occasional convulsions. She had taken potassium iodid and presented indications of iodism.

The blood count: red corpuscles 5,412,500; leucocytes 21,333; hemoglobin 85 per cent.; specific gravity 1068.

The differential count: polymorphonuclears 66 per cent. mononuclears 10.6 per cent.; lymphocytes 23.2 per cent.; eosinophiles 0.2 per cent.

The microscopic examination showed some irregularity in the shape and size of the red cells. The protoplasm of the mononuclear cells was clear, that of the lymphocytes stained deeply with methylene blue.

SUMMARY.

Case Number	Hemoglobin.	Erythrocytes.	Leucocytes.	Polymorpho-nuclear.	Mononuclear.	Lymphocytes.	Eosinophiles.	Myelocytes.	Diagnosis and Remarks.
1	85 per cent.	4,460,000	29,200	87.0 per cent.	9.4 per cent.	3.6 per cent.	—	0.4 per cent.	Helen D. Croupous pneumonia.
2a	56 per cent.	4,332,000	68,000	59.6 per cent.	6.4 per cent.	30.4 per cent.	1.4 per cent.	2.2 per cent.	Lazer T. Croupous pneumonia and rachitis.
2b	55 per cent.	—	87,200	49.6 per cent.	8.8 per cent.	39.6 per cent.	1.4 per cent.	0.6 per cent.	Myelocytes, 0.5. Eosinophilic myelocytes, 0.1.
2c	46 per cent.	3,440,000	27,824	47.5 per cent.	13.9 per cent.	37.4 per cent.	0.8 per cent.	0.4 per cent.	
3a	85 per cent.	4,540,000	35,200	71.6 per cent.	10.5 per cent.	17.9 per cent.	—	—	Sarah M. Croupous pneumonia.
3b	90 per cent.	4,312,500	18,606	70.5 per cent.	13.3 per cent.	16.2 per cent.	—	0.2 per cent.	10 days later.
4	78 per cent.	5,025,000	34,688	86.1 per cent.	6.2 per cent.	7.6 per cent.	—	0.1 per cent.	William M. Croupous pneumonia (double).
5	70 per cent.	4,962,500	32,160	84.3 per cent.	8.1 per cent.	7.6 per cent.	—	—	Annie S. Croupous pneumonia, meningitis (?).
6	69 per cent.	3,386,000	20,400	52.6 per cent.	15.9 per cent.	31.5 per cent.	—	—	Josephine G. Croupous pneumonia and axillary abscess.
7	83 per cent.	3,506,200	50,917	73.0 per cent.	11.3 per cent.	14.7 per cent.	0.9 per cent.	0.1 per cent.	Jacob H. Croupous pneumonia.
1	77 per cent.	4,125,500	27,636	78.0 per cent.	13.5 per cent.	8.5 per cent.	—	—	Selina P. Typhoid fever.
2a	77 per cent.	5,025,000	6,966	85.9 per cent.	8.1 per cent.	6.0 per cent.	—	0.2 per cent.	Theresa K. Typhoid fever (before tub).
2b	—	—	13,066	—	—	—	—	—	Theresa K. Typhoid fever (after tub) increase in the polymorpho-nuclear cells.

Case Number.	Hemoglobin.	Erythrocytes.	Leucocytes.	Polymorphonuclear.	Mononuclear.	Lymphocytes.	Eosinophiles.	Myelocytes.	Diagnosis and Remarks.
3	78 per cent.	3,320,000	6,948	55.3 per cent.	9.4 per cent.	34.3 per cent.	0.9 per cent	—	Rachel H. Typhoid fever. Second relapse.
4a	70 per cent.	4,565,000	4,207	75.4 per cent.	11.6 per cent.	12.4 per cent.	—	0.6 per cent.	Ambrose L. Typhoid fever, immediately before tub bath.
4b	—	—	3,800	78.7 per cent.	9.5 per cent.	10.2 per cent.	0.8 per cent.	0.8 per cent.	Ambrose L. Typhoid fever, two hours later.
4c	80 per cent.	4,830,000	12,320	66.5 per cent.	11.7 per cent.	21.6 per cent.	0.2 per cent.	—	Ambrose L. Typhoid fever, in convalescence.
5a	70 per cent.	3,716,000	6,880	36.3 per cent.	27.3 per cent.	35.8 per cent.	0.6 per cent.	—	Bessie J. Typhoid fever.
5b	70 per cent.	3,850,000	9,840	—	—	—	—	—	“ “ relapse and after the tub bath.
6	75 per cent.	5,120,000	9,266	69.4 per cent.	10.6 per cent.	20.0 per cent.	—	—	Thomas McK. Typhoid fever.
7	76 per cent.	5,200,000	20,928	17.3 per cent.	50.7 per cent.	32.0 per cent.	—	—	Laura G. Typhoid fever and bronchopneumonia.
8a	78 per cent.	4,200,000	7,000	53.1 per cent.	16.7 per cent.	30.2 per cent.	—	—	Harry B. Typhoid fever.
8b	68 per cent.	4,360,000	8,342	52.9 per cent.	16.4 per cent.	30.7 per cent.	—	—	“ “ “ during convalescence.
9	83 per cent.	3,808,000	20,800	81.6 per cent.	6.2 per cent.	10.4 per cent.	1.8 per cent.	—	Benjamin S. Typhoid fever and bronchitis.
1	82 per cent.	5,700,000	12,145	40.8 per cent.	27.8 per cent.	24.0 per cent.	5.6 per cent.	1.8 per cent.	Marie G. Pertussis and rachitis.
2	88 per cent.	4,545,000	34,666	29.2 per cent.	17.4 per cent.	52.6 per cent.	0.8 per cent.	0.1 per cent.	X. Y. Pertussis.

Case Number.	Hemoglobin.	Erythrocytes.	Leucocytes.	Polymorpho-nuclear.	Mononuclear.	Lymphocytes.	Eosinophiles.	Myelocytes.	Diagnosis and Remarks.
3	73 per cent.	4,187,500	16,218	41.4 per cent.	19.5 per cent.	36.9 per cent.	2.2 per cent.	—	Theodore W. Pertussis and malaria, convalescence.
1	75 per cent.	4,743,700	7,466	56.5 per cent.	19.1 per cent.	23.4 per cent.	1.0 per cent.	—	William G. Varicella.
2	—	—	7,440	46.0 per cent.	16.4 per cent.	36.4 per cent.	1.0 per cent.	0.2 per cent.	Harry B. Varicella.
3	89 per cent.	5,300,000	19,360	70.2 per cent.	16.6 per cent.	12.8 per cent.	0.4 per cent.	—	William M. Varicella, pneumonia.
4	90 per cent.	5,330,000	12,800	44.9 per cent.	20.5 per cent.	33.8 per cent.	0.8 per cent.	—	William S. Varicella.
1	66 per cent.	4,500,000	20,579	70.3 per cent.	18.1 per cent.	10.7 per cent.	0.9 per cent.	—	Edward F. Tubercular caries with cold abscess.
1	75 per cent.	4,355,000	7,022	59.0 per cent.	22.4 per cent.	17.6 per cent.	1.0 per cent.	—	Jacob F. Acute rheumatism (sub-siding).
1a	80 per cent.	5,380,000	9,822	86.4 per cent.	7.4 per cent.	5.8 per cent.	0.4 per cent.	—	Helen O'D. Noma, on admission.
1b	65 per cent.	4,185,000	5,058	72.5 per cent.	13.0 per cent.	14.5 per cent.	—	—	“ “ three days later
1c	58 per cent.	3,260,000	12,144	74.5 per cent.	16.3 per cent.	9.2 per cent.	—	—	“ “ the day before death.

Case Number.	Hemoglobin.	Erythrocytes.	Leucocytes.	Polymorpho-nuclear.	Mononu-clear.	Lymphocytes.	Eosinophiles.	Myelocytes.	Diagnosis and Remarks.
1	92 per cent.	5,126,000	14,619	—	—	—	—	—	Louisa B. Bronchitis, catarrhal pneumonia.
2	65 per cent.	3,875,000	15,300	63.4 per cent.	12.5 per cent.	22.9 per cent.	1.2 per cent.	—	Jennie H. Bronchitis, subacute pneumonia.
3	90 per cent.	5,390,000	19,226	74.7 per cent.	11.2 per cent.	12.9 per cent.	1.2 per cent.	—	Mary McC. Bronchitis (acute), slight tonsillitis and pharyngitis.
4	93 per cent.	5,010,000	12,909	69.4 per cent.	12.6 per cent.	18.0 per cent.	—	—	Louis S. Bronchitis (acute).
5	83 per cent.	4,958,000	12,690	61.3 per cent.	6.9 per cent.	29.9 per cent.	1.9 per cent.	—	Theodore W. Bronchitis (acute).
6	82 per cent.	3,775,000	14,507	87.0 per cent.	9.4 per cent.	3.6 per cent.	—	—	Veronica D. Bronchitis (subacute).
7	78 per cent.	3,880,000	12,855	52.3 per cent.	15.1 per cent.	25.3 per cent.	7.3 per cent.	—	Bessie B. Bronchitis (acute).
1	70 per cent.	3,755,000	13,610	37.2 per cent.	34.5 per cent.	27.1 per cent.	1.2 per cent.	—	Harry B. Pleural effusion.
1	65 per cent.	4,060,000	27,666	29.0 per cent.	38.3 per cent.	31.8 per cent.	0.9 per cent.	—	Eva P. Chronic catarrh, enteritis and vaginitis.
2	68 per cent.	5,050,000	16,081	70.0 per cent.	10.8 per cent.	13.2 per cent.	—	—	Jennie M. Chronic enteritis and inanition.
3	97 per cent.	4,640,000	26,800	59.6 per cent.	15.3 per cent.	24.9 per cent.	0.2 per cent.	—	Edith W. Chronic enteritis and inanition.
4	94 per cent.	5,125,000	9,499	—	—	—	—	—	William G. Enteritis following intestinal parasites.

Case Number.	Hemoglobin.	Erythrocytes.	Leucocytes.	Polymorpho-nuclear.	Mononu-clear.	Lympho-cytes.	Eosino-philes.	Myelocytes.	Diagnosis and Remarks.
1	79 per cent.	4,390,000	13,658	68.6 per cent.	13.0 per cent.	18.2 per cent.	0.2 per cent.	—	Emily B. Mitral stenosis and regurgitation.
2	70 per cent.	4,975,000	20,587	58.4 per cent.	13.8 per cent.	25.4 per cent.	2.2 per cent.	0.2 per cent.	Thomas S. Mitral stenosis and regurgitation.
1	78 per cent.	5,170,000	11,911	42.0 per cent.	18.4 per cent.	36.6 per cent.	2.6 per cent.	0.4 per cent.	Emma F. Rachitis.
2	64 per cent.	6,180,000	29,557	44.7 per cent.	19.6 per cent.	34.5 per cent.	1.2 per cent.	—	William G. " severe diarrhea, emaciation.
1a	76 per cent.	5,200,000	22,000	37.1 per cent.	21.0 per cent.	35.0 per cent.	7.9 per cent.	—	William L. Eczema.
1b	—	—	17,541	59.0 per cent.	11.6 per cent.	23.7 per cent.	5.7 per cent.	—	" "
1c	—	—	10,947	61.2 per cent.	17.0 per cent.	14.0 per cent.	7.8 per cent.	—	" "
1	85 per cent.	4,662,500	11,911	48.5 per cent.	20.0 per cent.	30.3 per cent.	1.2 per cent.	—	Harry W. Focal epilepsy.
1	60 per cent.	2,520,000	8,800	42.8 per cent.	23.2 per cent.	33.6 per cent.	0.4 per cent.	—	Antonio D. Convulsions.
1	85 per cent.	4,270,250	15,868	40.6 per cent.	9.9 per cent.	49.1 per cent.	0.4 per cent.	—	Victoria D. Spastic cerebral palsy.
1	85 per cent.	5,412,500	21,333	66.0 per cent.	10.6 per cent.	23.2 per cent.	0.2 per cent.	—	Margaret M. Chronic meningitis.

THE VALUE OF THE WIDAL REACTION IN INFANCY AND CHILDHOOD.*

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This seems hardly the time or place, even if I felt competent to do so, to consider the various theories as to the causation of the serum reaction in typhoid, or to go into the details of the various methods of performing the test. In order to obtain reliable results, however, certain conditions must be fulfilled in the performance of the test. The serum must be sufficiently diluted; the reaction must take place within a definite time; the loss of motility and clumping must be practically complete. The dilution and the time must necessarily vary directly with each other. A bouillon culture of the typhoid bacillus, grown at room temperature and from twenty-four to thirty-six hours old, is the most satisfactory. Cabot advises a dilution of 1 to 10 and a time limit of one-half hour. This is the method usually employed in Boston, I think, although the Boston Board of Health uses a dilution of 1 to 20 and a time limit of one hour. Biggs and Park stated, in 1897, that a reaction with a dilution of 1 to 10 does not occur in more than 2 per cent. of non-typhoidal cases. Scholtz, however, obtained eleven positive reactions with this dilution in 100 non-typhoidal cases. One of them gave a rather doubtful reaction in a dilution of 1 to 25, and none in a dilution of 1 to 50. He concludes that a dilution of 1 to 25 or 1 to 50 never gives a positive reaction in non-typhoidal cases. In his experience the reaction never failed in the dilution of 1 to 50 in cases of true typhoid. The tendency abroad seems to be to use a high dilution with a long time limit and in this country to use a lower dilution with a short time limit. On account of the varied conditions of the test and because in many instances the test was applied but once, it is difficult to compare the series reported by various writers. Their results are of very unequal value, many of them, especially in the earlier series, being unreliable.

Cabot, in 1898, collected over 3,000 cases of supposed typhoid in which the test was applied. A positive reaction was

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obtained at some time in the course of the disease in 95 per cent. At that time he had personally examined 202 cases of which only 7 gave a negative reaction. In four of these, however, only one test was made. In the last 108 cases, in which the blood was retested if it was at first negative, a positive reaction was always obtained. He used a 1 to 10 dilution with a time limit of one-half hour. The latest series of cases of which I know is that reported by Withington some weeks ago in a paper, not yet published, from the Boston City Hospital for the six months ending November 28, 1900. There were 253 cases in which the diagnosis of typhoid was entirely satisfactory from a clinical or pathological standpoint. When the reaction was at first absent, repeated examinations were made until a positive reaction was obtained or the patient left the hospital. In 10 the reaction was constantly absent, giving about 4 per cent. of failures. The number of negative examinations varied from 3 to 15, averaging 10. In one of these cases there were hemorrhages from the bowels, another died with symptoms of perforation, and a third was proved to have been typhoid by autopsy and bacteriological examination. The dilution was 1 to 10 and the time limit one-half hour.

There seem to be several explanations for the absence of the reaction in cases apparently typhoid.

- (1) The clinical diagnosis may be wrong.
- (2) The reaction, although not present at the times of the examinations, may be at other times.
- (3) It may never be present.

There can be no doubt that some of the failures are due to errors in diagnosis. It is well-known that the reaction is usually not present before the second week and may be delayed until convalescence. In one of the Boston City Hospital cases, for instance, it did not appear until the twenty-ninth day. Withington's case, just mentioned, shows, however, that cases may go on to death without showing any reaction. Widal, moreover, has reported a case in which the reaction was absent on repeated examinations during the disease and also during the relapse. The diagnosis was proved, however, by cultures from the splenic blood.

The reaction may persist for many years after typhoid. Scholtz has found it present as long as fifteen years and Kasel and Mann as long as twenty-one years after recovery. Kasel

and Mann obtained a positive reaction in 64.5 per cent. of those who had had typhoid within one year, and in 72.7 per cent. of those who had had it within from two to five years.

In the early days of the serum test many cases of disease other than typhoid were reported in which a positive reaction was obtained. It is probable that many of these results were due to faulty technique, insufficient dilution, and over-long time limit. It is possible also that a certain number may have had typhoid in the past or that the disease may really have been typhoid. As already stated, Biggs and Park place this error at less than 2 per cent. Cabot, in 376 cases, not typhoid, obtained a positive reaction but once, and this was on a single examination, not repeated. The results of other observers are similar. Two per cent., therefore, seems a liberal estimate.

The following conclusions seem warranted:

The Widal reaction is present in at least 95 per cent. of all cases of typhoid fever. It seldom appears, however, before the second week of fever and may be delayed even until convalescence. In a small number of cases it may never be present. In others it may be intermittent. As it seldom appears before the beginning of the second week the test is of little value up to this time. As it often appears late in the disease, and as it may be present only intermittently, typhoid fever cannot be excluded by a single or even by repeated negative tests. Repeated negative tests, however, are very strong evidence against the existence of typhoid. A positive reaction, if the patient has not previously had typhoid, is almost certain proof of typhoid. A negative reaction, followed by a positive reaction, in a dilution of 1 to 50, is absolute proof of typhoid.

REACTION IN CHILDREN.

Almost everyone seems to have taken it for granted that the Widal reaction occurs under the same conditions and with the same limitations in children as in adults. Few writers refer to it, and then, as a rule, only casually. Hence there is very little data available on the subject. Spiridonow stated, in 1896, that in his experience the Widal test had given positive results in all cases of abdominal typhus in children. Haushalter remarked in the same year that he had tried the Widal reaction in 45 children and that in all cases the serum diagnosis was confirmed by the evolution of the disease. He gave no details,

however, as to age, methods, number of examinations, negative or positive, or other proofs of diagnosis. Wilson and Wesbrook, in 1897, reported 77 positive results in 164 cases of suspected typhoid in children from two to thirteen years of age. More than one examination was rarely made, however. They concluded that, as a rule, the reaction appears earlier in children than in adults, as one-half of the second and third day positive reactions were in this group although it made up only about one-seventh of the total positive cases. Nachod in the same year reported 13 positive reactions in typhoid in children from three and one-half to ten years of age. Blackader, last year, referred to 43 cases in which the Widal reaction was "carefully sought for," and found. Three gave a positive reaction on the fourth day and 1 on the twenty-eighth day. He does not state whether the reaction on the twenty-eighth day was the only examination, or the first positive after other negatives. Twelve gave a positive reaction on or before the eighth day; 13 after the eighth and before the thirteenth day; 12 after the twelfth and before the nineteenth day; 6 after the eighteenth and before the twenty-ninth day. He does not state whether these were the first days on which the reaction was obtained after previous negative examinations, or the first days on which the blood was tested. Kasel and Mann obtained positive reactions in 9 children from two to seven years old with typhoid. The reaction was strong in 2 or 22.2 per cent., and feeble in 7 or 77.8 per cent. In 32 adults examined at the same time it was strong in 20 or 62.5 per cent., and weak in 12 or 37.5 per cent. Hence they conclude that the "Widal reaction in children in the first seven years is usually weaker than in older individuals." They also state that they have been unable to find anything in literature bearing on this point.

In children as in adults the serum reaction has not been obtained in cases of undoubted typhoid. Blackader got no reaction in three cases. He does not state when or how many times the test was tried, however, and does not describe the cases. Kasel and Mann in a six year old girl, whose parents were ill with typhoid and who showed all the clinical symptoms of typhoid, obtained four negative reactions with a dilution of 1 to 32 on the twelfth and sixteenth days of the fever, during a relapse and six months after recovery.

Kasel and Mann also reported a case of pneumonia in a

girl of nine in which a positive reaction was obtained in thirty minutes in a dilution of 1 to 50 on the eighth day. It was absent in the same dilution on the ninth and seventeenth days.

Nachod obtained positive reactions in children two and six months after recovery. Kasel and Mann made examinations of the blood in children from 220 to 334 days after the beginning of fever. They found the reaction present in 37½ per cent. of 8 children under seven years, and in 71.3 per cent. of 14 children over seven. The reaction was weaker in the younger than in the older children, and weaker in them than in adults. They conclude that "the agglutinating power is lost earlier in children than in adults," and state that "Courmont has arrived at the same conclusion."

It seems safe to conclude, therefore, that the Widal reaction occurs under the same conditions and with the same limitations in children as in adults. There is some evidence to show, however, that in them the reaction appears earlier, is feebler, and persists for a shorter time than in adults.

Owing to the comparative mildness and to the large number of atypical cases of typhoid in children, the Widal test would seem to be exceptionally important in them as an aid to the diagnosis of this disease. This, moreover, seems to be the almost universal opinion. Kasel and Mann, for example, found the reaction a number of times in children not showing the typical symptoms of typhoid, but members of families, other members of which had typhoid. The diagnosis could not have been made without the assistance of the serum test. Nachod found the reaction especially valuable in differentiating typhoid from gastrointestinal affections resembling typhoid. In a series of 20 cases of this sort, in which typhoid was later ruled out by other means, the reaction was negative. With the introduction of the Widal test the number of cases in his hospital dropped to 13 from 35, 40 and 37 in previous years, showing that in the past many cases had evidently been wrongly diagnosed as typhoid. The serum test, therefore, is of especial value in two ways in the diagnosis of typhoid in children: first, in ruling out many cases of gastrointestinal disorders which might otherwise be mistaken for typhoid, and second, in making a positive diagnosis possible in many mild cases which might otherwise pass unrecognized.

REACTION IN INFANCY.

There is but little available data as to the occurrence of the Widal reaction in infancy. Presumably it occurs in infantile typhoid as in that of older children and adults. The cases of Griffith, Blackader and others prove that it does occur in infantile typhoid. In the only one of 697 admissions to The Infants' Hospital in the last five years in which the diagnosis was suggested clinically it was positive on several occasions.

That it may be absent in infantile typhoid is shown by a case of Kasel and Mann's in an infant of fifteen months which presented all the typical symptoms of the disease. Other members of the family had typhoid with a positive serum reaction. It was negative in the baby, in a dilution of 1 to 50, on the fourteenth, nineteenth and twenty-fifth days and on the twenty-sixth day of normal temperature. It was also negative in a dilution of 1 to 5 on the thirty-seventh day.

I have been unable to find any data as to the duration of the reaction in infancy or as to its occurrence in other diseases.

The presence of the Widal reaction in infancy, especially in early infancy, is of less diagnostic value, however, than in adult life, as the reaction may be transmitted from the mother through the placenta or through the milk. It is conceivable that a positive reaction in the infant might be due to fetal typhoid infection. This explanation is not probable, however, as what evidence there is seems to show that fetal typhoid is invariably fatal.

There are a number of cases on record which show that the agglutinating power may be transmitted through the placenta. It is not always transmitted, however, the transmission depending on two factors, the intensity of the reaction in the maternal blood and the condition of the placenta. The agglutinating power may be present in the blood of infants born, not only during the course of the fever, but also during convalescence. It is probable that it may be transmitted even when pregnancy takes place after recovery, as the reaction, in a dilution as high as 1 to 50, has been found by Kasel and Mann not only in the blood but also in the milk of women as long as fifteen years after recovery. In a case of my own it was apparently transmitted after ten years. There are no data as to how long after birth the reaction may persist in the infant. My own case suggests that it may continue at least six months.

There is abundant evidence to prove that the agglutinating power may be transmitted from mother to infant through the milk, not only during the course of typhoid but also during convalescence and after recovery. Whether or not it is transmitted seems to depend on the strength of the reaction in the maternal blood and some unknown condition of the infant's digestive tract. There are no data as to how long after typhoid it may be transmitted through the milk. As a positive reaction, in a dilution of 1 to 50, has been found in the milk as long as fifteen years after recovery, it seems probable that it may be transmitted after many years. The agglutinating power in the infant's blood, when transmitted through the milk, persists but a few days, probably never more than a week.

In early infancy, therefore, a positive Widal reaction is of somewhat less diagnostic value than in older children and adults. If the mother has had typhoid, and especially if she is nursing the infant, it should be looked on with some suspicion, unless associated with other characteristic signs of typhoid. Examination of the mother's blood and milk and the cessation of breast feeding will then assist in estimating the true value of the reaction in the infant.

Another way in which the Widal test promises to be of great value is in the determination of the frequency, symptomatology and pathology of infantile typhoid, concerning all of which much difference of opinion still exists. The employment of this test in large series of cases, not only of supposed typhoid, but also of other gastrointestinal disorders, cannot fail to add much to our knowledge of these vexed questions, even if it does not definitely settle them.

70 BAY STATE ROAD.

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EXPERIENCES IN AN EPIDEMIC OF TYPHOID FEVER:
FETAL AND INFANTILE TYPHOID, SCARLATINA
COMPLICATING TYPHOID, AND VICE VERSA.*

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In June, 1900, typhoid fever developed in a child eleven years old, residing in a locality which for the two seasons preceding had been a center of infection; several members of the family and neighboring families having been sick with the disease in the previous years.

On about the tenth day a Widal examination was made with a negative result. As the case seemed a typical picture of typhoid fever of a moderately severe type, a count was made of the corpuscles, with the following result: Erythrocytes 4,500,000, leucocytes 30,000. After two days another Widal test was made with a positive result. At the same time a count was made, and smears prepared for a differential count. The result of this count showed: Erythrocytes 4,500,000 and leucocytes 80,000; an increase of 50,000 leucocytes in two days. A thorough and pains-taking physical examination was made, and neither in the physical signs or the symptoms present could there be found a cause for this enormous leukocytosis. An examination of the smears showed, not a leukocytosis, but a leucopenia. In the method of counting Toisson's solution was used and the red blood cell pipette for counting both reds and whites, and I was at a loss to account for the discrepancy. Dr. Fred P. Solley, of New York, was called in, and together we made a count from another drop from the pipette with a similar result. It then occurred to him that two or three years previous there was consternation in certain wards of the Presbyterian Hospital from the fact that many of the patients had leukocytosis. An examination of the Toisson's solution used, which was old, revealed the presence of apparently large numbers of leucocytes before admixture with blood. I then recalled that the Toisson's solution used in my office was filtered before being used, which was several times a week; while the solution carried to the

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bedside of this child was about three weeks old, had not been filtered since making, and was agitated in transit. However, there was no visible precipitate or opacity in the solution. Examination of the solution from the stock bottle, without admixture with blood, showed granular cells with rather distinct nuclei closely resembling leucocytes. A greater part of the night was spent in watching a hanging drop of this solution, and these bodies were found to reproduce by process of budding, and were evidently a form of yeast.

A specimen of the tap water used in the making of this solution was tinted with methylviolet, and in four days bodies of the same character were found in this, although they did not reproduce as rapidly as in the complete Toisson's solution. The water used in the preparation was pumped from a driven well forty feet deep, and driven to a storage tank of wood in the attic, from which it was drawn. This seems a very possible source of error in the use of this solution in clinical work, and its publication may save much apprehension and error in diagnosis.

About 1,000 feet distant from the locality where the case of fever developed, following the downward course of a valley into low land which a year previous had been a swamp, and which had been filled for building purposes to the extent of two to four feet, there had been erected small tenement houses, some for two families, all in close proximity. In one of these houses a child two years old fell sick with typhoid fever, following the above case about a week. This plot of ground, which was in extent not more than three-fourths of an acre, was of irregular shape, bounded on each of three sides by a highway, and on the other by an embankment of the Long Island Railroad. The child was without medical attendance for ten days or two weeks, and responded to the Widal test at once. During the time when no physician was in attendance, the feces and urine were thrown away without disinfection or precaution. The houses in this plot to the number of five, faced the various highways on three sides, and in them resided eight families, consisting of seventeen adults and twenty children. In the center of the lot, within a space thirty feet square, stood five surface privies, but which, by subsequent filling around, formed pits, the bottom of which could not have been more than three feet to the normal water level in the soil. However, no water from this locality was used for drinking or

culinary purposes, but all was supplied from the village plant, the wells of which were one and one-half miles distant.

There were no further developments during the next six weeks, when, within ten days four children in one family consisting of parents and five children residing in one of the houses came down with typical, but for the most part mild forms of typhoid fever, and were under the care of my colleague, Dr. M. B. Lewis.

There resided next door, a family consisting of father, mother and five children as follows: Raymond, two years, Claude, six years, Harold, nine years, Joseph and John, ten years. Raymond, who had been sick several days, was seen by me August 27th. He was a rachitic child, poorly nourished, and during the February previous had lobar pneumonia with pleuritic effusion on the right side. He had a rectal temperature of 103° , pulse 140, and diarrhea with much vomiting. The spleen was palpable, but not more so than previous to his illness. Daily examinations of his blood during the three succeeding days was negative for malaria and typhoid, and a count showed 4,367,551 erythrocytes and 6,000 leucocytes. On the eighth day of the fever there was a slight Widal reaction, and on the tenth day it was unmistakably positive. He ran a typical typhoid course of twenty-eight days, spots appearing on the fourteenth day.

On September 6th, Joseph, one of the eldest, developed scarlatina. The mother, who was in the eighth month of pregnancy, and much fatigued by the care of the sick baby, was removed from the house to a small house one half mile distant. After removal she was found to have a temperature of 103° and the general symptoms of typhoid fever. On September the 18th her blood responded to the Widal test, rose spots appearing on the 15th. Temperature ran an irregular but mild course, frequently reaching the normal after the first week. However she showed a very pronounced sepsis, with hebetude and muttering delirium. The urine was albuminous to the extent of 2 per cent. and contained granular and epithelial casts until the third week. It also contained both red and white cells and motile bacilli, which, when grown in litmus milk did not produce acid and in stab cultures in agar-agar with lactose and glycocholate of soda did not produce acid, and a bouillon culture reacted positively with known typhoid blood. Premature labor was threatened almost daily, but was controlled by medication and at times the

movements of the child were scarcely apparent, objectively or subjectively. On October 6th, after the temperature had been normal for two days, she was delivered of an apparently healthy female child, after a very mild and satisfactory labor. The baby at once developed a temperature, and the next morning, October 7th, registered 103.2-5°. An examination of the infant's blood was made, and found positive to the Widal. The leucocytes numbered 15,000, the erythrocytes 6,351,426, many of which were nucleated.

On the third day after birth jaundice developed, and within twelve hours became very pronounced. At the same time rose spots were noticed scattered widely over the surface, some even occurring on the head, a great many on the abdomen, and several below the knee, on the left leg. The tongue was not coated at any time, but was raw, dry, shiny and red, and during the latter days of the fever, fissured, so that blood would sometimes run from the mouth. It was thought that this precluded in part the tendency of the child to nurse, although the stupor which was very pronounced, and had been present from the beginning, became deeper, and it was with difficulty that the child could be made to suckle, and the mother, who, singularly had an ample supply of apparently good milk, was obliged to have it drawn and fed to the child. This continued for eight days ending October 14th, when the child began to take its food in the regular way, the jaundice disappearing, and eventually making a good recovery. The temperature subsided rather abruptly on the seventh day, and after the eighth day temperature was from 99° to 100.5-10°. During the week three Widals were made, with a positive result in each instance. Unfortunately it did not occur to me to employ the Widal test with the mother's milk.

Dr. Koplik has stated that infantile blood very frequently responds to the serum reaction. I have since examined the blood from three infants, and in one case found a reaction with an attempt at clumping and partial death of the typhoid culture, with an approximate dilution of one in ten, but the higher dilutions were negative. There was no history of recent maternal typhoid in either case.

That there should be jaundice in infants infected in utero with either the bacillus typhosis or its toxin is not surprising since in the fetal circulation the larger portion of the placental

blood is conveyed through the umbilical vein to the liver before entering the general circulation. In an exhaustive paper on fetal and infantile typhoid, presented to the American Medical Association, Section of Diseases of Children, June 5-8, 1900, by Dr. J. L. Morse, of Boston, (ARCHIVES OF PEDIATRICS, 1900) he summarizes as follows:

“ 1. The typhoid bacillus can traverse the abnormal, and possibly the normal placenta from mother to fetus. Other organisms may also pass in the same way.

2. Infection of the fetus results. Because of the direct entrance of the bacilli into the circulation. Intrauterine typhoid is from the first a general septicemia. For this reason and possibly also because the intestines are not functioning, the classical lesions of typhoid are wanting.

3. The fetus usually dies in utero or at birth as a result of the typhoid infection.

4. It may be born alive, but feeble and suffering from the infection. If so, death occurs in a few days without definite symptoms.

5. It is possible that the fetus may pass through the infection in the uterus and be born alive and well. There is, however, no proof that this happens.

6. Infection does not always occur. The pregnant woman does not necessarily transmit the disease to her child.”

In regard to the serum reaction in infantile and fetal typhoid he concludes that:

“The agglutinating power may or may not be present in the blood of infants born of women with typhoid. If present it is transmitted from the mother to the child through the placenta. It is possible, however, that it may be formed in the child in response to toxins transmitted through the placenta. The agglutinating principle can pass through the normal placenta. Part of it, however, is arrested in the passage. Whether or not it is transmitted, seems to depend on the strength of the agglutinating power in the maternal blood, and the length of time during which the placenta is exposed to it.

“It may be transmitted to the nursling through the milk. It may appear in the infant's blood in less than twenty-four hours. It lasts but a few hours after the cessation of nursing. It is always weaker in the milk than in the maternal blood, and always weaker in the infant's blood than in the milk. This weakening

of the agglutinating power is due to the obstruction to its passage in the mammary gland and in the nursing's digestive tract. The chief factor governing transmission is the intensity of this power in the maternal blood. A subordinate but important factor is some unknown condition in the digestive tract. If the power in the maternal blood is weak and the obstacles great, it may not be transmitted."

In the *Medical News*, February 16, 1901, Dr. Terry, of Wyalusing, Pa., reports: "A woman aged twenty-nine who during the fourth month of pregnancy had typhoid, which ran a typical course, and which was followed at term by the birth of twins in every way normal, and weighing six and seven pounds." I wrote to the doctor for data, and requested blood from the infants and mother. He replied that the Widal was not employed, and that the case occurred in 1898, instead of 1900 as reported by error in the *Medical News*.

Murrell, in the *Medical Press*, November 21, 1900, in a somewhat critical review of the reliability of the Widal reaction states that a positive reaction was noted in a case of jaundice, and says: "There is a growing belief that a positive reaction can be obtained in most cases of obstructive jaundice." He also refers to a number of other instances where a positive reaction was obtained in various diseases, and, also, according to Malvoz that solutions of safranin and vesuvin agglutinate the Eberth bacillus. However the abstracts of his paper do not state the dilutions used, or the age and attenuation of the cultures. A review of the article suggests a pre-existing scepticism which is so noticeable in the reports of the anti-antitoxin observers in diphtheria.

The serum reaction may be positive on account of a previous typhoid which had been mild enough to escape notice, or erroneously diagnosed; the blood maintaining its agglutinating power. The low dilutions are entirely untrustworthy, and the age and vigor of the culture are important factors. That some foreign substances should produce a reaction similar to typhoid serum is not surprising, and in cases of obstructive jaundice, the large quantity of bile circulating in the blood may cause agglutination, notably in the low dilutions. In my hands dilutions of less than one in twenty, or in case of dry blood, approximating this dilution, have not been trustworthy.

On February 25th, a Widal examination of the serum from

both the mother and child above reported was made, with a negative result in case of the mother, and a somewhat tardy positive result in case of the infant. The dilutions used were approximately one in twenty and observed for two hours.

On September 5th Claude, aged six, developed typhoid fever. Two of the children of this family were now ill with typhoid fever, and one with scarlatina, and two others exposed to scarlatina. On September 7th, John, the twin brother of Joseph who had scarlatina, developed typhoid fever, and on the tenth day responded to the Widal test. As there were only two beds and one room, he was placed in the same bed with the case of scarlatina before the eruption disappeared and remained with him during desquamation.

On September 16th, and the twentieth day of the typhoid in the younger child, Raymond, the one first taken ill, there was a sharp rise of temperature, with vomiting, delirium and sore throat. Within six hours a typical scarlatinal eruption was noticed over the shoulders, back, neck and chest. The cervical and postcervical lymph nodes were enlarged, and the tongue which had been perfectly smooth and typically typhoid, now had enlarged papillæ and soon presented a strawberry appearance. On the tenth day from the first appearance of this rash, desquamation over most of the body ensued, particularly corresponding to the seat of the eruption.

On the tenth day after the appearance of the eruption in Joseph, the first boy taken ill with scarlatina, and just as desquamation was beginning, his appetite failed, he complained of head and backache, and diarrhea ensued. Examination of the urine showed a mere trace of albumin, with no casts. On the twelfth day his blood responded to the Widal, also on the fifteenth and twentieth days. He had all the typical symptoms of typhoid fever, including the spots and diarrhea. The only members of this family to escape typhoid infection were the father and Harold, aged nine. Raymond had primary typhoid, with scarlatina complicating on the twentieth day, and Joseph had primary scarlatina with typhoid complicating on the tenth day. John with typhoid, who occupied the bed with Joseph, escaped scarlatina, and Claude, with typhoid, who occupied the bed with Raymond, also escaped scarlatina. However, Claude had pronounced desquamation, but he had no general or local manifestations of scarlatina at any time during his illness. The mother

had typhoid, escaped scarlatina, but infected her fetus with typhoid.

Literature on scarlatina and typhoid occurring conjointly is rather limited. Hare in his recent work on fevers brings literature pretty well up-to-date. He quotes Taupin in the *Journal Connaissance Medico-Chirurgicale* of 1839, recording one case which developed during the convalescence from typhoid, a scarlatiniform rash which desquamated. This recurred, and was probably a dermatitis exfoliativa. Profuse desquamation is frequently met with in convalescence, notably in children. This was the case with the child ill with typhoid fever, who occupied the bed with the child who subsequently developed scarlatina. No eruption or irregularity was noticed until the appearance of this desquamation, which was profuse.

Hare quotes Coulon in *La Medicine Infantile* for 1895 who, records a case of typhoid in a child of ten, general desquamation occurring during convalescence, and there had been no eruption, angina, albuminuria or edema. Hare concludes that it is difficult to decide how frequently scarlatina complicates typhoid. He states that Murchison in the *British Medico-Chirurgical Review*, for July, 1859, reported one case of scarlatina which contracted typhoid on the twenty-sixth day, the one case occurring in ten years of continuous practice and observation. He quotes several cases in which typhoid patients suffered later from scarlatina; and still later he states that in the wards of the London Free Hospital, and in which all cases of fever were treated without isolation, he had seen eight cases in which eruptions of the two diseases existed simultaneously. In one case scarlatina appeared in the third week of the typhoid. In another, scarlatina appeared on the twenty-second day of typhoid. He asserts that scarlatina predisposes to typhoid.

Hare also quotes Sequeira, in the *British Medical Journal* of 1891, p. 172. "Two cases of typhoid complicated with scarlatina. In one, scarlatina developed on the tenth day of the typhoid, and one five days after the typhoid rash."

Griffith's *Lancet* for 1893, reports four children in the same family, all attacked with both diseases; a boy eleven years old, on the sixth day of scarlatina developed typhoid; a girl of thirteen, scarlatina three weeks after her brother, and typhoid twelve days later. A girl of three had scarlet fever and con-

tracted typhoid on the eleventh day of scarlet fever; and a girl of seven, also, on the eleventh day after scarlatina began.

A point to notice is that almost simultaneously infection from both diseases must have occurred."

Caiger, in the *London Lancet* for 1894, Vol. I, p. 1137, met with two cases of scarlatina coincident with typhoid; and Payne reports one case in the same volume, and Carmichael in the same volume, p. 246, a boy of six years who desquamated after scarlatina and continued febrile from the oncoming typhoid.

Cosgrove, in the *British Medical Journal*, January 16, 1897, records five cases of concurrent scarlatina and typhoid, seen at the Cork Street Hospital; in four, the incubation stages being concurrent, scarlet fever being secondary to typhoid, so that the onset was simultaneous. The severity of the typhoid was not increased, but really seems to be aborted by the scarlatina, although cases were quite severely ill. He also refers to Coombs, *British Medical Journal*, February 27, 1897, p. 103, who reports a boy of eleven years, who had scarlatina, was seized on the seventh day by typhoid, his family having typhoid. Gabe in the same journal, April 3, 1897, also reports a case.

There is danger of confusing scarlatiniform rashes and scarlatina, since desquamation has occurred in the former.

Goodale and Washburn in their *Manual of Infectious Diseases*, edition of 1896, p. 75, note the term "typhoid form of scarlet fever," stating that the throat symptoms in this form of scarlatina may be slight, rash normal, but fever high from the beginning, continuing remittent for three or four weeks. The faucial mucous membrane becomes granular and may ulcerate; cervical glands enlarge, emaciation is marked, otherwise nothing can be made out except enlargement of the spleen. A secondary eruption over the entire body is not uncommon after the third week, when if the case ends fatally, it is usually by exhaustion. Post-mortem findings are swollen mesenteric glands and lymphoid tissue of intestine, especially Peyer's patches, but ulceration does not take place. There is no fact in evidence to show that cases in question are instances of typhoid and scarlatina occurring coincidently in the same patient. A typhoid form is probably a septic form of scarlatina."

In the "Text Book of Eruptive and Continued Fevers," by J. W. Moore, edition of 1892, he states "that scarlatina and measles, varioloid, vaccinia, pertussis, diphtheria, erysipelas,

and especially typhus fever may all co-exist with typhoid fever, notwithstanding John Hunter's dogma."

The following report was evidently overlooked by Hare in his summary of the literature, namely, *Medical Record*, Vol. XLI, p. 691, by Dr. Karl S. Fruh, of Philadelphia: He reports that early in 1889 in a family consisting of two children and mother, the two children contracted scarlatina, and during convalescence, typhoid. Two years later, in 1891, while visiting in a family where scarlatina was prevailing, they again had scarlatina, followed by typhoid. The mother had typhoid one year later, in 1892.

Prof. Jaccoud refers to certain cases of scarlatina with prolonged temperature range as *forme typhique*, and in which he mentions the symptoms diarrhea and vomiting.

I am unable to find any record of typhoid complicating scarlatina and scarlatina complicating typhoid, in which typhoid fever had been confirmed by serum reaction, by the Diazo reaction of the urine and by the fact that an unmistakable epidemic of typhoid fever particularly affecting children was prevailing at the time.

The apartments occupied by the family here reported, consisted of three rooms in a very old house, and there is an indefinite history of scarlatina occurring in this house about sixteen years ago. One week prior to the advent of scarlet fever in Joseph, the first case, a board partition which had been covered with numerous coats of wall paper was torn out, and it is quite probable that the morbid agent of scarlet fever had been preserved in this partition or between the various coats of paper. It might be interesting to add that, of the twenty children of the families of this block, nine were sick with typhoid fever within the months of June to October; eight in two families of ten children during August and September, and two adults, one the mother above referred to. It is believed that the child sick in June with typhoid infected the soil in and about these privies, which was new earth thrown over decaying vegetable and animal matter, and being only two or three feet from the water level in the soil, all the essential conditions for germ growth were present, namely heat, moisture and albuminous matter. This class of people usually have food, and particularly milk, standing round in exposed places, and it is thought that this food, which was partaken of by the children whenever desired,

had been infected by means of flies, which were enormously abundant, from the infection in and about these privies. The various sources of milk supply were investigated, and found beyond censure. After the first cases came down the children not yet infected were moved away, thereby avoiding further infection.

Treatment of Acute Mucous and Dysenteriform Colitis by the Sulphite of Soda.—Aviragnet (*Annal. de Méd et Chirug. Infant*, January, 1901) states that acute colitis constitutes a clinical type which is distinct from gastroenteritis. Acute colitis may be primary or secondary. In the latter case it succeeds a gastroenteritis or appears in the course of one of the infectious diseases. The pathology of colitis is identical with that of gastroenteritis. Colitis may be divided into the gangrenous form with glairy or mucous secretions; and a second variety, the dysenteriform. These may appear as a mild type with fever, or a severe type with the advent of the algid state. The symptoms of the second variety are akin to true dysentery. The pathologic changes occurring in dysentery, however, are more destructive. Regarding, as Aviragnet does, that the two dysenteric conditions are similarly caused, he treats them identically. His method is to place the patient at rest in bed; to relieve the abdominal pain by cataplasms or hot or cold applications. He disbelieves in the use of lavage of the large intestine, arguing that distention of the inflamed bowel augments the pains, and possibly the inflammatory process. He diminishes the rectal tenesmus with small injections of weak solutions of laudanum, and advises this treatment rather than suppositories. To combat the inflammatory process, he discusses the use of injections of ipecac, borax, hyposulphite of soda, and various suppositories. He believes these means should be rejected in the acute form of colitis, because they are insufficient, save in very benign cases, and because they add to the irritability of the bowel, and may increase the inflammation and pain. He discusses the administration of calomel and ipecac by the mouth and then takes up the treatment with sulphate of soda, from the use of which he claims remarkable curative results. He prescribes 10 to 15 grams the first day (administered in a glass of sweetened water). This dose is slightly aperient, and especially useful when stomach irritability is pronounced. Small doses are given the day following. For example, to a child of from twelve to fourteen months, 5 grams. The dose may be varied, and the administration continued for several days. The blood rapidly disappears from the stools, the rectal tenesmus disappears, and diarrhea soon ceases. The warm bath may be used as a valuable adjuvant to this treatment. He does not claim the method of treatment a new one, but wants to emphasize its utility.

Clinical Memorandum.

A CASE OF STREPTOCOCCAL INFECTION SUCCESSFULLY TREATED BY ANTISTREPTOCOCCUS SERUM.

BY J. S. FOWLER, M.D., F.R.C.P., ED.,

Extra Physician, Royal Hospital for Sick Children, Edinburgh.

William M., aged nineteen months, was admitted to the hospital on September 1, 1900, on account of vomiting and diarrhea of a fortnight's duration.

STATE ON ADMISSION.—The child seemed in moderately good health; nutrition and development fair; complexion somewhat anemic. No abnormality of skin. Expression placid. Ossification of cranium normal; no facial irritability. Hair, eyes and ears normal. Mucopurulent nasal discharge. Thorax slightly rickety; enlargement of the epiphyses of wrists and ankles. Heart and lungs normal. Abdomen slightly distended; no abnormality on palpation, spleen cannot be felt, liver not enlarged. Slight diarrhea, the motions containing undigested curd; no vomiting. Temperature, 99.2°.

September 5th.—Under treatment with bismuth and zinc oxid, and attention to diet the stools are much more natural, and the temperature has fallen to normal.

September 11th.—Temperature rose to 101.2° this evening without ascertainable cause.

September 12th.—Temperature again up this evening. Slight mucocele of left eye, from which seropurulent fluid was expressed.

September 14th.—Since last note temperature has remained up, and patient is very restless and cries a great deal. There is some stomatitis, the mucous membrane of the gums, cheeks and tongue being red and fiery, while along the inside of the lips there are a number of small aphthous looking patches. There is a good deal of salivation, and enlargement of the neighboring lymph nodes.

September 16.—During the past two days, in spite of careful cleansing with chlorate of potash solution, and painting with glycerin of boric acid, the condition of the mouth has become very much worse, the whole of the mucous membrane of the lips, cheeks, gums and tongue being covered with

yellowish patches, which when detached leave an excoriated, bleeding surface. Since the stomatitis began the temperature has remained steadily up, and the child has taken very little nourishment. His pulse is rapid and feeble.

September 17th.—The stomatitis is spreading to palate; a patch has developed on the left tonsil. On bacteriological examination the patches in the mouth give a pure culture of streptococcus, no Löffler bacilli being present.

September 19th.—The odor from the mouth is very offensive. The lips are so much swollen, excoriated and covered with dirty brownish crusts that it is difficult to introduce a spatula sufficiently to get a view of the inside of the mouth. There is great difficulty in swallowing, the child has a slight cough and the respirations are hurried.

September 20th.—A small patch of tubular breathing was found near the lower angle of the left scapula, and there was some coarse friction in the right axillary and inframammary regions. Mouth as before.

September 21st.—Five c.c. antistreptococcus serum injected at 11 A.M. In the evening the child looked very ill indeed and the temperature rose to 105° . A red, tender swelling was noticed to-night over the sacrum; it has developed since the morning.

September 22d.—Child has had a better night and looks refreshed. In the forenoon the temperature rose to 103° , and signs of pneumonia were found in the left axillary region. The throat and mouth are much better, the patches on the lips having disappeared, so that there is now only a little membrane along the margin of the palate and tonsil. Five c.c. of serum injected in the morning and again at night.

September 23d.—Improvement maintained and signs of pneumonia less. Five c.c. serum morning and evening.

September 26th.—Serum was continued on the 24th, and on the morning of the 25th the temperature was normal for the first time since the illness began. The mouth is quite free from inflammation, and the pneumonia is resolving satisfactorily. The area of redness noticed over the sacrum five days ago has spread and there is now distinct fluctuation. Yesterday a painful edematous swelling was observed over the left temporal fossa. As the temperature was normal, no serum was given yesterday morning, and in the evening the temperature again arose to 103° . Five c.c. serum injected again to-day.

September 30th.—Serum daily since last note. Temperature falling and lungs almost cleared up.

October 2d.—Chest healthy. Temperature normal. Abscesses in sacral and temporal regions opened; in latter situation bone was found to be exposed. Serum stopped.

October 16th.—Small superficial abscess developed on posterior aspect of right upper arm; pus contained only staphylococci.

November 21st.—Up to the present time the patient has been doing very well, and the abscesses are now almost healed. Last night, however, the temperature rose to 105.6° and the patient became extremely collapsed. To-day there is dulness, with distant tubular breathing and crepitations over the left base, and a small patch of tubular breathing in the right infra-scapular region. On exploring the chest about half a drachm of turbid serum was drawn off the left pleural sac.

November 24th.—Left lower lobe clearing up, but dulness increasing in left axilla. The temperature has been swinging, running up to 105° at night, and falling again in the morning. Five c.c. serum injected.

November 24th.—Pneumonia spreading to apex of left lung.

November 25th.—Five c.c. serum.

November 26th.—Temperature lower on the whole. Very marked dulness and tubular breathing over left upper lobe.

December 3d.—Since last note child has more than held his own, and is now decidedly improving. The serum was continued, except on November 29th and December 3d, and on both these days the temperature rose to its old level— 103° or 104° . The pneumonia has successively invaded all parts of the lung, and has now spread back to the lower lobe again. Five c.c. serum to-day.

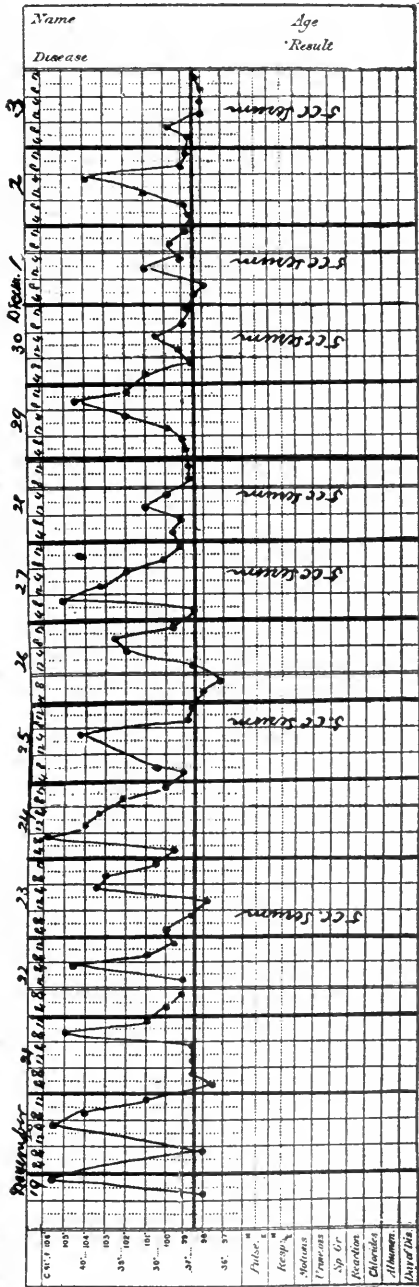
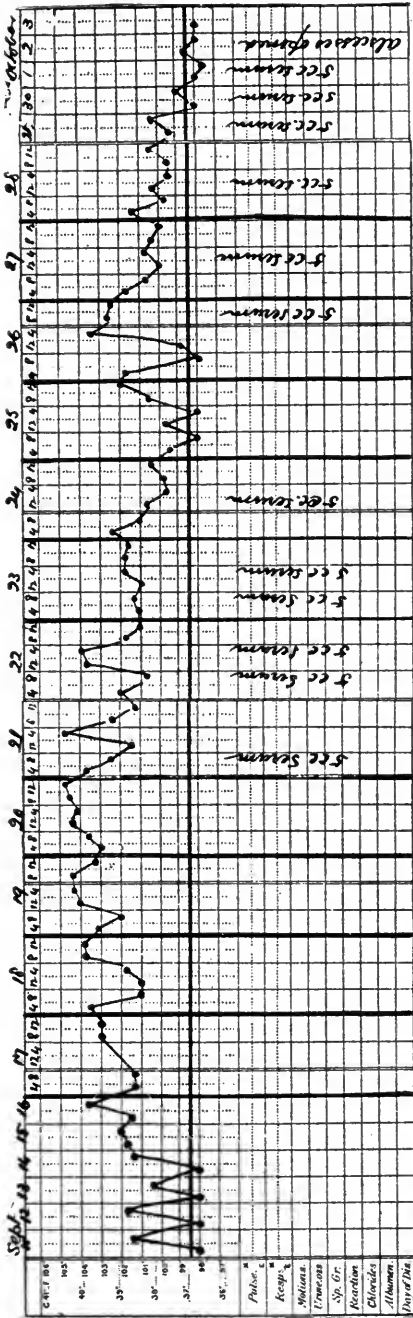
December 8th.—Temperature normal since last note; no more serum has been given; abscesses healed; lung clearing up slowly.

December 15th.—Temperature rose to 99.2° . Patient has been gaining weight steadily, but lost ten ounces during the past week.

December 18th.—Koplik's spots were found on lips.

December 20th.—Measles rash. Sent to Fever Hospital, where he made a good recovery. (See chart.)

This case, I think, presents certain points of interest. A streptococcal stomatitis leading to a general infection is a rare



TEMPERATURE CHART, CASE OF STREPTOCOCCAL INFECTION.

condition. One is familiar enough with streptococcal tonsillitis, but, just as in diphtheria, should stomatitis occur at all, it is usually secondary to the throat infection, not primary as in this case. Whether the dacryocystitis which apparently caused the initial rise of temperature was the original source of infection it is impossible to say, as the pus was not examined for organisms, but one can easily see how readily the mouth might have been infected from such a focus. The patient was originally under the care of Dr. John Thomson (to whom I am indebted for permission to publish this report), and in his absence from duty I had charge of the case from the time the mouth symptoms developed. By September 17th, when the bacteriological examination assured the diagnosis, the child was undoubtedly in a very critical condition. He was suffering from severe blood poisoning, with a rapid and compressible pulse, great prostration and restlessness, and high temperature; when to this was added the difficulty in administering nourishment caused by the condition of the mouth, we had the gravest doubts as to his recovery. We fully anticipated the probability of pneumonia supervening—indeed, it seemed scarcely possible that he could escape aspirating infective material into the lungs—and were on the look out for it, but when physical signs developed simultaneously in both lungs his chance seemed a poor one. I had, however, successfully treated a previous case of streptococcus infection with the serum, and hence thought that the remedy offered a fair prospect of success in this case. The result was very striking, both as regards the temperature (as seen in the chart), and even more markedly in the local and general condition. The throat was practically clean within forty-eight hours, just as occurs in diphtheria after the antitoxin is administered, and the night succeeding the first dose was the best the child had had since his illness began. Two abscesses developed after treatment was begun, showing that the systemic infection was not entirely prevented, although its effects were lessened. It is, however, of interest to note that the temperature fell to normal before the abscesses were evacuated.

The second attack of pneumonia occurred without any warning, and as the signs appeared over the site previously affected, we thought that it was probably due to a recrudescence of the infection—to a reinfection with organisms lying dormant

in the lung. No sputum was obtained to verify this assumption, but I think it was justified by the effects of treatment. In this second attack, however, the patient was by no means so seriously ill as previously—possibly the earlier infection may have conferred a certain degree of immunity.

For the sake of brevity I have omitted details of the other remedies employed, but we carried out the general treatment usual in such cases. I have no doubt of the part played by the antistreptococcus serum; its value is perhaps most clearly demonstrated by looking at the temperature on the days on which it was not given. During the second attack of pneumonia the serum was, through a misunderstanding, given at rather irregular intervals, and seeing that the event was favorable this is not now to be regretted, as the temperature thereby gives more conclusive proof of the action of the remedy.

Neither in this case, nor in any other, have I seen ill consequences from the use of antistreptococcus serum; with ordinary precautions no local reaction occurs at the seat of injection. I have several times, however, seen a good deal of collapse an hour or two after the first few injections; it is, therefore, well to be prepared for this, and to give stimulants in anticipation. Though this symptom has appeared alarming in at least three cases, it has only been transitory, and does not follow any but the first doses of serum. Many failures have been reported with antistreptococcus serum, often, apparently, when there was a mixed infection; only when we find a pure culture of the organism can we anticipate good results, but I think that in suitable cases the remedy should be resorted to without delay.

A point of subsidiary interest in this case is the loss of weight during the incubation period of measles. We had, unfortunately, an outbreak of measles in the ward, and could in several cases confirm the observations already made in this respect.

Scarlatina.—Dr. Widenhofer, of Vienna, treats the disease as follows: Milk regimen. No meat until after desquamation. For fever, quinin and antipyrin. Ice compresses to head, cold bathing. For convulsions, ice to head. For angina inject half syringeful 2 per cent. carbolic acid solution into each tonsil. For nephritis, cold over kidneys. If urine scanty and bloody, infusion of digitalis.—*Medical Review of Reviews*, Vol. vi., No. 6.

ARCHIVES OF PEDIATRICS.

MAY, 1901.

EDITED BY

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ANESTHESIA IN OPERATIONS FOR ADENOIDS.

The removal of adenoids in children has become so common an operation that many physicians undertake the procedure as one of small risk, not requiring special skill and seldom demanding an anesthetic. The forceps and curette are brought into use while the child is in the physician's office, and no attempt is made to minimize the pain and shock.

Some specialists, and a few general practitioners, are so dexterous that the lymphoid growth is as thoroughly removed as it would be under an anesthetic. This, however, is not always the case as the resistance made when the child is held

in a firm position and the sight of instruments militate against the completeness of the operation.

To insure a successful operation an anesthetic is needed. The local agents for this purpose are not satisfactory and, except in a few special cases, a general anesthetic is the one to be considered.

It may not seem necessary to mention the administration of chloroform in young children, except to condemn it, but, unfortunately, there are those in the profession who, having given chloroform with success to adults, learn of its lethal action in children of a lymphatic diathesis only after they have used it for the removal of adenoids.

Ether is a safe anesthetic, with a few disadvantages that can be overcome without diminishing its efficiency. The free secretion of mucus found in all cases with hypertrophied lymphoid tissue, can be lessened by a cleansing of the membrane and a hypodermatic injection of $\frac{1}{300}$ grain of atropia before the anesthetic, as used by Halsted. The primary anesthesia of ether is often sufficient for an operation and recovery from this stage is immediate.

With nitrous oxid as a preliminary to ether it is possible to operate more quickly than when ether is given alone and with fewer after effects of nausea and retching.

Even with the full anesthetic effects produced by ether there is little or no danger. The comfort to the operator insures to the patient an operation that will be thorough and successful.

The Italian Pediatric Congress will meet in Florence, October 15-20, 1901. The president of the Society is Dr. Francesco Fede and the secretary is Dr. L. Concetti.

Bibliography.

The International Medical Annual: A Year-Book of Treatment and Practitioners' Index. (By thirty-four contributors.) 1901. Nineteenth year. New York and Chicago: E. B. Treat & Co. Pp. 682. Illustrated. Price, \$3.00.

The first part of this Annual is devoted to new remedies and the second part to new treatment. In the former is an interesting list of the German synthetic products.

The use of thyroid gland is stated to be almost invariably good in the goitre of young persons.

Chapin, who edits the sections devoted to the treatment of the diseases of children, gives due importance to subjects connected with digestion, infant feeding, incontinence of urine and kindred topics.

Goodall, of London, evidently accepts Class' diplococcus as the cause of scarlet fever, and states that Gradwohl and Jacques confirm this opinion.

The volume is better printed than last year, and the number of good illustrations make the book attractive. It is a timely and useful guide in therapeutic progress.

Progressive Medicine, Vol. I., 1901. A Quarterly Digest of Advanced Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D. Philadelphia and New York: Lea Brothers & Co. Pp. 430. Illustrated. Issued quarterly. \$10.00 per year.

In this first volume of the series of 1901, Crandall has charge of the chapters on the treatment of disorders in childhood. He has added to the medicinal treatment a consideration of the practice of surgery in children. The whole section is clearly written.

Packard's editing of the subjects of infectious diseases, including acute rheumatism, croupous pneumonia and influenza, is extremely satisfactory.

This number of the quarterly maintains the standard of last year.

The American Year-Book of Medicine and Surgery for 1901. A Yearly Digest of Scientific Progress and Authoritative Opinion in all Branches of Medicine and Surgery. Arranged with Critical Editorial Comments, by Eminent American Specialists, **Under the General Editorial Charge of George M. Gould, M.D.** In two volumes—Volume I., *General Medicine*, octavo. Pp. 681. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1901. Per volume, \$3.00.

The publishers of the year-book found that a two-volume edition, with one volume devoted to medicine, met with such favor that they have pursued the same plan this year. The volume is well up-to-date and each subject is critically edited in short paragraphs with references to the literature at the foot of the page.

The Section on Pediatrics is by Drs. Starr and Hand, their names being a guarantee of the value of the subjects presented.

In appearance the book is most creditable to printers and publishers.

Fourteen and a Half Hours' Artificial Respiration in a Child One Week Old; Recovery.—G. E. Keith reports (*The Lancet*) the case of a male child aged one week, upon whom the operation of circumcision was performed for long and tight foreskin. Chloroform was the anesthetic used; the child did not breathe well, and lost more blood than usual. About fifteen hours later, the child became dyspneic and cyanosed, and when seen was apparently dead. Under artificial respiration, breathing recommenced, to fail once more when the passive movements were stopped. The artificial respiration was continued for fourteen hours and a half, at the rate of twenty to the minute. Oxygen was used continuously, and heat was applied by means of a hot-water bottle. By the time normal respiration returned the child's chest and upper abdomen resembled raw beef, and the arms were red and excoriated from the violent use to which they had been put. Recovery was very rapid. Twenty drops of brandy every hour were given and was well tolerated; a smaller amount seemed to cause a loss of ground on the part of the patient. The brandy was never noticeable on the breath; it was all used in the struggle for life.—*The New York Medical Journal*, Vol. lxxii., No. 23.

Society Reports.

THE NEW YORK ACADEMY OF MEDICINE—SECTION ON PEDIATRICS.

Stated Meeting, February 14, 1901.

WILLIAM L. STOWELL, M.D., CHAIRMAN.

VOMITUS NERVOSUS AND GENERAL HYSTERIA.

DR. LOUIS FISCHER presented a young girl who had been under observation several years. There had been frequent attacks of epigastric pain and of vomiting for the past six years, the vomited matter being usually nothing more than mucus. Chemical examination of the contents of the stomach showed hyperchlorhydria, and the urine had contained acetone at times. She was of a decidedly nervous temperament; her mental condition and the general circulation were poor, and she complained of vague pains all over. The only medicinal treatment that had had any influence over the attacks of vomiting was the use of large doses of the bromids.

DR. W. M. LESZYNSKY suggested that as the record of the attacks of vomiting had been kept, for the most part by the girl herself, their accuracy might reasonably be called in question. The supposed vomiting was quite possibly nothing more than a regurgitation of fluid that had accumulated in the esophagus. Her fair state of nutrition would tend to confirm the view that there was no true vomiting as frequently recurring as alleged. He would object to the use of bromids or other sedatives, and would advise a change in her environment which would allow of more intelligent control of the patient.

DR. MAX EINHORN said that as a considerable quantity of fluid had been vomited each time it could not have been merely a regurgitation. The case seemed to him to be one of hyperesthesia of the stomach, for which he would advise measures directed toward improving the general nutrition, and keeping the patient quiet and under the influence of bromids when the vomiting was severe.

A CASE OF DIABETES IN AN INFANT.

DR. WILLIAM E. YOUNG reported this case. (See page 198.)

DR. LOUIS FISCHER said that last year he had seen two children, eight and six years old respectively, who were suffering from a glycosuria that had developed after a pneumonia.

DR. STOWELL said he had seen Dr. Young's case, and had been impressed with the similarity of the patient's appearance to that presented by adults affected by diabetes. At the autopsy the kidneys had been found swollen to twice their normal size.

A SIMPLE APPARATUS FOR MODIFYING COW'S MILK.

DR. C. HERRMAN exhibited this apparatus. It consists of a glass cylinder having an opening both above and below, and graduated into 1,000 c.c. The milk is removed from below by means of a stopcock. Graduations on the cylinder also show the fat and proteid percentages. Milk is introduced up to the 1,000 c.c. mark and then the cream is allowed to separate. Holt had shown that the upper one-third gives 10 per cent. fat, with the fats and proteids in the proportion of 3 to 1, and that the upper half gives a 7 per cent. fat, and the fats and proteids in the proportion of 2 to 1. In using this apparatus, if a proportion of 3 to 1 is desired, the milk is allowed to flow off until it reaches the mark, 3 to 1. The proteids bear to the sugar the nearly fixed ratio of 1 to 1.3 per cent., and by means of a small graduated glass measure which accompanies the large cylinder it is easy to get the required amount of sugar. This apparatus also allowed of reading off directly the percentage of cream contained in a sample of milk, and if in addition to this, the specific gravity of the lower milk were taken, the composition of the milk could be calculated with the aid of the tables.

DR. W. L. BANER said he was favorably impressed with the apparatus, though in practice he had been very well satisfied with the simple dipper devised by Dr. H. D. Chapin.

DR. BARUCH said that one advantage of the dipper over the apparatus presented was that it could be used as soon as the milk was received whereas the other required the milk to be mixed up again with the cream and allowed to stand for several hours.

DR. HERRMAN replied to this last objection concerning the freshness of the milk by saying that the cream would separate if the milk were allowed to stand only four hours.

VACCINATION CLINICALLY CONSIDERED.

DR. FRANK S. FIELDER read a paper with this title. He divided the stages of the vaccination into three weekly intervals, viz.: (1) A mild week of invasion; (2) a severe week during the presence of the areola, and (3) a mild week, beginning with the fading of the areola and dessication of the pustule and ending with the shedding of the crust. If the vaccination were severe yet the areola was of a bright red and the vesicle presented the typical appearance, it might be considered as a normal vaccination; if, however, the area were purple or hemorrhagic one might infer that there was a mixed infection. He had not observed any special reaction when eczematous infants were vaccinated. Statistics seemed to indicate that the so-called raspberry vaccination afforded a slight temporary protection, but it was ordinarily an indication of poor virus. A raspberry excrescence and a typical vaccine vesicle had been known to develop side by side. If a carefully performed vaccination, done with unimpeachable virus, ran an abortive course, the case was probably one of partial immunity. There was an extremely small risk of introducing tuberculosis where bovine virus is used, for tuberculosis in calves of four or six months is an exceedingly rare occurrence. The most common of the cutaneous manifestations observed in connection with vaccination was a roseolous rash resembling the rash of diphtheria antitoxin. It was not necessarily associated with pruritus, and it usually subsided in three or four days. Occasionally a scarlatiniform eruption of a few hours' duration was observed, and this was followed by desquamation. The speaker said that he had only seen two cases of suppurative adenitis following vaccination, though more or less swelling and tenderness of the axillary glands was common. He was certain that true erysipelas was a very rare complication of vaccination at the present time. Tetanus was also very rare, Dr. Huddleston having succeeded in collecting reports of only twelve cases. By generalized vaccinia was meant an eruption passing through the successive stages of papule, vesicle and pustule, and coming on a few days after vaccination. In some

instances its presence might be explained by autoinoculation. It often resembled varicella. Where the diagnosis was in doubt the question could be settled by inoculating another part of the body with some lymph taken from the vesicle. If a typical vesicle developed, it would be positive evidence that the eruption was one of vaccinia. A large experience had led him to believe that the appearance of a vaccination scar was a wholly unreliable guide in determining whether or not a given case were immune. Immunity was usually secured in seven to ten days; hence if a person were vaccinated on the day of exposure to small-pox, or even on the following day, he was likely to escape the disease, or only have varioloid. If, however, the small-pox eruption should make its appearance before the vaccination had led to the formation of a fully developed areola, the course of the vaccination would be modified and interfered with. A point not generally appreciated was, that immunity would be conferred even though the vesicles were interfered with; hence, the physician need not hesitate to open and cleanse an infected vesicle on the ground that such interference might nullify the effect of the vaccination. Children born of a mother suffering from small-pox usually contract the disease, but if the small-pox were in a very early stage and the infant were immediately vaccinated it might possibly escape. The period of immunity was exceedingly variable. A severe case of small-pox rarely develops within ten years after a successful vaccination, and after five years even varioloid was not often encountered. In a general way it might be said that the period of immunity was about five years. At least 75 per cent. of our children in the primary and grammar school grades are susceptible to revaccination. There was overwhelming proof that revaccination establishes lost immunity, and that revaccination affords better protection than small-pox or a first vaccination. For these reasons, it was the part of wisdom to practice revaccination at stated intervals. It should be remembered that secondary vaccinations do not run so typical a course as primary ones, instances being on record in which the formation of the vesicle had been delayed from twelve to even thirty days. He preferred to use glycerinated lymph that had been tested on children before being placed on the market. He was in the habit of scarifying with a needle an area not exceeding one-eighth of an inch in diameter, and then thor-

oughly pricking or rubbing in the virus. There were no statistics to support the view that there was an advantage in multiple scarifications. The best dressing for a vaccination was a loose sleeve or stocking lined with gauze; vaccination shields were of questionable utility. An infected vaccination should be treated just like any other infected wound.

SOME REMARKS ON THE PREPARATION OF VACCINE.

DR. JOHN H. HUDDLESTON explained the mode of preparing the vaccine in the New York City Health Department. The calves are carefully selected because of their good health and the quality of their skin. They are subjected to a physical examination before being used for the production of the vaccine, and after the lymph has been collected they are killed and subjected to a post-mortem examination. If either examination shows the presence of disease, the virus is rejected. Linear incisions are made, and into these the "seed" virus is rubbed. It had been found impracticable to use any covering over the scarifications. The virus was ordinarily collected on the sixth day, the vesicles being curetted out, weighed and run through a mill, the "pulp" being thoroughly incorporated by this process with a mixture of 66 per cent. glycerin and 33 per cent. water.

REMARKS ON SPECIFIC ORGANISMS IN VACCINIA.

DR. ANNA W. WILLIAMS was the author of this paper, which was read by Dr. R. J. Wilson. The author stated that there had been a good deal of dispute over the so-called vaccine bodies that had been discovered in 1892. They were constantly present in vaccinia, variola and cow pox, and were not found in unsuccessful vaccinations. They may be plainly seen in the sebaceous glands.

DR. W. A. DUNCKEL said that he had recently seen a case in which the development of the vesicle had been delayed until the twelfth day. He had also vaccinated another person twice, the second time being nine days after the first, the reason being that the first vaccination appeared to be a failure. Eight days later he had been surprised to find a fine vesicle on the site of the first vaccination. Barlow had shown that a supernumerary finger could be vaccinated and removed on the fourth day, and

that if a month later the vaccination were repeated, this second vaccination would run an unusually rapid course.

DR. F. H. BARTLETT said that in a large experience with vaccination he had found that over 60 per cent. of children between the ages of nine and thirteen years could be successfully vaccinated. Raspberry excrescences did not seem to confer immunity, for, after such vaccinations he had repeatedly succeeded in properly revaccinating within a few weeks. He favored rubbing the skin well with a weak solution of carbolic acid just before scarifying.

DR. DAVID BOVAIRD took up the cudgels on behalf of vaccination shields, contending that it was generally conceded that there was no theoretical objection to them and that the disappointments from their practical application had arisen from the difficulty of maintaining them in proper position. He made use of the large wire shield, and bound it on firmly with a long strip of "Z. O." adhesive plaster. Such a dressing would remain in place for weeks if need be, and would not only protect the wound from infection but from irritation, so that the patients would comment upon the increased comfort.

DR. C. G. KERLEY said that about the only vaccinations which had given him any trouble had been those in which, contrary to his advice, shields had been applied. They often caused so much tension of the parts as to impair the circulation and favor suppuration. It was far better, in his opinion, to let the wound thoroughly dry after the scarification and then apply a bit of protective gauze and a strip of adhesive plaster.

DR. FIELDER closed the discussion. He said that he was convinced that hot weather had very little influence on vaccine virus if the latter were not kept in a room at the ordinary temperature, because certain experiments had shown that the virus could be artificially heated or even frozen with liquid air without losing its power. He had found shields troublesome in young infants, and most shields caused more or less maceration. Moreover, it was not desirable to constrict the arm, even with a piece of plaster.

THE PHILADELPHIA PEDIATRIC SOCIETY.

Stated Meeting, February 12, 1901.

DR. THOMPSON S. WESTCOTT, PRESIDENT.

DR. J. D. TARGET reported one case of

JACKSONIAN EPILEPSY

and exhibited another child that had curious spasmodic convulsive movements which were thought to be due to Jacksonian epilepsy.

DR. GRIFFITH said that it is difficult to conceive of a lesion which would produce the conditions present. He has been interested in a case which he had repeatedly seen, in which there are points of similarity to the case presented by Dr. Target, and which is perhaps one of Jacksonian epilepsy. The patient is a child about ten years old who is intelligent, and who has no paralysis and no other abnormalities of the limbs that are demonstrable by physical examination, but who many times daily has attacks, consisting largely of a drooping of the left side with contraction of the left hand, a limp upon walking, and some drawing of the left side of the face. No loss of consciousness is ever associated with these attacks. She has been repeatedly seen by a number of physicians, and no exact diagnosis has ever been made by any one. While he did not think that these attacks are purely hysterical he believed that there is some hysterical element in the case. He is convinced that as a general rule one may say that hysteria is frequently overlooked in children. His case suggests a combination of hysteria and Jacksonian epilepsy, if such a thing is possible. One unfortunate fact about the case is that the parents have been in the habit of discussing the child's condition openly before her; he particularly insisted that nothing should be said about the condition before the child and that so far as discussion with her is concerned the attacks should be ignored.

DR. L. J. HAMMOND believed that in a case like this, in which the attacks seem to be practically uninfluenced by medical treatment, surgical intervention should be seriously considered. He would also direct attention to the fact that when a large

group of muscles such as those supplying the shoulder and thigh are involved, the results from operation are better than when the focal area involves a small group of muscles, such as those supplying the thumb. In all cases not general in type, trephining offers the very best results.

DR. J. P. CROZER GRIFFITH exhibited three patients. The first, a

CASE OF SPLENOMEGALY

in a child about three years of age, in which there was also enlargement of the liver and very slight anemia, without change in the white cells suggestive of leukemia. The second case was one of

ABDOMINAL ENLARGEMENT WITH IRREGULAR FEVER

in a colored child about eight years of age, in which there was a mass in the lower central portion of the abdomen. This case was thought to be one of tubercular peritonitis. The other case was that of

CYANOSIS IN A CHILD ONE YEAR OF AGE.

Under ordinary conditions the child presented moderate cyanosis, but under excitement, emotional or muscular, the child became cyanotic to an extreme degree. The examination of the heart showed an absence of marked enlargement on the right, but there was a decidedly accentuated second pulmonary sound. The accentuation of the pulmonary sound pointed against the possibility of a pulmonary stenosis, a murmur was not heard at the time characteristic of patulous ductus arteriosus, and Dr. Griffith suggested that the condition was very possibly due to an abnormal arrangement of the blood vessels.

DR. HAND, in discussing the case of splenomegaly, said he was surprised in examining stained preparations of the blood to find one intracorpuscular pigmented malarial organism and two suspicious extracorpuscular bodies; what bearing this might have on the case, he could not say, especially in view of the observation by Moncorvo and others that malaria does not as a rule produce marked enlargement of the spleen in children. While the malaria is probably not the whole story in this case, it would seem natural to attach some importance to it, the absence of marked malarial manifestations not necessarily excluding it from consideration, especially in infants in whom the classical symptoms are often wanting.

DR. J. A. SCOTT said that we certainly know very little of conditions like that presented by the first child. The general appearance of the child was extremely similar to cases presented by Dr. Hamill and himself at the last meeting but was not closely similar to that seen in malaria. It is certainly as compared with adults, an extremely difficult matter in children to make a satisfactory distinction in many cases between leukemia and pernicious anemia, as one occasionally meets with a condition in which the appearance of the case and the blood picture seems to be a mixture of these two conditions. The leucocytes in childhood are so likely to show very ready increase that marked leukocytoses are readily seen and cause confusion in diagnosis. He had an opportunity to examine the blood of this child and found the red cells about 3,280,000, the leucocytes 10,200. On a differential count there was seen a distinct lymphocytosis, the large lymphocytes numbering 16 per cent., the small lymphocytes 36 per cent. The polymorphonuclears were reduced, there were no myelocytes and no nucleated red cells. In the latter point this case differs from those shown at the last meeting, in which nucleated red cells were discovered. This case is, therefore, evidently neither leukemia or pernicious anemia. It is probably some form of infection, but an infection of obscure nature clinically; perhaps such cases may be due to some variety of infection of which we actually know little as yet, either clinically or pathologically. Syphilis should be carefully considered in this case, and splenic anemia given due consideration.

DR. L. J. HAMMOND thought that sarcoma of the spleen should be considered in the case.

DR. GRIFFITH said that he had thought of sarcoma, but there is marked enlargement of the liver as well as of the spleen, and because of this and the rarity of its occurrence in two organs alone, he thought that such a diagnosis is extremely improbable.

DR. EDSALL said in discussing the case of cyanosis that the case might be satisfactorily explained by accepting the existence of a patulous foramen ovale, particularly if Bard's suggestion concerning cause of "blue-sickness" be adopted. Bard considers that cyanosis is not uncommonly due to the presence of a widely patulous foramen ovale which is covered by a membranous valve, this valve under ordinary circumstances keeping

the opening pretty thoroughly closed. If, however, the pressure in the left auricle becomes abnormally high the membrane is forced open, and the condition resulting is practically a completely patulous foramen ovale. This theory would explain the condition in this case very well.

The existence of a markedly accentuated second pulmonary sound pointed toward increased pulmonary tension, and this might readily be due to increased pressure in the left auricle resulting possibly from a slight degree of mitral stenosis which produced no murmur, a not uncommon condition. At any rate the fact that the cyanosis largely disappears when the child is quiet, and appears in intense degree after effort, or other cause of increase in intracardiac pressure, indicates that Bard's suggestion might be a proper one in this case.

DR. ROBERTSON said that if Dr. Edsall's suggestion were true it seemed to him that such a condition must be much more frequent, for a patulous foramen ovale is extremely common. In a series of over 200 autopsies he had found a patulous foramen ovale in about 40 per cent. of the cases. The size of the opening varied greatly, ranging from about the size of a pin head up to a diameter of a quarter of an inch.

DR. EDSALL stated that he referred only to instances in which there was a very wide opening and Bard's theory considers only such openings. Small openings in the foramen are of course extremely common, but are of no clinical importance as they are either so situated that no admixture of blood occurs at all, or the admixture of venous and arterial blood is so slight as to produce practically no results.

DR. JOHN H. JOPSON showed

A CASE OF HEAD-NODDING ASSOCIATED WITH TORTICOLLIS in an infant eleven months old without spasmodic rachitic diathesis. (See page 285.)

DR. DAVID L. EDSALL reported a case of

SYPHILIS OF THE LIVER WITH LARGE GUMMATA in a child of fourteen. (To be reported in full in June ARCHIVES OF PEDIATRICS.)

DR. THOMPSON S. WESTCOTT read a brief

NOTE ON THE DIFFERENTIAL MODIFICATION OF THE PROTEIDS IN PERCENTAGE MIXTURES.

Such a combination would be made of cream, milk, whey and a

diluent. The caseinogen percentage would be supplied by the cream and the milk, the whey proteid or lactalbumin percentage by all three, but in greatest amount by the whey alone. The keynote of such a modification is the ratio existing between the caseinogen and the whey proteids of the milk and cream, since beside the total caseinogen percentage these two fluids furnish a portion of the required lactalbumin percentage represented by the fractional part of the caseinogen percentage corresponding to the ratio of whey proteids to caseinogen that exists in the milk and cream. The ratio is not constant, but according to Koenig it averages about 1 to 5, while Van Slyke makes it about 1 to 4, and most recently White and Ladd state it to be 1 to 3 for laboratory milk. Perhaps an average of the three, corresponding to Van Slyke's figures may be taken as a fair valuation. Attention was called to White and Ladd's suggestion that whey be made from fat-free milk, and also to their analyses of the proteids in whey which average about 1 per cent. With a fat-free whey containing 1 per cent. of whey proteids the calculation becomes very simple. The method will be published later.

DR. EMERY MARVEL reported a case of

SUPPURATIVE MASTITIS

in a female child twenty-seven days old. The abscess formed within three days and involved an area about three inches in diameter. It was treated by free incision and antiseptic dressings with entire success. Mastitis is comparatively rare in infants and suppurative mastitis is very infrequently seen. The condition is produced by the retention of colostrum in the tubules, with subsequent pyogenic infection. The most frequent exciting cause is trauma. The condition may have serious results and may readily be fatal. Jourda collected 15 cases in which three deaths occurred, and Bush describes a case in which all the tissues covering one side of the chest sloughed. Another possible danger mentioned by Hirst, is rupture into the pleura and resulting empyema with probably fatal results. The condition, therefore, demands immediate and active treatment, which should be free incision, evacuation of the pus, and antiseptic dressings.

SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN—
LONDON.

*Meeting of March 15, 1901, at the Belgrave Hospital for
Children, London, W.*

DR. EDMUND CAUTLEY, CHAIRMAN.

DR. GEORGE CARPENTER showed two sisters with many
CURIOUS DEFORMITIES OF THE SKULL, FACE, FINGERS AND TOES.
There were also developmental heart lesions and ruptures in
the abdominal wall.

MR. SIDNEY STEPHENSON pointed out that the eyes were dis-
placed from developmental fault in the roof of the orbits, and
that the left cornea of the elder child was imperfectly differen-
tiated from the sclerotic.

DR. SUTHERLAND inquired as to maternal impressions.

MR. CLEMENT LUCAS alluded to the transmission through
many generations of such deformities as those exhibited by Dr.
Carpenter's case.

DR. GEORGE CARPENTER, in reply, said there were no mater-
nal impressions.

DR. WILLIAM EWART showed

AN INFANT, AGED SEVEN MONTHS, SUFFERING FROM ASTHMA.

During the paroxysms all the symptoms of true asthma were
present, while during the intervals the child was quite comfort-
able. Gastric disturbance and vomiting were dominant fea-
tures of the case. Relief was obtained by regulation of the diet
and the internal administration of atromorphin and iodid of
potassium and hydrochlorid of cocain. Some benefit was
also obtained from the application of expiratory pressure to the
thorax.

THE CHAIRMAN agreed that such cases were rare, and were
sometimes difficult to diagnose from capillary bronchitis. He
inquired as to such sources of irritation as adenoids, elongated
uvula or enlarged tonsils. What was the prognosis as regarded
after-life?

DR. CHAPMAN inquired as to the character of the feeding.

DR. CHAFFEY had recently made an autopsy of such a case, and had found a very large thymus gland but no marked bronchial alterations.

MR. A. H. TUBBY said it would be interesting to know whether all sources of peripheral irritation had been excluded before the case was regarded as one of ordinary asthma.

DR. SUTHERLAND said that in several such cases he had made out that the thymus was the organ primarily affected. He had never seen the asthma persist after the age of two years.

DR. EWART in reply said he did not think there was any marked enlargement of the thymus gland in his case. He had not examined for adenoids as the child was so ill, but no difficulty had been experienced in passing the nasal catheter. It was difficult to say what the prognosis was. The child was breast-fed at first and then fed on milk and barley-water.

MR. F. JAFFREY showed for Mr. Clinton T. Dent

A CASE OF SUBDURAL ABSCESS TREATED BY OPERATION.

The patient, a lad twelve years of age, had suffered from double otorrhea for two years, and this had led to vomiting, rigors, high temperature and signs of subdural mischief. He was trephined on the left side and a small subdural abscess found. The lateral sinus was found covered with lymph and thrombosed, so that the outer wall of the sinus was incised and the clot removed. The internal jugular vein was not ligatured. The lad made a rapid recovery.

MR. A. H. TUBBY inquired as to the condition of the optic discs, which, in his experience, often showed changes apart from intracranial mischief.

MR. JAFFREY in reply said the optic discs had not been examined.

MR. F. JAFFREY showed a

TUMOR OF THE SACRUM AND COCCYX

in a girl aged two years. It had been tapped thrice and found to contain dark-colored fluid, not of cerebrospinal origin. The growth had lately shown signs of suppuration, and had in consequence diminished in size. The growth, which was intimately connected with the posterior wall of the rectum, was thought to be a teratoma.

MR. CLEMENT LUCAS, who doubted whether the tumor had any connection with the spinal cord or canal, said the proper treatment would have been early excision.

MR. JAFFREY in reply said he now agreed with Mr. Lucas' view.

THE CHAIRMAN showed a lad, aged about eight years, who developed

LEFT HEMIPLEGIA AND ATHETOSIS

after the occurrence of "fits." The atheloid movements of the left arm were characteristic but not severe and affected the hand chiefly. The probable explanation was a cortical hemorrhage or thrombosis due to a convulsion, with some persistent local irritation of the nature of sclerosis.

DR. TURNBALL asked whether the movements ceased during sleep.

DR. GEORGE CARPENTER thought there was purposive element about the movements. He asked whether there was any facial paralysis.

MR. A. H. TUBBY thought the movements much slower than in athetosis. If deformities were relieved these cases did well.

DR. LEONARD GUTHRIE inquired as to the evidence of congenital syphilis. In one of his own cases the motor area was exposed and part of the cortex excised and as a result, the movements entirely ceased for more than a week. They then became more intense than ever. Eventually, however, the patient improved and could make more use of his arm than before.

THE CHAIRMAN presented

TWO CASES OF MICROCEPHALY AND IDIOCY

in lads aged respectively five and four years. Both cases had suffered from head-nodding, associated with nystagmus in the elder. He was not prepared to recommend operation.

DRS. LEONARD GUTHRIE and G. A. SUTHERLAND suggested that syringomyelia might also be present.

MR. A. H. TUBBY recounted the results of craniectomy in 4 such cases, of which 2 died, 1 was still alive, and 1 could not be traced.

THE CHAIRMAN, in reply, agreed that syringomyelia might be present.

DR. HENRY ASHBY (Manchester), read a paper on

A CASE OF CONGENITAL ACUTE NEPHRITIS.

An infant was stated to have shown signs of dropsy on the second day after birth and to have vomited and to have passed but little water. When examined at four weeks of age, there was excessive edema of the face, trunk and limbs. The bladder was empty. No urine was obtained. No evidence of syphilis. It died in uremic convulsions a few hours after it was first seen. At the post-mortem examination the kidneys were found to be lobulated, and upon section they were pale, resembling the appearance of the "large white kidney." The heart was small and contracted, the liver and lungs were gorged with dark blood. Microscopically the kidneys showed many greatly dilated convoluted and straight tubes; many blood and fibrinous casts were present, the epithelium for the most part, was granular and there was commencing periglobular nephritis as well as interstitial changes between the tubules.

THE CHAIRMAN inquired as to the possibility of infection subsequent to birth.

DR. LEONARD GUTHRIE inquired whether any signs of congenital syphilis were present.

DR. GEORGE CARPENTER had seen 1 case of syphilitic nephritis in a child six weeks old. During life the child had dropsy and casts in the urine, and after death there was found much tubular and interstitial nephritis. Lobulation of the kidneys, of course, was not uncommon.

DR. ASHBY, in reply, thought the condition congenital because the edema appeared on the second day. One would say that a "white kidney" such as that in the present case, was not produced in four weeks. The suggestion of a syphilitic origin was worthy of consideration.

THE CHAIRMAN presented the following cases and specimens: (1) AORTIC STENOSIS; (2) CONGENITAL MORBUS CORDIS; (3) MULTIPLE EXOSTOSES IN THREE CHILDREN OF THE SAME FAMILY; (4) FOUR SPECIMENS OF CONGENITAL HYPERTROPHIC STENOSIS OF PYLORUS; (5) TUBERCULOUS ULCERS OF LARGE AND SMALL INTESTINE; (6) A MONO-VENTRICULAR HEART.

Current Literature.

MEDICINE.

Friedjung, J. K.: **The Present Status of the Question of Thymic Asthma in Childhood and its Relation to the So-called Lymphatic State.** (*Archiv für Kinderheilkunde.* Bd. 29. Heft 5 and 6.)

The writer reports a case of mild influenza in a child six years of age in whom the following conditions were found post-mortem: Chronic enteritis, with enlargement of the follicles of the entire large intestine; enlargement of Peyer's patches in the lower ileum; atrophy of the entire intestinal mucosa; intense parenchymatous and fatty degeneration of the liver, kidneys and heart; enlargement of the mesenteric lymph nodes; chronic enlargement of the spleen with prominence of the follicles. Thymus very much enlarged, extending to the middle of the pericardium; left inguinal hernia. The unexpected fatal termination of an otherwise mild case of influenza was explained by the general lymphatic state of the patient. He reviews the changes in opinion of various observers regarding the subject under consideration.

The discovery of enlarged thymus glands in infants who had died in an attack of laryngospasm with the absence of other pathological changes, had suggested to Kopp in 1829 the theory that the two conditions stood in causal relation, but in 1847 Friedleben opposed this theory, after carefully weighing and measuring a large number of thymus glands of infants, saying that the cases of hypertrophy of this gland, mentioned by different authors, were still within physiological limits; that this condition was often found in perfectly healthy children, and was dependent on the state of general nutrition. He concluded that there was no thymic asthma. This conclusion was generally accepted, although some anatomists, among these, Virchow and Cohnheim, had found thymus glands which, in their opinion, very probably had excited dyspnea by their pressure, so that gradually the following theory prevailed: that laryngospasm has, as a rule, nothing to do with the thymus gland, but in rare cases an abnormally enlarged gland might cause respiratory disturbances; and even sudden death. This was appar-

ently confirmed by a case reported by Somma who found at an autopsy on a child, who had suddenly died from dyspnea, flattening of the trachea opposite the thymus gland. After that a series of cases with the following history was reported. Children under two years of age were either found dead in bed, into which they had been put apparently perfectly well, or had died suddenly while playing. In some rare cases the children had been restless for a few hours. Others had expired suddenly in an attack of laryngospasm. In most instances the only pathological condition found was hypertrophy of the thymus, and death was explained by pressure on the trachea or on the large vessels of the mediastinum, or on the vagus and its branches.

A. Paltauf, having made a thorough study of the anatomical reports of these peculiar cases, found that in the majority of them, besides hyperplasia of the thymus, there was that same condition in all or in the majority of the other lymphatic structures. These children were also described by the observers as rachitic, abnormally pale and fat. Escherich and others add similar cases, and accept Paltauf's theory that this general lymphatic state predisposes, in some as yet unexplained way, to sudden death, especially during operations; it also affects gravely the prognosis in acute infectious disease. This, however, does not explain all cases of sudden death, as, for instance that reported by Somma; nor those which include more chronic stenosis of the trachea. These seem certainly due to a large thymus gland. In some instances the inspiratory stridor present in these children disappears gradually with the increasing age of the patient, as the thymus relatively diminishes in size. Of still more importance in this connection are cases reported of late by surgeons, as Rehn, König, and others. Rehn was the first to operate on a child that showed symptoms of chronic stenosis. As soon as he lifted the thymus, respiration took place normally, while the stridor returned as soon as he dropped it back on the trachea. He fastened the gland to the sternum and completely cured the child of its respiratory disturbance.

Friedjung formulated his conclusions thus: there are certainly rare cases of sudden death due to pressure of the hyperplastic thymus on the trachea, or on some other important neighboring structure, but in the majority of instances sudden death is principally due to the general lymphatic state. Laryngospasm as such has nothing to do with hypertrophy of the

thymus, except that lymphatic children are more apt to succumb to such an attack. Inspiratory stridor most likely is due to an enlarged thymus, although this condition is sometimes found in uremia, and again may be purely nervous.

Rose, George: A Case of Infantile Scurvy. (*Scottish Medical and Surgical Journal.* Vol. vii., No. 1.)

Cases of infantile scurvy at the present time are rare in Scotland.

The case reported is that of a baby of seven months. He had been put on cow's milk and suffered from gastrointestinal trouble and convulsions. He was then given the proprietary foods without any milk. The baby was always peevish, fretful, and suffered at intervals from gastroenteric disturbance. When five months old swelling and tenderness of the left thigh appeared. Raw meat juice was ordered, but, as was subsequently discovered, was never given. The baby when admitted to the hospital remained on his back, and made no attempt to move or raise himself. He was quiet when left undisturbed, but would cry when anyone approached him. The lower limbs were always motionless. The face was puffy and of an ashen gray color, with dark rings around the eyes. There was no proptosis, no subconjunctival hemorrhage, no strabismus. The lips were dry and cracked. The two upper central incisors were quite through, loose and embedded in a mass of brown spongy gum. On either side of them the lateral incisors were just pushing through the swollen tissue. In the lower jaw the two central incisors were through, and the gums appeared quite healthy.

The head showed no hemorrhage. The wrists showed a marked symmetrical swelling of the epiphyseal ends of radii and ulnæ. The chest was rectangular in shape. There was nothing special about the abdomen. The liver was enlarged; the spleen could not be felt. The lower limbs were motionless. The left leg was completely rotated out and slightly flexed at hip and knee. The left leg had the appearance of being longer than the right. The left thigh was much thickened, and the skin of a dusky red color. The calf of the left leg was thickened in its upper third, but normal in color. There was a thickening of the epiphyseal ends of the bones at the ankle, and also up over the tibia. No swelling of the foot. The right leg showed

enlargement of the epiphyseal ends at ankle, and of condyles of femur. The left thigh was found to be occupied by an indefinite swelling, firm, almost cartilaginous in feel, enveloping the shaft of the femur. The joints were all normal, save for the enlargement of the epiphyseal ends.

The blood showed some diminution of hemoglobin. Practically no poikilocytosis. No nucleated red blood cells. Red blood cells 3,304,000; white blood cells 10,316.

The left leg was put on a splint, and the child allowed to rest in bed. Fresh milk, barley water, orange juice and raw meats were given. Marked improvement followed, and the swelling of the limbs was becoming less, when an attack of diarrhea supervened and the patient died very suddenly after being in the hospital for two weeks.

On autopsy, the following were noted:

Heart.—Both visceral and parietal layers of the pericardium were rough, and covered with small tags of fibrinous material. There were two small hemorrhages into the membrane. Lungs.—Both pleural sacs were dry. With the exception of slight congestion, lungs were normal. Liver weighed 15 ozs. It was considerably enlarged and extended three inches below the costal edge of the ribs. It was in an advanced stage of fatty degeneration. Spleen weighed half an ounce and appeared to be normal. Kidneys healthy. Stomach and intestines appeared quite healthy. No hemorrhages.

The left femur was removed and split longitudinally. The lower end of the shaft for about two inches was thickened. This thickening was due in part to subperiosteal hemorrhages, which had lifted up the periosteum from the bone, and in part to a thickening of the periosteum with more or less new bone formation. The ends of the ribs at their junction with their cartilages were much enlarged, and the sternum and cartilages appeared to have fallen slightly backward towards the spine, producing very characteristic flattening of the anterior part of the chest. The anterior fontanelle was almost closed.

The differential diagnosis between rickets, acute epiphysitis and Parrot's disease, or syphilitic periostitis, is given.

Placzek: Infantile Paralysis. (*Die med. Woch.* No. 11. 1901.)

He examined the spinal cord of a child four years old that died of infantile paralysis; both legs and the left arm being affected. The anterior horns were found affected throughout;

there were changes in the ganglion cells but chiefly of the vessels and lymph spaces. There was also some change of the peripheral nerves and muscles. Placzek believes that this disorder is of primary vascular origin.

Cautley, Edmund: A Case of Congenital Hypertrophic Stenosis of the Pylorus. (*The Lancet.* No. 4013.)

A female infant of three months was admitted to the hospital and died the next day. During the first six weeks of life she was fed on cow's milk and barley water. Later she was given condensed milk. Although the history was not reliable it showed that the baby had vomited soon after being fed. Constipation was troublesome. Wasting was pronounced. When seen the baby was emaciated and had slight convulsive movements. The temperature was normal. The vomiting was frequent and persistent. There was no bile in the vomited matter. The bowels acted very freely. The convulsive movements became continuous and the temperature rose to 105° F. before death.

The autopsy disclosed a greatly distended stomach with the walls thinned, except in the region of the pylorus where the wall was thicker than usual in these cases. The pylorus formed a definite elongated cylindrical tumor which was an inch long, firm and hard. On laying open the duodenum the pylorus presented the same appearance as the os uteri when seen from the vagina: a small central orifice surrounded by a thick, smooth, ring-like wall. Occlusion of the orifice was completed by the folds of mucous membrane. There were raised ridge-like folds of mucous membrane bifurcating into the stomach. The increase of the thickness of the wall was due to hypertrophy of the circular muscular fibers. The intestines were empty. In his remarks on the case the author refers to other cases reported by him and to the general literature of the subject including Pritchard's article published in *ARCHIVES OF PEDIATRICS*, April, 1900. Twenty-six cases have been recorded in the last five years. The two theories as to causation: (1) a simple redundancy of fetal growth, and (2) a functional disorder of the nerves of the stomach leading to ill-co-ordinated action of the muscle, are not regarded as satisfactory. Pylorotomy offers the best chance for success. Now that more attention has been attracted to the subject it is probable that an earlier diagnosis and better results will be attained.

Sotow, A. D.: Changes in the Cardiac Ganglia in Miliary Tuberculosis of Children. (*Archiv. f. Kinderheilkunde.* B. xxix., H. 3 and 4.)

The method of investigation was based on Nissl's, namely, that the chromatic substance of the cells takes up the anilin in granular form. In the normal condition we see in the stroma of the ganglion a few spindle shaped elements. The connective tissue is light and fine in texture. The cells occupy their entire envelope, while the nucleus is often eccentrically placed. The outline of the nucleus is sharply defined, while within its center the nucleolus is easily seen. The chromatin bodies are plainly colored and are seen distributed throughout the cell body, being lightest in the narrow margin around the nucleus and at the periphery of the cell. In the specimen under consideration, that of a child dying of tubercular meningitis, the connective tissue of the stroma of the ganglia is filled with rounded spindle-shaped cells. The capsules of the cells are hypertrophied. In places the cell bodies do not occupy the entire envelope, while several cells possess processes extending from the cell body. The chromatophile substance is very faintly stained, in places resembling fine grains of dust, while in others the stain can hardly be seen (chromatolysis). In these situations the beginnings of the vacuoles must in all probability be sought. In another preparation obtained from a child infected with miliary tuberculosis, the abnormal condition of the stroma is accentuated. It appears as though the cells were compressed by the stroma itself. Some of the cells are very irregular, and have shrunk much from the limiting capsule. At another place mother and daughter cells are seen in close proximity. Still another cell is seen to have two nuclei. The nuclei generally are near the cell periphery, while their borders are difficult to distinguish. The nucleoli are very clearly seen. The chromophile bodies are stained well. In one place round and spindle cells have taken the place of the ganglion cell. Besides these, a few bluish-colored bodies with round nuclei are seen, resembling fat cells described by Schwartz. The entire condition resembles that produced by hunger in animals experimented upon for that purpose. This certainly indicates that, besides the toxins affecting these cardiac ganglia in tuberculosis, the malassimilation of food has its effect also. It may be interesting to state that in animals whose body temperature was artificially raised to about 109° F., the same condition was produced in

the ganglion cells. In a young child with scarlet fever, in whom for the twelve hours preceding death a body temperature of 106° F. existed, the cells in the spinal cord showed also very similar changes. These results may explain, it may be said in conclusion, the sudden death in children suffering with tuberculosis in whom only very slight changes are found in the organs post-mortem.

Baginsky, A.: Morbilli Bullosi. (*Transactions of the XVI Meeting of the Gesellschaft für Kinderheilkunde.*)

An infant eleven months old was admitted for the treatment of pertussis. One month later it suddenly developed fever and all symptoms of measles. On the back of the infant there appeared six vesicles each the size of a pea, filled with turbid serum, surrounded by deeply infiltrated areas of skin. These vesicles had a bluish color. New vesicles appeared later, and the first crop then commenced to ulcerate and show sloughs. On the thirteenth day of the infant's illness there were sudden collapse, severe dyspnea and death. The post-mortem diagnosis was: Gangrenous ulcers of the skin, purulent and serofibrinous pleurisy, purulent inflammation of the mediastinum, pericarditis.

The bacteriologic examination of the contents of the vesicles found on the skin showed the presence of a diplococcus in a pure culture. The heart blood was sterile. In the diseased portions of the skin there were enormous quantities of cocci. In the lungs, the lymph channels and also in the interalveolar tissue there were large numbers of cocci.

There was, therefore, a bullous eruption with deep-seated necrosis of the skin, caused by the measles in which there was an invasion of diplococci.

Baginsky, A. : Pemphigus with Measles on a Tuberculous Basis. Mixed Infection with Streptococcus Pyogenes. (*Transactions of the XVI Meeting of the Gesellschaft für Kinderheilkunde.*)

A child about eighteen months old was taken sick with measles. Three days before this eruption of measles there was a vesicular eruption which first appeared on the back and later on spread over the entire body. Several of these vesicles that had recently burst showed a moist corium of a dark red color. Paracentesis of the middle ear yielded large quantity of pus. Death occurred on the fifteenth day.

Post-mortem diagnosis: Purulent meningitis, thrombosis

of the longitudinal sinus, thrombophlebitis, miliary tuberculosis of the lungs. Bacteriologic examination of the fresh vesicles and of the heart blood showed the presence of a streptococcus resembling the streptococcus pyogenes. This same germ was also found in the spleen, liver, heart and lungs.

In this case there also was the presence of miliary tuberculosis in the lungs and peritoneum. Whether the sinus thrombosis and the thrombi of the pia and the meningitis were the result of the streptococcus or due to the tubercular condition is difficult to decide.

Gamgee: A Case of Cystinurea with Formation of Calculi.
(*Lancet*, No. 4042.)

The case presented was that of a boy twelve years of age. The family and previous history was negative. Several calculi were passed during the last two years. A larger calculus of eight grains was finally removed by suprapubic cystotomy; recovery good. Examination showed the calculus to consist of cystin. Mr. Gamgee stated that cystinurea was probably due to the presence in the intestine of certain specific microorganisms producing abnormal decomposition of proteid matter.

Muir, R.: A Case of Purpura and Intense Anemia with Marked Deficiency in the Red Bone Marrow. (*British Medical Journal*. 1900. No. 2074.)

A boy of fourteen years had been healthy until he developed a chill, cough and some hemoptysis followed in about a month by purpura, severe epistaxis and hematemesis. The hemorrhages were repeated, he was intensely anemic, and died in stupor about eleven weeks after the onset of the illness. The family history was negative. Six weeks before his death a blood examination showed 800,000 red cells per c.mm., 7,000 leucocytes and 12 per cent. of hemoglobin. Four weeks later there were only 640,000 red cells. The polymorphonuclear (neutrophile) leucocytes numbered 25 per cent. and the lymphocytes 70 per cent. There were no eosinophiles nor nucleated red cells, and the blood plate-lets were practically absent.

At the autopsy numerous petechiæ were found in the epicardium, endocardium, stomach and small intestine. The liver, pancreas and suprarenals showed fatty change. The marrow of the femur was not red, but white and fatty in appearance, with hemorrhagic patches; and it was deficient in quantity. The ribs showed the same condition even more markedly.

Microscopically the various organs showed widespread fatty degeneration. Iron pigment was found in the liver and kidneys. The marrow consisted of fat cells, very few marrow cells and one or two nucleated red blood corpuscles, neither eosinophile marrow cells nor pigment granules were found. Smears from the spleen pulp contained many nucleated red blood cells. The condition of the bone marrow was a primary one, and had produced and kept up the anemia. This view is emphasized by the absence of regenerative power (lack of nucleated red cells) in the marrow. The hemorrhages and purpura occurred as the result of some intercurrent condition (toxic or infective).

Martin, T. A.: **A Case of Pseudo or Myosclerotic Paralysis.** (*St. Louis Courier of Medicine.* No. 138.)

After recovery from a severe attack of bronchopneumonia, a five-year-old boy was observed to walk unnaturally, to waddle and exhibit leg-weakness. This state of affairs persisted for a year or more, no medical advice having been sought. Examination then revealed false hypertrophy of the calves, with similar changes in the muscles of the back, and possibly in the masseter, deltoid and tongue. The writer hesitated in making his diagnosis because of the great rarity of the affection. He had seen but one other case in an active practice of twenty years. The diagnosis was confirmed by a neurologist and the patient has been shown several times before societies. Little or no benefit has accrued from several years of treatment—massage, electricity, etc.

Ness, R. Barclay: **Case of Anemia in a Young Girl, Associated with Enlargement of the Spleen.** (*The Glasgow Medical Journal.* Vol. liv., No. 6.)

The sixteen-year-old patient was very anemic, showing that peculiar yellowish appearance of the skin associated with enlargement of the spleen (splenic cachexia). There was a venous hum on both sides of the neck, and a ventricular systolic murmur most distinct over the pulmonic cartilage. The spleen extended from the left hypochondrium to within half an inch of the umbilicus; it was not tender, but pain was often complained of. The cervical and inguinal lymph nodes were just palpable, but the individual nodes were not distinctly enlarged. There were no hemorrhages and no fever. The hemoglobin was 40 per cent.; red blood cells, 2,300,000 and leucocytes 10,000. A

few myelocytes and nucleated red cells were present. During the next eight months the red cells increased in number to some extent (3,360,000) and the myelocytes disappeared; the nucleated red cells diminished; the leucocytes increased in number.

The illness began when the girl was nine years old, as a somewhat obscure attack with fever, edema and enlarged spleen. She remained weak and anemic ever since. Measles, pertussis and scarlet fever had been passed through between the ages of three and seven. No evidence of congenital syphilis could be detected in the child, but the mother gave a history of miscarriages. The case was carefully differentiated from pernicious anemia, leucocythemia and Hodgkin's disease, and diagnosed as splenic anemia. It differs in some respects from the splenic anemia described by West as tending toward a fatal ending, and also from the infantile form in which cure is not uncommon.

Burrows, F. G. : A Clinical Study of Diphtheria. (*American Journal of the Medical Sciences.* Vol. cxxi., No. 2.)

Of 2093 cases of diphtheria admitted to the Boston City Hospital from August, 1899, to August, 1900, 131 proved to have a mixed infection. The remaining 1962 were uncomplicated, and of these 947 were males and 1015 females. The mortality was 12.23 per cent.; the death rate decreased from infancy to adult life, being 19.9 per cent. in children under five years of age, 8.7 per cent. between five and ten years, 3.7 per cent. between the ages of ten and fifteen, 3 per cent. from fifteen to twenty and .99 per cent. over twenty. The membrane was on both tonsils in 1528 cases; on one tonsil in 243; on the uvula in 404; on the posterior pharyngeal wall in 173; on the palate in 244; on the lips in 12; on the tongue in 3; on the epiglottis in 4; on the inner surface of the cheek in 1; in the external auditory canal in 1; outer canthus of the eye in 1; both labia majoræ and minoræ in 1; in the nostrils in 71; and on a denuded area of skin in the neck in 1. The average number of days before 1621 throats became perfectly clear was 3.9.; 780 had nasal discharges of such a character as to suggest diphtheritic membrane in the nasopharynx, and diphtheria bacilli were present in the nasal secretions of 790 cases, being found in the nose in 158 of these. The frequency and importance of nasal diphtheria is not sufficiently appreciated by the general medical profession.

Bacilli of diphtheria were found in both nose and throat in 632 cases; in the throat alone in 944 cases; in 228 they were not found in either nose or throat, of these last 65 were intubated; 21 had beginning laryngeal stenosis and recovered without operation; 1 had diphtheritic membrane in the nostrils; 2 coughed up casts from the trachea; 71 died and the others recovered after a typical course.

About 65 per cent. had some form of cardiac disturbance at some time during the progress of the disease, usually slight and transitory. A soft systolic murmur usually loudest over the mitral area and due to a lack of tonicity in the heart muscle, was present in 984 cases. Cardiac irregularity occurred in 658, of which 496 had the murmur as well; in 22 a *bruit de galop* was noted. These cardiac abnormalities were present in 478 cases upon entrance, they developed most often by the fifth day, and were rare after the seventeenth day. A rapid pulse continuing after the initial period means a guarded prognosis, as to the time of recovery at least, and continued rest in bed. The pulse in diphtheria is a variable quality, and must be considered in connection with the existing toxemia.

Albuminuria was present in 501 cases of 1752 whose urine was examined. The largest amount found was $\frac{1}{4}$ per cent. in 12 cases. In no case could death be attributed to nephritis; 337 cases had laryngeal stenosis, necessitating intubation in 213, while 124 responded to antitoxin and were relieved without operation. In but 1 case was intubation done more than forty-eight hours after admission. The death rate of the intubations was 45 per cent. or 96 cases. Of these 37 died within twenty-four hours of admission; 40 during the acute stage of the disease of toxemia; 15 from the degenerative processes of diphtheria and 4 from pneumonia. Reintubation was necessary in many cases,—in one boy thirteen times. The deaths were most numerous between the ages of one and three years.

Experience with this series of cases and others, teaches that primary tracheotomy no longer has a place in the treatment of simple diphtheritic laryngeal stenosis.

Marked cervical adenitis occurred in 93 cases, and secondary nodular enlargement in 134. Slight nodular enlargement was present in 965. Otitis media occurred in 61 cases, involving the mastoid cells only once. Diphtheria bacilli were found in the discharge in 6, the pyogenic bacteria being usually

present. Palatal paralysis was seen seventy-two times; oculomotor paralysis nineteen times, hemiplegia once; paralysis of one deltoid muscle, once; mild chorea once; peculiar twitchings of fingers, hands, arms and shoulders, twice; neuritis four times. Of the 240 fatal cases 69 were moribund on admission and died within twenty-four hours. The cause of death was toxemia, occurring during the acute stage of the disease, in 172; degeneration of the various tissues, during the secondary stage in 54 and pneumonia in 14.

There were 131 cases of mixed infection with diphtheria and scarlet fever, the mortality being 31.3 per cent.

Antitoxin was given in doses of 4000 units every four hours as long as necessary, and in exceptionally severe cases every two hours. Clinical experience teaches that there is no danger in giving too much antitoxin, and that the sooner the total amount required can be given, the better. Eruptions of urticaria or erythema multiforme, or a combination of the two, often follow its use; rarely pains in the joints occur. These disturbances are never dangerous and usually of short duration. Alcoholic stimulation should be used freely, frequently and early in the disease. Digitalis is indicated only in exceptional cases. Intubated cases are fed through an esophageal tube in a partially sitting posture. Rectal feeding is of value when vomiting is annoying or persistent.

Cobb, Carolus M. : The Purulent Rhinitis of Children as a Source of Infection in Cervical Adenitis. (*Boston Medical and Surgical Journal.* Vol. cxliv., No. 2.)

He relates a case which he regards as of a type very frequently encountered in practice: A five year old girl of healthy stock, consulted him for bilateral cervical adenopathy of ten days' duration, which had followed an attack of acute coryza. The fauces and pharynx were then free from symptoms, but during the previous year her (enlarged) palatal and pharyngeal tonsils had been extirpated. At the age of two years an attack of nasal diphtheria had apparently provoked the enlargement of these structures, and incidentally had set up purulent rhinitis which had persisted ever since, and the exacerbation caused by an ordinarily acute coryza, had been followed by the cervical adenopathy.

He believes that in this case the attack of nasal diphtheria

had infected some of the accessory sinuses of the nose, and that the purulent nasal discharge was, in reality, due to sinusitis. As the latter affection is progressive, the mucous membrane of the sinus ultimately became eroded, and the extension of the acute rhinitis into the cavity in question, temporarily obstructed its outlet, so that retention of its purulent secretion led to absorption by the lymphatics. Doubtless many cases of cervical adenopathy have a sinus-origin; the exciting cause of which is some primary infection of the nasal chambers, not necessarily diphtheritic (grippe, scarlatina, etc., etc.).

Fede, F., and Finizio, G.: **Microscopic Researches and New Observations on Fetal Rickets.** (*Rev. Mens. des Mal. de l'Enf.* Vol. xix., No. 3.)

In a series of 475 newly-born infants, but 3 were found with clinical symptoms of rickets; 3 others had craniotabes and 4 had double *genu varum*; but both these conditions may exist independently of rickets. The cranial bones of 6 infants dying before or soon after birth were examined microscopically, the heads having shown very large fontanelles and open sutures. No one of these cases showed the microscopic lesion of rachitis; so that these studies bear out the clinical observation that fetal rickets is rare, and teach further that large fontanelles and open sutures in the newly-born are not always an indication of fetal rachitis, but only of retarded ossification.

Weill, E., and Gallavardin: **Cerebral Infantile Hemiplegia, Congenital, with Pseudo-Parencephalocele.** (*Arch. de Méd. des Enf.* Vol. iv., No. 3.)

The patient was a girl of thirteen years, of good family history. Hemiplegia was first noted at the age of two months, but had probably existed from birth. The child learned to walk in spite of the fact that the right leg muscles were atrophied to some extent; the muscles of the right arm were markedly atrophied. The face was not involved in the paralysis and sensibility was intact. She came under treatment for severe cardiac symptoms. The head was hypertrophied and there was a systolic murmur transmitted to the back. Dyspnea was very marked, and not accounted for by the condition of the lungs. Edema was progressive, and death occurred suddenly in a slight convulsive attack. The child had never been idiotic. No cause for the heart lesion could be discovered.

At autopsy the mitral valve was found somewhat thickened.

The ventricular walls were hypertrophied and the heart weighed 280 grams. All the viscera showed the chronic congestion characteristic of heart disease. The left cerebral hemisphere contained a cavity having a capacity of one to one and a half ounces, and filled with clear fluid. It was distinct from the lateral ventricle, though only a very thin vascular wall separated the two, and occupied the place of the ascending frontal and ascending parietal convolutions. Neither sclerosis nor vascular lesions could be made out. The right hemisphere was larger than the left. There was sclerosis of the crossed pyramidal tract of the cord and agnesia of the direct pyramidal tract. Microscopically a diffuse interstitial myocarditis was found.

The congenital hemiplegia was not due to any malformation, but to a destructive pathological lesion dating back to intra-uterine life,—a pseudo-parencephalocele. It was a false and not a true parencephalocele because of the absence of idiocy and of cranial malformation, because it agreed with Bourneville's picture of that condition, and because microscopical examination of the walls of the cavity and of the cord confirmed it, showing degeneration of the inner surface of the cavity only, mild sclerosis of the crossed pyramidal fasciculus and of the direct cerebellar tract, with agnesia of the direct pyramidal tract.

Biroulia considers parencephaly the result of the formation of cyst-like cavities in the perivascular lymphatic spaces, and Gongitano believes the lining membrane of the cavity to be a new formation, due to the organization of emigrated leucocytes.

Somerset, W. L.: *Notes on the Hospital Scarlet Fever Service in New York City from 1893 to 1899, Inclusive.* (*The New York Medical Journal.* Vol. lxxii., No. 23.)

During the seven years (1893-1899), 2627 cases of scarlet fever were admitted to the Willard Parker and Riverside Hospitals. The death rate was 9 per cent., compared with 19 per cent. during the seven preceding years. This diminution was largely due to the elimination of the mixed cases of scarlet fever and diphtheria.

Of the early and favorable cases, 185 were five years old or less. These cases, on admission, showed an average temperature of 102.2° F., the maximum (103° F.) being reached on the evening of the third day. The maximum pulse was 130° on the evening of the second day, and it remained about 125° for six days. Speaking of favorable cases only, the effect of scarlatinal

poisoning becomes less marked and more transient as the patient gets older. In the hemorrhagic cases the eruption was abundant in every instance, either petechial or diffusely purpuric from the start, and the temperature was high at the outset and reached its maximum at about the time of death. In the favorable cases there was little or no treatment for the temperature; in the fatal cases active treatment had little or no effect.

Complications occurred as follows: acute degeneration of the kidney in 20 per cent.; cervical adenitis, 18 per cent.; otitis, 8 per cent.; nephritis, 4 per cent.; rheumatism, (?) 4 per cent.; diffuse cervical cellulitis (generally fatal), 2 per cent.; myositis, endocarditis, pericarditis, bronchitis, ulcerative amygdalitis, less than 1 per cent. In general, the liability to complication inversely varied as the age, rheumatism being the notable exception.

The skin lesion in scarlet fever is a true exudative inflammation, the desquamation depending on the extent and intensity of the dermatitis. The average period from the onset of the disease to the completion of desquamation was from six to seven weeks.

The treatment consisted in rest in bed and fluid or semi-fluid diet for three weeks, to avoid complications. Streptococcus antitoxin was used for a time,* but the results did not warrant its continuance. Baths and a phenobromid combination were used when the distress was out of proportion to the rise of temperature, and acted both as a sedative and antipyretic. The ears must be given careful and skilful attention, and attention must be directed to every detail affecting the interest of the kidneys.

Le Gendre, P.: Subacute Diabetes in a Child of Twenty-two Months. (*Arch. de Méd. des Enf.* Vol. iv., No. 3.)

The boy had a gouty and diabetic family history, but was well with the exception of an attack of grippe and otitis media. Six months later he began to emaciate, became easily tired and had polydipsia and polyuria. The urine contained nearly fourteen grams of glucose to the liter, and increased to forty-six grams in spite of diet and treatment with extract of liver. Death occurred in coma, without the appearance of convulsions, about six weeks after the illness began.

The alternation of gout and diabetes in families is an established clinical fact, and this child was further hampered by the

fact that both his parents were in a state of lowered vitality, the father being convalescent from nephritis and the mother from metritis.

SURGERY.

Knapp, Herman: Suppurative Tympano-Mastoiditis in Children. (*The Journal of the American Medical Association.* Vol. xxxvi., No. 8.)

The author's observations on 39 cases of mastoid operation performed on children under eight years show that 41 per cent. were under two years of age. The greater frequency, danger and difficulty in treatment of mastoid disease in children is explained by the anatomy of the parts affected. As chief factors are mentioned the belt of adenoid tissue in the upper part of the pharyngeal cavity and the short and comparatively wide Eustachian tube. The abscess is found above rather than back of the ear in the cancellous tissue in the base of the squama, there being as yet no mastoid cells. The importance of the masto-squamous and petrosquamous sutures as channels that conduct infection to the mid-cranial fossa is emphasized and attention is drawn to recent studies and a reported case bearing on the anatomy and importance of this latter sinus.

Marston, Daniel W.: Congenital Dislocation of the Shoulder, with Report of Two Cases of Dislocation Posteriorly. (*New York Medical Journal.* Vol. lxxiii., No. 13.)

It is the author's opinion that at least 15 per cent. of the cases of so-called obstetrical paralysis can be proved to be instances of congenital dislocation and can be benefited by the operation described. He has come to the following conclusions:

1. It is of the utmost importance to distinguish between cases of dislocation and true obstetrical paralysis.
2. The treatment of the former condition is immediate reduction; by manipulation if possible, otherwise operative.
3. Every infant should be carefully examined at birth, for it is at this time that reduction is easiest performed.
4. From the facts that a fracture of the glenoid cavity was found in three of Dr. Phelps' cases, and that the history of nearly all cases shows difficult labor, he is led to believe that these cases are not of paralytic origin, or due to non-development, as affirmed by Scudder, but are due to traction made in the axilla by the finger or vectis, or to the arm being caught in some

unusual position and dislocated by the contraction of the uterus. Paralysis may be coincident, but it cannot be a primary factor in causing dislocation posteriorly.

5. The prognosis of the operative treatment is excellent. The earlier the operation the more hopeful the outlook.

6. Like congenital dislocation of the hip, these cases of the shoulder are little benefited by mechanical treatment.

Mackay, H. : A Case of Perforated Gastric Ulcer with Operation and Recovery. (*Lancet*, No. 4042.)

The patient was a girl seventeen years old. The perforation of the posterior wall two inches from the cardia was closed by approximating the edges of a 5-6 cm. tuck through a median incision enlarged to the left. Time of operation four hours after the accident. The peritoneal cavity was wiped out and gauze drains left in, which were removed on the fifth day. The abdominal wound healed on the tenth day. On the twenty-ninth day a secondary abscess of the diaphragmatic pleura ruptured into a bronchus. Further recovery uneventful.

Ladinski, Louis J. : Internal Hemorrhage, the Result of Traumatic Rupture of Adhesions due to Acute Appendicitis, with the Report of a Case. (*Medical Record*. Vol. lviii., No. 24.)

The case reported is that of a boy, eleven years of age, with some presumably slight abdominal disturbance. After a fall, symptoms appeared that rendered operation advisable. The peritoneal cavity was found partially filled with blood which came from a rent in the mesoappendix. The blood was washed out and the appendix removed. Recovery was uneventful.

HYGIENE AND THERAPEUTICS.

Jacobi, A. : Treatment of Influenza in Children. (*Medical News*. No. 1457.)

For the protracted vomiting he recommends rectal feeding and the exhibition of half-drop doses of Magendie's solution placed upon the tongue. High temperature without remissions should be combated. He no longer uses acetanilid but relies upon phenacetin and antipyrin. To antagonize any tendency to heart failure he much prefers caffeine to alcohol, and employs it in the form of the salicylate or benzoate of sodiocaffeine, by the mouth, or in case of emergencies, hypodermically, the daily dose being from three to ten grains. Strychnia is, of course,

indicated as a synergist. If caffeine causes cerebral excitement camphor may be substituted, its dose being about one-third of that of the former remedy. An excellent stimulant for children, which has almost been suffered to pass into disuse, is Siberian musk—five to ten minims of a 10 per cent. tincture every half hour in threatened collapse. He has used this remedy in connection with hot enemata for over fifty years.

Monti, A. : The Scientific Basis upon which to Construct a Food Equal to Breast Milk. (*Arch. f. Kinderhk.* Vol. xxxi., Nos. 1 and 2.)

The problem of artificial infant feeding will never be solved successfully until it is possible to imitate absolutely the composition of breast milk. The acidity of any artificial food should be the same as that of breast milk. And this may be accomplished by the addition of sodium carbonate, the food being, as a rule, too acid. From experiments made by his assistants, Monti finds five grams of sodium carbonate per liter sufficient to reduce the acidity of cow's milk to that of breast milk; while if the milk is diluted with equal parts of whey, four grams per liter are enough. It is only after the correction of acidity that the addition of rennet can be made to cause cow's milk to coagulate in a way which approaches that process in breast milk. The latter contains less casein and more soluble albumin (lactalbumin and lactoglobulin) than does cow's milk, the exact percentages varying in the age of the breast milk. Diluting with whey does not make the proportion of casein and soluble albumin in cow's milk exactly similar to that in breast milk, but its results are infinitely superior to those obtained by using water as the diluent. The whey also causes greater digestibility of the casein, although the results are not identical with those obtained with human milk. As for the fat, the addition of whey does not bring about its ideal proportion to proteids, but it comes nearer to doing so than does the addition of more fat. Centrifuging milk acts unfavorably upon the structure of the fat and increases the difficulty of its reposition. Whey, being a natural sugar of milk solution, forms the best possible method with which to equalize the amount of sugar contained in cow's milk with that in breast milk. All these advantages of the whey are sufficient to offset the fact that, as it contains all the mineral constituents of milk, it increases instead of decreases the salts already present in too large amounts according to the standard of breast milk.

The whey diluted milk is heated for ten minutes at 60 to 70° C., and then cooled to 6° C., at which temperature it is kept until used. Sterilization at 100° C. causes coagulation of the soluble albumin, and is therefore useless for this mixture. No known method of artificial feeding provides the infant with the same daily amount of casein, soluble albumin, fat, sugar and salt as is contained in breast milk; therefore it is impossible to attain the same progress with an artificially fed infant as with one fed on breast milk. But of all known methods of artificial feeding, the dilution of cow's milk with whey is the one which brings the proportions of the constituents of an artificial food nearest to those of breast milk.

Adams, Samuel S.: The Treatment of Bronchitis in Infants and Young Children. (*Medical News.* No. 1458.)

Bronchitis has a more varied origin than any other disease of early life. For this reason its management must necessarily be complicated in the direction of prophylaxis and the causal indication. The author especially praises inhalations administered by means of the steam-tent or inhaler according to the age of the child. The entire atmosphere of the room may also be kept constantly impregnated with vapor by boiling a pan of water. Under the head of expectorants he cites only ammonium iodid, syrup of ipecac and syrup of hydriodic acid, the latter especially when expectoration is copious. Opiates, which are contraindicated for routine use, become necessary if the cough is incessant. Paregoric, codein and Dover's powder may be used, but never in combination with expectorants. Emetics are seldom indicated. Cardiac stimulants on the other hand are very frequently needed, and there is nothing so good as alcohol, with nitro-glycerin as a synergist. Respiratory stimulants (strychnia and atropia) are seldom required and should be given only by the practitioner himself. For dyspneic crisis when the right heart is distended, a general hot bath (110°-120°) is efficacious.

Collins, George L.: A Brief Summary of Nine Cases of Lobar Pneumonia Treated by Ice-pack. (*Boston Medical and Surgical Journal.* Vol. cxliv., No. 13)

In addition to the usual treatment dry cold was applied over the affected area by means of ice-bags. The ice-pack caused discomfort in one case. In no case was the crisis accompanied by dangerous collapse. The pack was used in cases with well marked signs, in cases showing resolution and as an abortive measure. Coincident bronchitis was not considered a contra-indication. High temperature was considered the indication for the application of ice. A lowered temperature was the indication for its removal. This took place in 8 cases within twenty-four hours. The white count fell with the temperature, but reached normal not less than one week after the temperature was normal. The ice-pack had no influence on the duration of physical signs.

American Pediatric Society.

Thirteenth Annual Meeting to be held at Niagara Falls, N. Y.,
May 27, 28 and 29, 1901.

1. President's Address, WILLIAM D. BOOKER, M.D., Baltimore.
2. (a) "The Visceral Lesion of the Erythema Group of Skin Diseases in Young Children."
(b) "Congenital Absence of the Abdominal Muscles with Distended and Hypertrophied Urinary Bladder in a Child of Six Years." By WILLIAM OSLER, M.D., Baltimore.
3. "The Feeding of an Incubator Baby." By CHARLES W. TOWNSEND, M.D., Boston.
4. "Glass Sun Rooms on City Roofs, or Winter Play Houses." (Illustrations.) By W. P. NORTHROP, M.D., New York.
5. "An Account of an Epidemic of Malaria in Children." By ROWLAND G. FREEMAN, M.D., New York.
6. "An Analysis of 32 Cases of Congenital Heart Disease." By JOHN LOVETT MORSE, M.D., Boston.
7. "A Study of 571 Cases of Summer Diarrhea." By CHAS. GILMORE KERLEY, M.D., New York.
8. "A Note on the Little Finger of the Mongolian Imbecile and of Normal Children." By J. PARK WEST, M.D., Belaire, O.
9. "A Case of Pulmonary Gangrene in an Infant." By WALTER LESTER CARR, M.D., New York.
10. "Bulbar Symptoms in the Newly-Born." By IRVING M. SNOW, M.D., Buffalo.
11. "A Case of Acute Hemorrhagic Nephritis Complicating Influenza in a Thirteen Months Old Baby." By D. J. MILTON MILLER, M.D., Philadelphia.
12. (a) "Amaurotic Family Idiocy." (b) "Monster." By A. C. COTTON, M.D., Chicago.
13. "Cyclical Albuminuria." With report of a case. By FRANK SPOONER CHURCHILL, M.D., Chicago.
14. (a) "Heart Leap." (b) "Maternal Impressions." Report of case. By B. K. RACHFORD, M.D., Cincinnati.
15. "Measles Complicated by Appendicitis." By HAROLD WILLIAMS, M.D., Boston.
16. "The Treatment of Tuberculosis." By B. K. RACHFORD, M.D., Cincinnati.
17. Title to be announced. F. HUBER, M.D., New York.
18. Title to be announced. A. SEIBERT, M.D., New York.

Papers are promised by Doctors Rotch, Acker, Adams and others.

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CONGENITAL OCCLUSION OF THE DUODENUM.*

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Congenital occlusion of the small intestine is said to occur most often in the duodenum. Reviewing the literature upon this subject as far as it was at my disposal I found reported 56 cases of stenosis and atresia of the duodenum, my own case making the 57th. The oldest case on record is one described in 1808 by Aubéry (*Méd. Chir. Zeitung. Salzburg*, Vol. iv., 269).

Theremin† writes that this malformation is exceedingly rare, the records of the largest foundling asylums showing only isolated cases. The reports of the Vienna institution during eleven years showed only two cases of occlusion of the small intestine. In the St. Petersburg Foundling Asylum, where autopsies are frequent, only nine cases of this malformation had been recorded, whereas no cases of the kind had occurred in similar institutions in Moscow and Prague.

Total occlusions are more common than stenoses. Many authors, among them Förster,‡ Hecker|| and Dohrn,§ state that atresias of the duodenum are most frequent in the middle and lower portions of this section of the gut.

The causes which may lead to intestinal occlusion are numerous, some of the most important being:

(a) Errors of development, (b) volvulus, (c) fetal peritonitis, (d) ulceration, (e) pressure caused by new growths, (f) abnormally long persistence of the omphalomesenteric duct, (g) traction due to inguinal hernia, (h) circulatory anomalies,¶

* Read at a meeting of the New York Pathological Society, April 10, 1901.

† Deutsche Zeitschrift für Chirurgie, 1877, p. 34.

‡ Missbildungen des Menschen.

|| Monatsschrift für Geburtsk. Bd. viii., S. 241.

§ Jahresbericht f. Kinderheilk. 1868. S. 220.

¶ Jaboulay, Province Médicale, Lyon. 1891. Vol. V., p. 333.

(absence of arterial branches), and (i) embolism of the superior mesenteric artery.

Pressure of the head of the pancreas upon the duodenum is spoken of by both Serr and Felix Heyman, each of whom cites a case attributable to this cause. As for embolism of the superior mesenteric artery, Virchow believes this to be an exceedingly rare cause of intestinal occlusion and Küttner* shares his view. The old idea that amniotic bands may cause strangulation of the intestine was disproved by Küttner.†

Peritonitis may be primary or secondary; when primary it is most often of syphilitic origin. Mauclaire and Alglave‡ describe congenital tubercular peritonitis in a full term infant which lived six days. Several strictures of the intestine were found at autopsy and tubercle bacilli were demonstrated in the enlarged mesenteric lymph nodes as well as in giant cells in tubercular areas in the intestinal wall.

The fact that the majority of infants in whom malformations of this nature are found, were born prematurely, is mentioned by Schottelius|| as evidence in favor of specific disease as a causative factor. The circumstance that no signs of peritonitis could be found in a large number of the cases reported cannot, according to Fiedler§ be regarded as proof of the non-existence of the condition; he assumes that a peritonitis occurring early in fetal life, may leave no discoverable trace. Theremin holds that Fiedler's theory is applicable only to cases of peritonitis occurring in the first half of fetal life, that is to say before the occurrence of peristalsis.

Volvulus, caused by a long mesentery and the occurrence probably of exaggerated peristalsis, in conjunction with those changes of position which the intestine undergoes during its various stages of development, is held to be a very frequent cause of intestinal occlusion. Among others, Rokitansky,¶ Virchow, Orth,# and Birch-Hirschfeld+ express this opinion.

* Virchow's Archiv, 54.

† Ibid, p. 39.

‡ Bull. et mém. de la Société Anatom. de Paris. Abstract in Centralblatt f. Chirurgie. Vol. xxvii., 1900, p. 728.

|| Casuistische Mittheilungen aus dem pathologisch-anatomischen Institut zu Marburg.

§ Archiv f. Heilkunde. 1864, Bd. v.

¶ Handbuch der Pathologischen Anatomie.

Lehrbuch der Speciellen Pathologischen Anatomie, Berlin, 1887.

+ Pathologische Anatomie. Specieller Theil, ii. Hälfte, S. 647.

Markwald* excludes volvulus as a cause of atresia when the occlusion occurs at about the middle of the descending limb of the duodenum, since twisting at this point is, he says, prevented by fixation of the gut by peritoneum. Felix Heyman† also advocates this view, adding that the retroperitoneal position of the duodenum is established in the fourth fetal month. Hess found the stricture in his case at the point where the duodenum passes through the mesocolon and he believes that pressure of the ring-shaped fold of the mesocolon upon the duodenum may have caused the occlusion.

Bland-Sutton‡ says: "Congenital obstruction and narrowing of the alimentary canal are always found in the situation of embryological events." This dictum is not strictly correct, as occlusion of the intestinal tract can take place at any point often without reference to special embryological events.

Letulle§ describes two cases in which diverticula were found in the immediate neighborhood of the papilla. In one case five diverticula, four above and one below the papilla, existed; these had a maximum depth of 15-16 mm. and the ductus choledochus and its branches were considerably dilated, although the liver was normal and no obstruction could be found. Letulle regards these diverticula as congenital malformations and says: "The region of the papilla from an early period in the life of the embryo, undergoes radical formative change as a result of which liver and pancreas develop."

By referring to the cases tabulated below, of which 48 are atresias and 9 stenoses, it will be seen that occlusion of the duodenum is most frequently very near the opening of the common bile duct into the duodenum, either above it or below it. In only 8 of the tabulated cases was a distinct cause for the occlusion found.

In case No. 57, and I have reason to believe in several of the preceding cases, there existed in addition to the atresia an anomaly of the common bile duct, a branch of the same having been found leading into the dilated duodenum above the atresia.

Förster § says that the ductus choledochus may be absent

* Münchener Med. Wochenschr. 1894. No. 14, p. 265.

† Monatsschr. f. Geburtshilfe und Gynaekologie, Vol. x., p. 186. 1899.

‡ Amer. Journ. of the Med. Sciences, Phila. 1889. N. S., Vol. xcvi., pp. 457-462.

§ Diverticules péri Vatiériens, Bull de la Société Anatom. de Paris, 5 Série 12, 1898.

§ Missbildungen des Menschen.

or one hepatic duct may be lacking. Sometimes the ductus choledochus divides into two branches, of which one opens into the stomach or even into the large intestine.

The case which occurred in the New York Infirmity for Women and Children and which is the only one of the kind on record in that hospital is as follows:

Mary W., a healthy Irish woman thirty-eight years old, gives a negative history; no data pointing to specific disease could be obtained: she has had no miscarriages, but has borne six children, four of whom are dead and two living. The last child, a girl, was born on October 20, full term after a normal labor. The baby presented no abnormalities externally, weighed 3,200 grms. and was 49 cm. long. Her face at birth looked old and wrinkled; she nursed with difficulty, but when fed on a milk mixture, she took this fairly well, but vomited at intervals, the vomitus consisting of yellow material resembling bile; meconium in considerable amount was passed at intervals. On the third day a drawn, pinched expression of the face was noted. The infant was found dead in bed on the fourth day; the nurse administered a stimulant a half an hour before, observing no change in the infant's condition at that time.

AUTOPSY October 24, seven hours after death. The body is poorly nourished, there are no skin lesions, the feet are extended, the toes flexed, the fingers are flexed upon the thumbs. The umbilical cord is dry and still adherent

BRAIN.—Normal, save for congestion of the vessels of the pia. The sinuses contain fluid blood.

LUNGS.—No pleurisy. Left lung: the lower lobe is three-quarters solid; on section there is atelectasis; the left upper lobe and all the lobes of the right lung contain scattered areas of atelectasis. The bronchial lymph nodes are normal.

HEART.—Both auricles are distended with blood, the valves are normal and the foramen ovale is open.

LIVER.—Congested, but otherwise normal; the umbilical vein contains dark semi-fluid blood.

SPLEEN has two lobes; it is somewhat congested and slightly enlarged.

KIDNEYS are reddish gray, showing fetal lobulation; the capsules are free, the surface beneath is smooth; on section the cortex is normal and the markings are distinct; the tubules of the pyramids contain uric acid.

PANCREAS and **ADRENALS** are normal, a small portion of the

former lying flattened against the posterior wall of the dilated duodenum.

ESOPHAGUS.—Normal.

STOMACH contracted with the exception of the pyloric ring, which has a diameter of $1\frac{1}{2}$ cm. The stomach is larger than normal, the pyloric third having undergone considerable distension; the greater curvature measures $14\frac{1}{2}$ cm., the lesser $6\frac{1}{2}$ cm. The pylorus leads into a large oval sac which ends blindly just above the papilla; this sac in its greatest circumference measures 10 cm.; the inferior curvature from the pylorus to the obliterated portion measures $8\frac{1}{2}$ cm., the superior 13 cm. The walls of the sac, like those of the stomach, are much hypertrophied, the mucosa is smooth, not showing valvular folds like those seen in the intestine below the atresia. The mucosa at the point of occlusion is smooth, showing no trace of cicatrization. On the posteroinferior wall of the blind sac there is an oval area about 5 mm. long and $3\frac{1}{2}$ mm. wide, in which the mucosa is lacking; at the point where the mucous membrane recommences it forms a straight valvular fold, beneath which is hidden the orifice of a canal about 4-5 mm. long; a probe in this canal passes downward and inward issuing from the orifice of the common bile duct in the papilla.

The common bile duct is formed by the junction of the hepatic ducts, the pancreatic joining the main duct in the usual manner before the latter enters the duodenum. An accessory pancreatic duct is not present. The papilla is situated immediately below the atresia which consists of a simple constriction of the gut at this point, the small intestine beginning as a blind sac below and having a diameter of $1\frac{1}{2}$ cm.; the contents of the blind sac consist of a small amount of mucus and thin greenish-yellow fluid; the remainder of the small intestine is normal, its upper portion containing a little yellow, somewhat pasty material; the cecum and colon are normal, both containing meconium. The vermiform appendix and the mesenteric lymph nodes are normal, as are the peritoneum and peritoneal ligaments.

There is nowhere any evidence of inflammatory adhesions; the blood-vessels of the stomach and duodenum are much congested but show a normal distribution.

The urinary bladder is contracted, and the uterus and adnexa are normal.

ANATOMICAL DIAGNOSIS.—Atelectasis; congenital atresia of

the duodenum above the orifice of the ductus choledochus; hypertrophy and dilatation of the stomach and upper portion of the duodenum; general congestion.

MICROSCOPIC EXAMINATION.—The blood-vessels of the lung are congested, and the organ shows the lesion of atelectasis. The spleen is much congested, the thymus body, kidneys, pancreas and suprarenals are normal.

STOMACH.—Save for considerable desquamation of the epithelium, the mucosa is normal. The muscular layers are thickened; the peritoneum is normal.

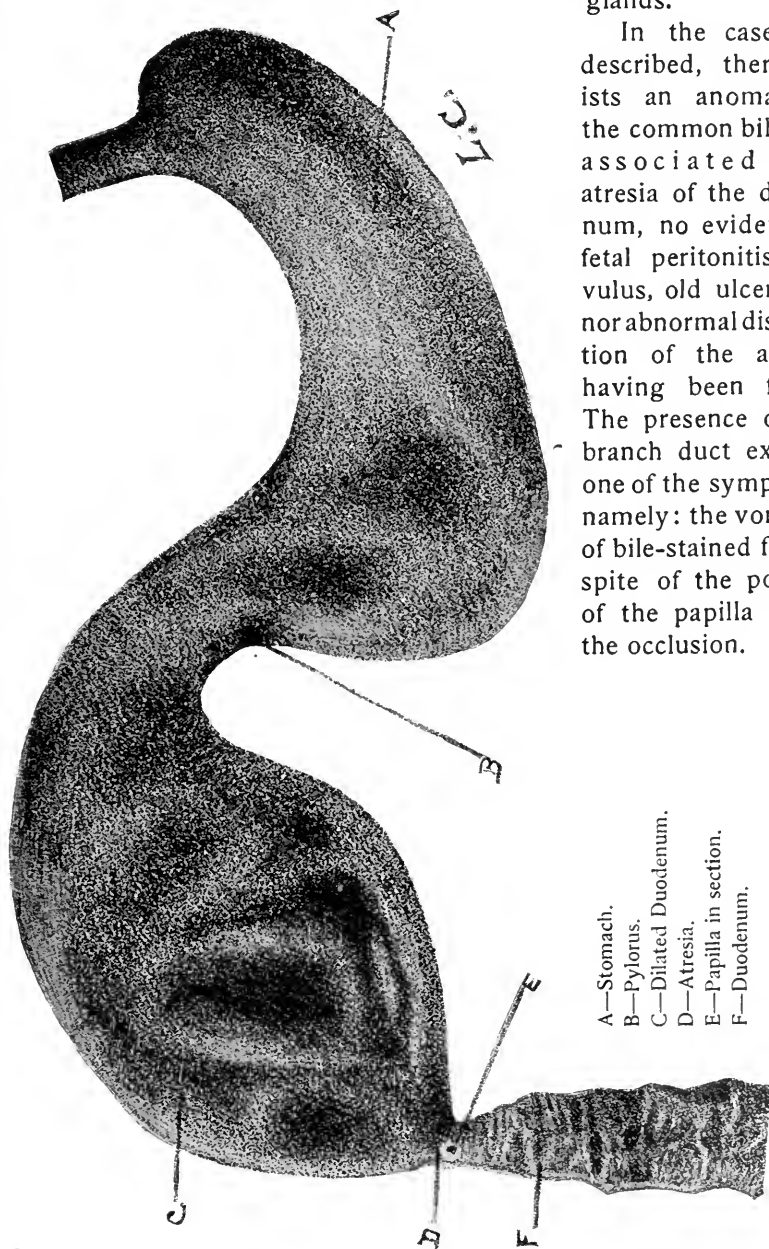
UPPER DILATED PORTION of the duodenum: the mucosa and submucosa are thinner than the corresponding layers of the duodenum below the atresia, but their structure is normal.

The epithelium lining Lieberkühn's glands is desquamated in places. Compared with sections from the duodenum of a number of normal infants the villi and the number and arrangement of Lieberkühn's glands are apparently normal. Numerous groups of Brunner's glands are found in the submucosa and the peritoneum is normal, the endothelial layer being in most places well preserved. Below the atresia the mucosa and submucosa are well developed and valvulæ conniventes are found. From a point 1 cm. below the papilla Brunner's glands become gradually fewer in number, ceasing 3-4 cm. below the atresia. Sections of the duodenum of infants at birth to eight to ten weeks old show the same arrangement and distribution of Brunner's glands.

Transverse sections of the common duct at the papilla show a normal structure save for slight hypertrophy of the muscle coats. The tall columnar cells lining the duct have undergone considerable desquamation. The branch duct possesses the same structure as the common duct. Sections through the valvular fold which covers the orifice of the branch duct show it to be composed of a layer of connective tissue having the structure of submucosa; both surfaces of this layer are covered with a narrow mucous membrane, that on the superior surface possesses the structure of the membrane lining the duodenum, while that on the inferior surface resembles the lining membrane of the duct. Sections were made showing both papilla and duodenum and these were compared with similar sections from the duodenum of normal infants at birth to a few weeks old; between the two there was a striking difference: the first showed few if any Brunner's glands in the immediate neighbor-

hood of the papilla, while in the latter the submucosa in the same region contained an almost continuous layer of these glands.

In the case here described, there exists an anomaly of the common bile duct associated with atresia of the duodenum, no evidence of fetal peritonitis, volvulus, old ulceration, nor abnormal distribution of the arteries having been found. The presence of this branch duct explains one of the symptoms, namely: the vomiting of bile-stained fluid in spite of the position of the papilla below the occlusion.



- A—Stomach.
- B—Pylorus.
- C—Dilated Duodenum.
- D—Atresia.
- E—Papilla in section.
- F—Duodenum.

CONGENITAL OCCLUSION OF THE DUODENUM.

CASE NO.	REFERENCE	SEX	FETAL MONTH	AGE	SYMPTOMS	POSITION OF OCCLUSION	CONTENTS OF STOMACH	CONTENTS OF DUODENUM ABOVE OCCLUSION	CONTENTS OF INTESTINE BELOW OCCLUSION	LIVER AND PANCREAS	ETIOLOGY
1	AUBÉRY: Med. Chir. Ztg., Salzburg, 1808. IV., 269.	?	?	6 days	Vomiting	Above papilla. (Common duct ends without opening in up- per blind part of small intestine)	?	?	?	?	?
2	SCHÄFER: Würzburg, Sept., 1824. Abstract in Bil- lard's "Maladies des Enfants."	Male	Full term	7 days	Vomited brown liquid resem- bling mecon- ium. No stool.	Below opening of com. duct. (End of third portion).	Much liquid.	Brown liquid	Small amount whitish albuminous viscid material.	Both healthy	?
3	BARON: Meeting of the Royal Academy Med., April 11, 1826. Am. Jour. Med. Sc., 1868, LV., 69-76.	?	?	3d day	Vomited. No stools.	At junction with jejunum. (Opening of duct not men- tioned).	?	?	No meconium found.	?	?
4	CROOKS: Journal d. pro- grès des Sc. et Inst. méd., 1828. VIII., 250.	?	8 months	2 days 17 hours	Vomited mate- rial resembling blood or me- conium (hem- atemesis).	Below opening of com. duct.	?	?	?	Liver en- larged. Pancreas. ?	?

5	GUYOT: Bull. Soc. Anat. Vol. IV., 1829, P. 71.	?	?	?	?	?	?	?	?	?	?	?
6	BILLARD: Maladies des Enfants, Paris, 1837. P. 376.	Male	?	4 days	Constant vomiting. Vomited milk and yellow liquid. No meconium stools.	At end of third portion of duod. Below opening of com. duct.	?	Yellow frothy ma- terial.	Viscid mu- cus. No meco- nium.	?	?	?
7	ROKITANSKY: Protokoll, 281 vom Jahre, 1837. Nr. 11, 926- 102.	Male	?	4 days	?	At lower ex- tremity of du- odenum.	?	Yellow fecal mat- ter.	Grayish mucus.	Both nor- mal.	?	?
8	COHEN: Med. Ztg., Berlin, 1838, VII., 195.	?	?	3 days	No meconium stools.	At junction of duodenum and jejunum.	?	?	Bright yellow slimy coating.	?	?	?
9	SPEYER: Canstatt's Jah- resb., 1844. Bd. I., p. 11.	?	?	?	Vomiting. Meconium stools.	At end of duo- denum.	?	?	?	Liver large Pancreas. ?	?	?

CASE NO.	REFERENCE	SEX	FETAL MONTH	AGE	SYMPTOMS	POSITION OF OCCLUSION	CONTENTS OF STOMACH	CONTENTS OF DUODENUM ABOVE OCCLUSION	CONTENTS OF INTESTINE BELOW OCCLUSION	LIVER AND PANCREAS	ETIOLOGY
10	ROBT. BOYD: Med. Chir. Rev., Vol. XXIII, 1847. P. 412.	?	?	Still-born	?	Position ? Com. duct not noted.	?	?	?	?	?
11	ALBERS: Erläuterungen zu dem Atlasse d. path. Anat. f. prakt. Aertzte, Bonn, 1847-57.	?	?	8 days	Vomiting. Meconium stools.	Horizontal and descending portions of duodenum absent. Com. duct. ?	?	?	?	?	?
12	ALBERS: As above, 1847-57.	?	?	?	?	As above. Com. duct. ?	?	?	?	?	?
13	* HECKER: Monatsschr. f. Geburtshilfe, VII., p. 241, 1855.	?	?	5 days	Vomiting brownish-yellow material. Mecon. stools.	Middle of duodenum at point of entrance of com. duct.	Brownish yellow fluid.	?	?	?	?

14	CROSBY-LEONARD: Assoc. Med. Journ., No. 197, 1856. Also Canstatt's Jahresbericht, 1856, IV., S. 29.	Female	?	4 days	Vomiting; (before death little bloody fluid). Small stool.	Above opening of com. duct.	Brownish fluid and blood clot.	?	Meconium.	Both normal	?
15	WILKS: Trans. Path. Soc., London, 1861. XII., 102.	?	?	38 hours	Vomiting of meconium at intervals. No stool.	Immediately above opening of com. duct.	Greenish fluid.	?	Meconium.	Both normal.	?
16	* WALLMANN: Wiener Wochenschr., 1861. XVII., 32. Also Schmidt's Jahrb., 1862, S. 289.	Male	?	5 days	Icterus. Vomiting.	On level with com. duct.	?	?	?	?	?
17	HIRSCHSPRUNG: Schmidt's Jahrbuch, 1861. 117, S. 310.	?	About 8 months	5 days	Vomiting (resembled meconium). Mecon. stool.	Above opening of com. duct.	Dark greenish semi-fluid material like meconium.	Same as stomach.	?	Liver normal. Pancreas. ?	?
18	SCHUPPEL: Archiv. für Heilk., 1864. S. 83.	?	?	?	?	Below opening of com. duct.	?	?	Grayish yellow thin paste.	?	?

CASE NO.	REFERENCE	SEX	FETAL MONTH	AGE	SYMPTOMS	POSITION OF OCCLUSION	CONTENTS OF STOMACH	CONTENTS OF DUODENUM ABOVE OCCLUSION	CONTENTS OF INTESTINE BELOW OCCLUSION	LIVER AND PANCREAS	ETIOLOGY
19	MICHEL: Am. Journ. Med. Soc., Phila. 1868 Vol. LV. Pp. 69-76.	?	At term	3 days	Vomiting.	At junction of first and second portions of duod. Com. duct. ?	?	?	?	Both normal.	?
20	* DOHRN: Jahrbuch für Kinderheilk. 1868. N. F. I. Jahrg., S. 220.	?	Several weeks too early.	30 hours	?	Common duct opens into narrow canal between two portions of duod.	?	?	Meconium.	Liver normal. Pancreas. ?	Fetal peritonitis.
21	HERVEY: Bull. Soc. Anat., Vol. XLV., 1870. P. 338.	Female	?	5 days	Vomiting (blackish coffee ground). No stools.	At junction of superior and vertical portions Above opening of com. duct.	Thick blackish material and curdled milk.	?	Meconium.	?	?
22	A. HEMPEL: Jahrb. für Kinderheilk., VI. 1873. S. 381.	?	Full term	5 days 20 hours	Vomiting. Scanty stool.	Middle of vertical portion. Above opening of com. duct.	Pale gray opalescent fluid	?	Scanty meconium.	Liver normal. Pancreas. ?	?

23	FERBER: Jahrb. für Kin- derheilk., VIII., 1875. S. 423.	Female	7-8 months	4 days	Vomiting (black masses like me- conium.)	Duodenum ended blindly. Com. duct. ?	Meconium. ?	Meconium and mucus	Yellowish gray fecal masses.	Both normal.	Acute peri- tonitis (due to rupture of intestine).
24	R. WÜNSCHE: Jahrb. für Kin- derheilk., VIII., 1875. S. 307.	?	?	6 days 7 hours	?	Below opening of com. duct.	?	?	Little glairy mucus.	Liver nor- mal (absent gall blad- der). Pancreas. ?	Traction caused by right ingui- nal hernia. (?)
25	* THEREMIN: (Dr. Rauchfuss) Deutsche Zeit- schrift für Chir- urgie, 1877. Bd. VIII., S. 34	?	?	Died during the first week.	?	Stenosis at level with ori- fice of com. duct.	?	?	Mucus.	?	?
26	* THEREMIN: As above. 1877.	Female	?	12 days	Frequent vom- iting.	Stenosis about at level with orifice of com. duct.	Mucoid, blackish fluid and coag. milk.	Same as stomach.	?	Liver nor- mal. Pancreas. ?	?
27	THEREMIN: As above. 1877.	Male	Immature	4 days	Vomiting coag. milk. Scant meco- nium stool.	At junction of second and third portions. Below opening of com. duct.	Milk.	Milk.	Meconium.	Liver con- gested. Pancreas. ?	Fetal peri- tonitis.

CASE NO.	REFERENCE	SEX	FETAL MONTH	AGE	SYMPTOMS	POSITION OF OCCLUSION	CONTENTS OF STOMACH	CONTENTS OF DUODENUM ABOVE OCCLUSION	CONTENTS OF INTESTINE BELOW OCCLUSION	LIVER AND PANCREAS	ETIOLOGY
28	THEREMIN: (Dr. Rauchfuss) <i>Deutsche Zeitschrift für Chirurgie</i> , 1877. Bd. VIII., S. 34.	Female	? (3 lbs.)	2 days	?	At junction of second and third portions of duod. Below com. duct.	Blackish gray material and coag. milk.	Same as stomach.	Meconium.	Liver normal. Pancreas. ?	Fetal peritonitis.
29	*THEREMIN: As above. 1877.	Female	Premature	6 months	?	Common duct. opens into stenosed intestine.	Gas and blackish brown (bloody) material.	Same as stomach.	Red fluid.	Liver of normal form but anemic. Pancreas. ?	?
30	THEREMIN: As above. 1877.	?	?	During first week	?	At junction of middle and lower portions. Just above orifice of com. duct.	?	?	?	?	?
31	THEREMIN: As above. 1877.	Male	?	4 days	Icterus. Vomiting. Meconium stools.	Above orifice of com. duct.	Coag. milk and mucus.	Same as stomach.	Small amount meconium.	Liver congested. Pancreas. ?	?
32	EASTES: <i>British Med. Journ.</i> , 1880-1, P. 281.	?	?	5 days	Vomiting (later coffee-ground). Scant mecon. stools.	Obliteration of lower portion of duod. Com. duct. ?	?	?	?	?	?

33	* DARIER: Progrès. méd, Paris, 1882. X. 385-387.	Male	8 months	3-4 days	Vomiting of black material. Per anum, semi- solid black ma- terial.	Between second and third por- tions of duod. Stenosis below opening of com. duct.	Gas and liquid black material.	?	?	Liver normal. Pancreas. ?	?
34	SILBERMANN: Jahrb. für Kinder- heilk., 1882. XVIII.	Male	?	4 days	Vomiting of yel- lowish mucus. Meconium stools	Above opening of com. duct.	Milk.	?	Bile- stained mucus.	Liver strikingly large. Pancreas normal.	?
35	W. M. THOMAS: Lancet, London, 1884. IV. 63.	?	7 months	4 days	Icterus. Vomiting of ma- terial like child's pale motion.	At end of duo- denum. Com. duct not mentioned.	?	?	?	Both normal.	?
36	BORN: Archiv. für Anat. und Entwick- lungsgeschichte, Leipzig, 1887. Pp. 216-234.	Male	?	?	?	At end of first portion. Com. duct. ?	?	?	?	Both normal.	?
37	EMERSON: Arch. of Pedi- atrics, Phila., 1890. Vol. VII. P. 684.	?	?	4 days and 10 hours	Vomiting dark brown, watery grumous fluid. Tarry stools, later meconium stools.	Just above ori- fice of com. duct.	Dark grumous fluid.	?	Almost completely empty.	?	?
38	W. P. NORTHROP: Arch. of Ped., Phila., 1890. Vol. VII. P. 684.	?	?	?	?	Just above ori- fice of com. duct.	A little mucus or meconium.	?	Bile- stained mucus.	?	?

CASE NO	REFERENCE	SEX	FETAL MONTH	AGE	SYMPTOMS	POSITION OF OCCLUSION	CONTENTS OF STOMACH	CONTENTS OF DUODENUM ABOVE OCCLUSION	CONTENTS OF INTESTINE BELOW OCCLUSION	LIVER AND PANCREAS	ETIOLOGY
39	SEIBERT: Arch. of Pediatrics, Phila., 1890. Vol. VII. P. 684.	?	?	?	Vomiting of blood.	?	?	?	?	?	
40	ROSENKRANZ: Inaugural Dissertation d. med. Facultät zu Königsberg in Preussen. 1890.	Male	8 months	4 days	Icterus. Vomiting of breast-milk. Meconium per anum.	Above opening of com. duct.	Semi-fluid.	Same as stomach.	Almost empty.	Both ?	?
41	* SERR: Med. Monatschrift, New York, Bd. II. 1890. P. 57.	Male	?	7 days	Icterus. Vomiting of grayish-brown masses; later blood and milk. Stools: meconium and blood.	Two ducts open into stenosed portion.	?	?	?	?	Pressure of head of pancreas on duodenum.
42	* ALY: Centralblatt f. Gynaekologie, 15. 1891. P. 901.	?	?	40 hours	Vomiting of mucus, blood and milk. Meconium stools.	Stricture at point where com. duct enters gut.	?	?	?	?	?

43	PORAK and BERNHEIM: Bull. et Mém. Soc. Obst. et Gynéc. de Paris, 1891. Pp. 85-87.	Female 8 months	5 days	Vomiting of blackish mate- rial. Small amount meconium per anum.	At end of first portion.	?	Meconium.	?	?
44	HOBSON: British Med. Jour., 1893. P. 637.	Female 8½ months	3 days	Vomiting of meconium-like material. Small amount meconium per anum.	Above opening of com. duct.	?	?	?	?
45	MARKWALD: M ün ch. Med. Wochenschr., 1894. No. 14, p. 265.	Male 6 weeks after ex- pected end of preg- nancy. (?)	4 days	Vomiting.	Above orifice of com. duct.	Small amount of glairy mucus.	Meconium.	Liver of slightly irregularly lobulated shape. Pancreas. ?	Inflamma- tion of mucosa of stomach and duodenum.
46	M. SONDÉN: Abstract in Vir- chow's Jahres- bericht, 1895, XXX., 1., p. 227.	Female Almost full term.	5 days	Partial regurgi- tation of nour- ishment.	At end of up- per portion. Com. duct.	?	Light yellow meconium.	?	?
47	BRINDEAU: Bull. et Mém. Soc. Obst. et Gynéc. de Paris, 1895. P. 73.	?	3 days	Vomiting of material resemb- ling fecal matter of new-born.	Below orifice of com. duct.	Yellow fluid and partly digested milk.	A little pasty mate- rial not bile stained.	Liver small and yellow. Pancreas. ?	?

CASE NO.	REFERENCE	SEX	FETAL MONTH	AGE	SYMPTOMS	POSITION OF OCCLUSION	CONTENTS OF STOMACH	CONTENTS OF DUODENUM ABOVE OCCLUSION	CONTENTS OF INTESTINE BELOW OCCLUSION	LIVER AND PANCREAS	ETIOLOGY
48	TRUMPP: Münch. Med. Wochenschr., 1896 XLIII., 747-749.	Female	7½ months (one of twins)	4 days	Icterus. Vomiting.	At junction of upper and middle thirds. Just below orifice of com. duct.	?	?	Empty.	Liver large and congested. Pancreas. ?	?
49	CHAMNEYS: British Med. Journ., 1897. Mch. 20, p. 718.	?	?	5 days	Jaundice. Vomiting of watery, yellow fluid.	Septum just above orifice of com. duct.	?	?	Meconium.	?	?
50	C. HESS: Deutsche Med. Wochenschr., Nr. 14, 1897.†	Male	14 days to 3 weeks too early	2 days	Vomiting of watery, brownish-gray material.	Below opening of com. duct.	?	?	Meconium.	Liver normal. Pancreas. ?	?
51	FELIX HEYMAN: Monatsschrift f. Geburtshilfe und Gynäkologie, X., p. 186 1899.	Female	7 months and 3 weeks	3½ days	Slightly icteric. Vomiting of greenish fluid. Scanty meconium stool.	Below opening of com. duct.	Greenish-brown fluid and mucus.	Like stomach.	?	Both normal.	Pressure of head of pancreas.
52	WYSS: I. Brun's Beiträge für klinische Chirurgie, 1900.	Female	?	6 days	Vomiting of meconium. Small amount meconium per anum.	Between upper and middle portions. Above opening of com. duct.	Meconium, blackish material and gas.	Same as stomach.	Meconium.	Liver large and bright red. Pancreas normal.	Absence of pancreaticoduodenal artery.

53	Wyss: II. As above. 1900.	Male	?	1½ days	Vomiting of blood a few times.	Above opening of com. duct.	?	?	?	?	?
54	Wyss: III. As above. 1900.	?	?	?	?	3½ cm. from the pylorus. Below opening of com. duct.	?	?	?	?	?
55	SICK: Münch. m ed. Wochenschr., 1900. 47, I. S. 170.	?	?	?	?	Above opening of com. duct.	?	?	?	?	?
56	SIMMONDS: As above. 1900.	?	?	?	Melena.	Near opening of com. duct.	?	?	?	?	?
57	L. CORDES: 1901.	Female	Full term	4 days	Vomiting of yellow fluid and nourishment.	Just above opening of com. duct.	None.	Mucus and greenish-yellow fluid.	Meconium.	Both normal.	Probably an error of development.

* Indicates the cases reported as stenoses.

† Stewart in *Medicine*, Detroit, 1898, Vol. IV, pp. 994-999 reports a case of "Congenital Occlusion of the Duodenum," etc. The occlusion was situated about 30 cm. from the pylorus, hence the obliteration involved the upper portion of the jejunum and not, as the author states, the duodenum.

Lardennois, Bull. Soc. Anat., Paris, 1898, p. 799, describes a case of congenital stenosis of the duodenum in an adult. From the microscopic examination he believes the stricture to have been congenital, although positive proof of this appears to me to be lacking.

Grouping the cases tabulated above we find that females numbered 13, males 14, sex not stated in 30; 16 were premature infants: 1 born at seven months; 1 seven and one-half months; 2 seven to eight months; 5 eight months; 1 eight and one-half months; 8 premature, (months not stated); 4 at term; 1 six weeks overtime (?); 36 not stated.

In the cases of total occlusion the ages varied from thirty hours to nine days; in the cases of stenosis from thirty hours to six months. Two thirty hours; 1 thirty-eight hours; 1 forty hours; 2 two days; 1 two days and seventeen hours; 5 three days; 2 three to four days; 13 four days; 8 five days; 1 five days twenty hours; 3 six days; 2 seven days; 1 eight days; 1 nine days; 1 twelve days (stenosis); 2 first week; 9 not stated; 1 still-born; 1 six months (stenosis). The majority of the infants died on the third, fourth and fifth days.

Vomiting was noted in 41 cases; vomiting not mentioned in 16; vomiting of material like meconium in 14; watery brown or yellowish material 5; black or coffee ground or blood 8; nourishment 2; no mucus nor bile 2; nature of vomitus not stated 10.

Meconium stools in 21; stools not stated in 29; stated no meconium 6; blood in 1.

Position of the occlusion: above the orifice of the ductus choledochus in 20 (immediately above in 12; above but exact location not stated 8); below the orifice of the ductus choledochus in 13 (immediately below 2; below but exact location not stated 11); on a level with the ductus choledochus in 2 (atresia in middle of duodenum); ductus choledochus opens into intermediate canal in 4; atresia near opening of ductus choledochus in 1; common duct not mentioned in 15 (first portion occluded 3; at junction of duodenum and jejunum 5; $3\frac{1}{2}$ cm. from pylorus 1; 6 inches from pylorus 1; duodenum ends blindly 2; obliteration of lower portion 1; complete closure of duodenum 1; duodenum from pylorus to ductus choledochus converted into a cord 1).

Contents of stomach not stated in 35 (*contents of duodenum above occlusion* not stated in 32; greenish material 1; yellow frothy material or yellow feces 2.) meconium or material resembling meconium 7 (*contents of duodenum above occlusion* same as stomach in 4; not stated 3.) black material or brownish fluid in 7 (*contents of duodenum above occlusion* not stated 4; same contents as stomach 3.) milk or other contents 6 (*con-*

tents of duodenum above occlusion same as stomach 3; not noted 2; brownish liquid 1.) glairy mucus 1 (*contents of duodenum above the occlusion* not stated 1.) no contents 1 (*contents of duodenum above occlusion* thin greenish-yellow fluid and a little mucus 1). Contents of intestine below occlusion: not stated in 27; meconium 15; stated no meconium in 1; pasty material or yellow feces in 3; mucus or viscid material in 8; greenish-brown fluid with mucus 1; red fluid 1; empty 1. Liver and pancreas: neither noted in 28; both normal in 10; liver normal in 9; pancreas normal 2; pancreas not noted 2; liver congested or large in 8; liver irregularly lobulated in 1; liver small and yellow in 1; gall-bladder absent in 1; small in 1.

In two cases of stenosis of the duodenum reported by Thereimin (Nos. 25 and 26) his description of the narrow canal of communication between the blind sac and the intestine below the atresia, tallies exactly with that of the branch duct in my case, a microscopic examination of which proves this to be an anomalous bile duct and not stenosed intestine.

Thereimin says: "The upper portion of the duodenum which succeeds the pylorus, has a circumference of 8 cm. and is much dilated, it forms a blind sac of spherical shape on whose inferior and lateral wall an apparent defect in the mucosa exists; this defect is of oval form, is 5 mm. long and forms the superior opening of a narrow channel, through which a fine probe passes into the blindly beginning lower portion of the duodenum." Further on, speaking of the common bile duct, the author says: "Into its upper portion," (meaning the lower third of the duodenum) "the ductus choledochus opens, after uniting at an acute angle with the narrow canal which connects the two portions of the duodenum." This case (No. 25) is represented by a specimen prepared by Dr. Rauchfuss, and no clinical history accompanies it.

In Case No. 26 precisely the same condition existed and is described in almost identical words. A history of this case is given: the infant lived twelve days, vomiting frequently, but the character of the vomitus is not stated.

Case No. 20 of Dohrn, in which there existed a narrow canal of communication about $2\frac{1}{2}$ cm. long between the blind sac and the intestine below the occlusion (a very narrow common bile duct opening into this canal) suggests the possibility of an anomalous duct.

Wilks (Case No. 15) writes that after the first twenty-four

hours, vomiting of meconium occurred and continued at intervals for fourteen hours. The atresia was situated immediately above the opening of the common bile duct, the stomach containing greenish fluid. Wilks says: "The supposed vomiting of meconium presented some difficulty; since the gall duct was entirely cut off from the stomach, the fluid ejected must have been the gastric secretion itself." (!)

Hirschsprung (Case No. 17) states in the history that vomiting of material much resembling meconium, was noted during the last two days of life. At autopsy the occlusion was found to be above the opening of the common bile duct, yet the dilated upper part of the duodenum as well as the stomach contained two ounces of dark green semi-fluid material which resembled meconium. Chemical analysis showed that this material consisted of albumin, hematin, a little fat and traces of bile pigment. As the occlusion was complete, Hirschsprung says that the presence of meconium in the stomach is incomprehensible.

Hobson (Case No. 44) noted vomiting of material resembling meconium; autopsy revealed the opening of the common bile duct below the atresia and Hobson concludes that the vomitus must have consisted of changed blood. He says: "Seeing that the interruption was above the entrance of the common bile duct, one cannot see how it could have been meconium at all. So one seems forced to the conclusion that the matter vomited was altered exuded blood."

Dr. W. P. Northrup, (Case No. 38) described at a meeting of the American Pediatric Society in 1890, a specimen of atresia of the duodenum just above the orifice of the common bile duct. The stomach was bile stained and contained meconium like that found in the intestine below the occlusion. Commenting upon the presence of bile in the stomach, Dr. Northrup suggested that a small branch duct leading into the stomach might have been present.

Here then are two cases, 25 and 26, the anatomical description of which indicates strongly that an anomalous duct was present but was overlooked. In the four other cases the clinical history and autopsy findings together render it very probable that a branch duct existed.

Meconium is composed chiefly of vernix caseosa, bile pigments and swallowed amniotic fluid, besides epidermic epithelium, hair, cholesterin and mucin. Meconium was found

in the intestine below the atresia in 12 cases, in 7 of these the opening of the common duct was situated above the atresia; in these cases, therefore, the occlusion cannot have become complete until some time after the establishment of bile secretion which begins in the third month.

In 49 cases no cause for the condition was demonstrated; in 3 cases fetal peritonitis existed. In one instance, Markwald's case, the author attributed the obliteration of the duodenum to inflammation of the mucosa of stomach and duodenum. The autopsy, however, was made seventeen hours after death and many of the changes which Markwald describes, as for example desquamation of the intestinal epithelium, irregularity in the arrangement of Lieberkühn's glands and diminution in their number, are conditions which are very common in the gastrointestinal tract as the result merely of post mortem change even earlier than seventeen hours after death. The evidence in favor of an obliteration due to inflammation is not, therefore, convincing in this case. Pressure of the head of the pancreas upon the duodenum is said to have produced the lesion in cases 41 and 51, while Wyss (Case No. 52) found that the pancreaticoduodenal artery was absent, lack of proper nutrition of the part explaining the narrowing of the intestine. Etiologically, heredity appears to be of practically no importance in these cases.

Whatever may be said with regard to stricture of the intestine in other regions, it seems clear that volvulus and fetal peritonitis cannot be regarded as explaining a large number of the cases of occlusion of the duodenum. As stated once before, malformation of the duodenum occurs preferably near the papilla, oftenest above the same. Unfortunately the position of the atresia with reference to the common duct is, in many cases, not stated with sufficient accuracy, in 15 cases the ductus choledochus was not even mentioned.

A number of facts, such as the repeated occurrence of duodenal occlusion near the site of the papilla, the existence, in probably more than one case, of anomalies of the duct system, the absence of Brunner's glands (in one case at least) at the point of and near the atresia, the striking absence of any signs of disease to which the condition might be traced and the occurrence of other malformations than that of the duodenum in a certain number of the cases, lead me to think that an error of development not yet explained may underlie this condition.

In 11 cases in which malformations other than occlusion of

the duodenum were noted, there was imperforate anus in 4; entire absence of one or more organs was noted in 4; in 1 case there was hydrorrhachis. Atresia of the esophagus and rectum co-existed with the duodenal malformation in Markwald's case; except in cases where esophageal stricture is traceable to trauma, occlusion of these two portions of the digestive tract are known to be the result of arrested development and their occurrence together indicates a marked tendency to defective development. The presence of an obliteration of the duodenum in the same case is exceedingly interesting, and despite the claims of the author for disease as the cause of the occlusion, suggests the possibility of a different mode of origin.

The fact that liver and pancreas are most frequently found perfectly normal has been mentioned in refutation of the idea that occlusion of the duodenum may be traceable to developmental defect.

The liver begins to develop in the fourth week as a diverticulum from the anterior wall of the duodenum. This diverticulum very soon divides into two branches which represent the two hepatic ducts; these lengthen, the distance between liver and duodenum increasing rapidly. The gland develops in the second month as a series of cylindrical off-shoots from the diverticula, and the common duct is formed by a pushing forth of the duodenal wall at the root of the two primitive ducts which now become branches of the main stem. The primitive diverticula once formed and started in their growth, it is conceivable that normal development of the gland may proceed unhindered while some defect in the formation of the common duct may lead to malformation of the duodenum at this point.

Intestinal villi and Lieberkühn's glands develop during the second and third months. Brunner's glands are formed toward the end of the fourth month, a gall bladder is found in the second month and the secretion of bile begins in the third month.

An occlusion of the duodenum becoming complete during the first portion of the fourth fetal month, is in accord with the finding of meconium below the atresia, the frequent presence of a normal liver, and the absence of Brunner's glands at the seat of the obliteration.

It is much to be desired that in all cases of abnormality of the duodenum, careful search be made for the common duct and possible branches with microscopic examination and sufficient data being given to allow of such a comparison of results as may lead toward a definite solution of the origin of this condition.

SYPHILIS OF THE LIVER WITH LARGE GUMMATA IN LATE CHILDHOOD.*

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So far as I have been able to discover there is in most works on diseases of childhood practically no mention of the possibility of meeting grave syphilitic disease of the liver in late childhood. This is undoubtedly due to the fact that such conditions are extremely rare, but, though rare, they are by no means unknown, and they are important because they are so likely to lead to errors in diagnosis. As Fournier states, they usually escape the attention of both the clinician and the patient and generally run a course which gives no indication of their nature, although they may produce grave symptoms. The importance of a recognition of their nature lies in the fact that a proper diagnosis may, as the author just quoted states, lead to un hoped for and almost miraculous improvement.

The number of cases that have been reported is small. Up to 1884 Barthelmy was able to find but 30 that could justly be included under the head of late hereditary syphilis of the liver. Since this time a few cases have been recorded and references to these are given at the end of this article. Error in the diagnosis of the condition was almost constant in the cases that have been reported, however, and this makes it seem highly probable that the actual number of cases is decidedly larger than the literature indicates. Striking facts that are evident from an examination of the literature are, that the chief error in diagnosis when palpable gummata exist is to consider the case one of malignant growth, while in many other cases a diagnosis of cirrhosis was made without thought of syphilis, and in a number of instances in which there was enlargement of the liver and spleen together, leukemia was thought to be present. Examination of the blood excluded the latter disease but cases of this kind were then repeatedly placed under the head of so-called splenic anemia, or were considered to belong in a class of obscure diseases resembling splenic anemia.

* Read before the Philadelphia Pediatric Society, February 12, 1901.

It is not uncommon, recently, to see cases reported as splenic anemia, chiefly because of marked enlargement of the liver and spleen, or of the latter organ alone, without blood changes characteristic of leukemia and without definite signs of other affections which would explain the condition. The records of errors in diagnosis in similar cases which ultimately proved to be syphilis make it very difficult to escape the impression that the possibility of syphilis has not been sufficiently considered in many of these instances, and particularly in those cases which occurred in children past the age when visceral manifestations of lues are anticipated. In the case which I report the chief possibility of error was in connection with malignant growth, and the patient was sent into my ward at St. Christopher's Hospital with a diagnosis of probable sarcoma of the liver.

The notes made at the time of her admission were as follows: The patient was a girl, age fourteen, born in England. The family history and previous personal history were extremely meager and unsatisfactory. The child could give no satisfactory account of the recent years of her life, and the mother was unintelligent and uncommunicative. It was learned that the father was strongly addicted to alcohol, but so far as could be determined had no actual venereal history. The mother had no history of miscarriage or of definite symptoms of venereal disease; the only abnormality that could be discovered upon examining the mother was an opacity of the left cornea which she stated had existed for years. The history of the child, so far as it could be obtained, was that she had been an extremely sickly infant, but had, according to the mother's statement, had no snuffles or skin eruptions. She had never had convulsions. She had passed through measles and whooping-cough during early childhood. She had been deaf and rather stupid for over five years. The recent history of the patient was that for some weeks she had had swelling of the face, legs and feet, which was always worse in the morning. She had been dyspneic, and had had headache and diarrhea. Her appetite had been good, but there had been occasional vomiting. She appeared to be losing flesh. She had for some time complained of considerable distress in the epigastrium. The child was extremely fearful of examination, and seemed unintelligent. She was very deaf in both ears, but heard, though with some difficulty, when one spoke very loudly. Her breath was extremely offensive. The face was puffy, the legs and feet very edematous, and there was

slight general edema elsewhere. There was some general glandular enlargement, particularly involving the glands of the neck. The right lobe of the thyroid was considerably enlarged. The cardiac apex beat was palpable in the fourth interspace three-quarters of an inch inside of the mid-clavicular line. The area of dulness was normal, and auscultation showed nothing abnormal excepting marked accentuation of the second sound at the aortic region. Examination of the lungs showed dulness on both sides, posteriorly, extending up to the angle of the scapula on the left and somewhat higher on the right. The dulness was movable, and there were the other usual signs of pleural effusion. The appearance of the abdomen attracted one's attention at once. It was distended in the upper half of the epigastrium, and there was upon sight evidently a mass in this position; it was most prominent in the left side of the epigastrium and moved upon respiration. Below the umbilicus the abdomen was less distended but was unduly tympanitic. Palpation showed a large mass about half the size of one's fist in the lower part of the left side of the epigastrium, situated about two inches below the margin of the ribs and moving somewhat upon respiration; it was evidently attached to the liver and the surface of the liver could be felt above up to the edge of the ribs. The lower border of the mass reached about to the umbilical level and it extended to near the median line. To the right of it, a little beyond the median line and about three inches below the xiphoid cartilage there was another mass which was much smaller, about one inch in diameter. The liver could be felt on the right extending to about two inches below the border of the ribs. It felt dense. The edge was well-marked and somewhat irregular. The large mass on the left was moderately sensitive to pressure. The smaller mass was pronouncedly sensitive, and the patient complained of spontaneous pain about this mass. Both masses felt hard. Their surfaces were somewhat irregular, though they were of general round contour. The general surface of the liver was somewhat irregular and was hard, the liver itself was not definitely sensitive. The splenic dulness was apparently moderately enlarged, but not very notably so, and the spleen could not be felt. Unless the spleen had been much enlarged, however, it would have been impossible to feel it, because the abdomen was very difficult to palpate because of the distension and the resistance of the patient who was always frightened at a suggestion of an examination, evi-

dently from fear of pain from palpation of the masses; the liver and the masses attached thereto could be easily palpated only because they were so prominent. There was movable dulness in the flanks without fluctuation.

Because of the child's severe deafness, the presence of an evident ozena, and the discovery of the scars of an interstitial keratitis in both corneæ, it was decided to treat the case as one of gummata of the liver, and the child was put upon daily inunctions of a half a dram of blue ointment, and was given potassium iodid in doses of three grains three times a day, increased one grain per dose.

To state concisely the course of this treatment the inunctions were continued from July 21st, the day of admission, to August 20th, and the potassium iodid was continued until the 23d of August, by which time the dose had been increased to thirty grains three times a day. The further facts discovered upon more special examination of the patient were that the urine varied in daily amount at the time of her admission between fifteen and thirty-five ounces; it contained albumin, estimation by the Esbach method showing amounts varying from marked traces up to three grams per liter, and usually running about two grams per liter; sugar was absent; there was usually a little pus, a considerable number of epithelial cells and numerous bacteria, but no red blood cells. Casts were very variable. They were present at about one-third of the examinations, but only in small numbers, and those seen were hyaline or slightly granular. Her eye conditions were kindly reported upon by Dr. Krauss, and the condition of her ears, nose and throat by Dr. Walter Roberts. Dr. Krauss found synechiæ in both eyes, the right cornea showed a nebula in the center of the pupillary space, the vessels were drawn somewhat to the nasal side, and there was an eccentric excavation of the outer side of the disc. The media were hazy. The left eye showed a central corneal leucoma, there were atrophic areas above and below the disc, and several patches of choroiditis about the disc. In brief, the diagnosis which Dr. Krauss rendered was high myopia with central corneal leucoma and synechiæ, the latter conditions evidently being the remnants of an old keratoiritis. The ears, when tested with a watch, showed absolute deafness on the left side, while on the right the watch was heard about one-half inch from the ear. The hearing was better in front of the ear

than by bone conduction. The left ear showed marked retraction and opacity of the membrane, but no congestion or signs of inflammation. The right ear showed marked retraction of the membrane and some cicatrix formation. There had been a large perforation of the whole lower part of the membrane which was replaced by a cicatrix. There was still a large perforation in the shrapnell region. There was no discharge. The throat on the right side showed the tonsil and palate to be joined by a band, probably as a result of previous syphilitic ulceration. The tonsils were somewhat enlarged, there was chronic atrophic pharyngitis, chronic atrophic rhinitis and eczema of the nasal vestibules.

The subsequent course of the case was as follows: There was at no time any fever. The pulse was always somewhat rapid, running between 90 and 100. The respirations were slightly increased in frequency. There was gradual disappearance of the pleural and abdominal effusions and of the intestinal tympany. The bowels were moved readily without special treatment. The liver, after remaining practically unchanged for three or four days, began to show marked improvement. This was first evidenced in the lessening of the sensitiveness on pressure and in improvement in the spontaneous pain. Within a week it was noted that both masses were apparently distinctly smaller, and that the pain had very largely decreased, and there was scarcely any sensitiveness excepting over the larger mass. The size of the liver remained about the same. Two weeks after admission it was noted that the pain in the abdomen had entirely disappeared, the child was much brighter, had lost much of her fearfulness and appeared much less stupid. (The stupidity appeared to have been due largely to her deafness and fearfulness, and to her general depression of health. Ultimately she seemed to be practically entirely normal mentally.) The distension of the abdomen had become so much decreased that palpation was easily carried out. The nodule on the left was easily felt and at that time was the size of a large English walnut. The surface was fairly even; it felt very dense; it could be moved slightly from side to side. The mass in the right side of the epigastrium was about the size of a large hazel nut; its surface was smooth. The surface of the liver was somewhat irregular, and was still dense. The size of the liver was about the same. There was scarcely any tenderness on palpation excepting over

the larger mass, where there was still moderate tenderness. Three days later it was noted that the nodule on the right seemed definitely smaller, and at that time was scarcely larger than a good sized pea. That on the left was much more difficult to feel, and could not be distinctly outlined. The surface was much smoother, and the mass seemed to be considerably smaller. The tenderness over it had absolutely disappeared. The subcutaneous edema had practically entirely vanished. The child felt perfectly well, and seemed bright, cheerful and trustful. Ten days after this the nodule on the left had completely disappeared. There was nothing to be felt at this time excepting an unevenness along the edge of the liver where the large mass had existed. There was still a slight prominence where the smaller mass had been noted, but excepting for this the surface of the liver felt only somewhat irregular, not at all nodular. The liver was still large and hard. It had decreased somewhat in size, but could be felt reaching down to a line about an inch and a half below the edge of the ribs. There was no effusion into the abdominal cavity or the pleura, and there was no subcutaneous edema. She left the hospital on October 2d, two and a half months after admission, when the condition of the liver remained about the same as at the last note; there was absolutely no appearance remaining of any mass about the liver, but the liver was enlarged and hard. There was no return of the abdominal effusion or of the effusions into the pleura. The edema of the legs had returned after she was allowed to be out of bed and was uninfluenced by subsequent rest in bed, by absolute milk diet, by diuretics, or by other measures, and there was persistently about two grams of albumin per liter of urine, and casts were, in the latter part of her stay, practically always present. Upon discharge she was ordered potassium iodid in small doses to be taken continuously. She subsequently returned for treatment in the dispensary and I saw her four or five months after her discharge from the wards. At that time her condition was rather worse. Her edema had increased somewhat, and she had once more grown rather fearful and evidently felt unwell, though she had no definite symptoms of any kind. The liver persisted in the same condition as upon discharge from the ward. It was of about the same size and was hard, but showed no nodules. She disappeared from

observation for some time after this, but upon request by mail reappeared at the hospital for examination about six months later. At that time, excepting for her deafness, her nasopharyngeal trouble and the corneal opacities, I think the child would have been considered to be in practically complete health. In spite of the fact that she had been without treatment she had spontaneously improved and had no edema, there were no abnormalities of the urine, and the liver appeared to be entirely normal. Since this time I have been unable to learn her condition.

I think there can be no doubt that in this case there was syphilis of the liver with large gummata. Whether the case may be justly considered one of late hereditary syphilis is a question. In the absence of definite knowledge of her condition in early infancy, and since there were no very positive signs of hereditary disease, it is quite possible that her syphilis may have been acquired after birth. I think this is improbable, however, because of the existence of old keratitis, which is much more commonly the result of hereditary disease than of acquired syphilis, because of her deafness, and because of the history, imperfect as it was, of a very weakly early infancy. But from the medical clinician's standpoint it is of comparatively little importance whether the child had hereditary or acquired syphilis. The case is a very instructive example of the necessity in late childhood as well as in adult life and in infancy, of keeping in mind the possibility of a syphilitic origin of severe disease of the liver, whether this seems to be mere chronic induration, or has the clinical appearance of a new growth. This is particularly true if the subject may reasonably be considered to be syphilitic, or if no other cause can be satisfactorily determined. Anti-syphilitic treatment should be established, tentatively and carefully at first of course, but pushed so far as is reasonable. The possibilities of improvement are illustrated by this case and by a number of other cases reported in the literature. While these cases are certainly rare, the large percentage of error in diagnosis in those cases that are now definitely on record as syphilis, as well as the obscure clinical picture presented by the various phases of visceral syphilis, particularly in late childhood, make it evident that the disease is very likely to be overlooked. There are unfortunately very often no means of making an absolute

diagnosis. It is, however, chiefly necessary to keep the possibility of syphilis in mind, and to act upon this possibility, if it seem reasonable to do so. I think that text books and treatises upon the diseases of childhood do not make this fact sufficiently evident.

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Uremic Cephalgia in Childhood.—Henri Caussade (*Thèse de Montpellier*, 1900), says that headache is a common symptom in many febrile and non-febrile diseases of childhood. There is also a cephalgia distinct from migraine and yet resembling it. Paroxysmal attacks, sometimes as rapid as lightning and sometimes more lasting, appear in a child who is in apparently perfect health. Nausea and vomiting and ocular disturbances are lacking. Two etiological factors are concerned in the production of these headaches: An arthritic heredity and defective diet. As Comby puts it: "If the child has begun to eat over-nitrogenous food too early, if his digestive powers have been over-taxed, if he has not been able to assimilate or to sufficiently eliminate the ingested food, he may suffer from periodic headaches, cyclical vomiting, convulsions, albuminuria, urinary disorders, and other manifestations of the uric acid dyscrasia." Other authorities who have studied the question have come to the same conclusion. The difference in opinion applies to questions of a secondary nature, as the nature of the products retained in the organism. Uremia seems to all to be a true intoxication; it is to childhood what gout and gravel are to the adult. The diagnostic points are arthritism in the family history and paraarthritic symptoms in the child (pruriginous dermatoses in especial). Treatment should be directed to the prevention of the formation of uric acid and to its elimination.—*The American Journal of Obstetrics*, Feb., 1901.

Clinical Memoranda.

A REPORT OF TWO CASES OF CANCRUM ORIS.*

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The following cases will be of interest as illustrating certain important facts concerning noma. While the disease is fortunately a comparatively rare one, it is not so uncommon but that every physician who is dealing with poorly nourished-children, especially those confined in public institutions, needs to be on the lookout for it.

At the Randall's Island Hospitals during the past eighteen months, there have been two patients with cancrum oris which have come under my notice.

CASE 1.—Male, aged three years and six months was admitted to the surgical ward in poor general condition October 26, 1900. Previous history excluded any acute infectious disease for at least six months before admission. The patient had a small gangrenous ulcer to the right and left of the center of the external surface of the superior alveolar process extending on to the upper lip. Around this was a dark grayish discoloration which reached on the mucous membrane almost to the edge of the lip. The patient had several degrees of temperature and the pulse was rapid and of poor quality. The breath was markedly fetid and the mucous membrane of the entire mouth was congested. Chloroform was administered and one-half of the body of the upper jaw on either side was removed. The under surface of the lip was thoroughly curetted and the denuded areas cauterized with pure nitric acid. The after treatment consisted of douching with peroxid of hydrogen followed by a saturated solution of boric acid. Fluid diet, strychnin and whiskey were given. For five days after the operation it seemed as if the disease was quiescent, but at the end of a week a gangrenous area appeared in the left cheek near the line of the gum and more disease of bone tissue became evident.

The second operation under chloroform was performed November 2d. The larger part of the lip was removed and

* Case reported at the Section on Pediatrics of the New York Academy of Medicine, May 9, 1901.

more of the superior maxilla curretted away. As in the first instance, nitric acid was employed. For some days the local disease did not seem to spread, but on November 9th, new areas of gangrene appeared in various parts of the mouth and high up at the base of the skull. The temperature increased and the pulse became much more rapid and feeble. Any further operation was considered impossible.

November 10th.—Gangrene continued to spread.

November 11th.—Died from exhaustion. An examination showed that all of the bones of the face were practically diseased. The necrosed tissue extended to the base of the skull and involved part of the body of the sphenoid.



CASE II.—PRESENT CONDITION.

CASE II.—An abandoned male child of sixteen months was admitted to the hospital on October 29, 1900. Whooping-cough was developed soon after admission and the patient was quarantined.

On January 26th, the mouth became somewhat tender along the upper jaw. One incisor was removed.

January 28th.—An ulcerated patch appeared under the

upper lip directly to the left of the median line. The mouth was treated with repeated antiseptic washes.

By February 1st, along the upper jaw for an inch on either side of the median line the gum was spongy and bled easily. The breath was distinctly fetid and the child had a temperature of 100°; pulse, 124; respiration, 42. The upper lip was considerably swollen and the mucous membrane at the junction with the jaw had a grayish tint. The patient was transferred to the surgical wards and placed under chloroform. A free incision was made on either side in the superior alveolar process down to the bone. The bone was found to be soft and spongy and of a gray color. The diseased tissue was entirely removed, leaving an opening in the upper jaw two inches and a half broad. Not only was the intermaxillary bone with its teeth removed, but the superior maxilla on either side was gnawed away by the Rongeur so that the cavity was connected with the nose and the left antrum of Highmore.

The child was then more deeply anesthetized and the mouth carefully protected. Pure nitric acid was applied over the entire surface of the cavity of the bone. The wound was packed with gauze and later irrigated every half hour with peroxid of hydrogen followed by a boric acid solution, as in Case I. Fluid diet, strychnin and whiskey were given.

February 7th.—Patient's general condition improved. Highest temperature since the operation, 101°; pulse, 130; respiration, 48.

February 10th.—No more extension of the disease. The cavity in the bone is closing and presents a healthy granulating surface. There is no longer through the wound a direct communication between the nose and the mouth.

March 1st.—Gaining in flesh and strength. Wound cavity filling up rapidly with healthy tissue.

April 1st.—Child is up and about seemingly perfectly well. The upper jaw is largely filled in, leaving only a slight depression in the alveolar process.

May 1st.—The patient at the present time, as shown in the picture, looks perfectly healthy and strong. The only evidence of any previous trouble is the absence of the upper teeth.

These cases certainly emphasize the importance, which cannot be too strongly urged, of the early recognition of the disease and of the radical operation as the only means of a cure.

DUHRING'S DISEASE IN CHILDHOOD.

BY WILLIAM S. GOTTHEIL, M.D.,

New York.

By the name of its first describer (Duhring) the father of dermatology on this continent, or under the designation of dermatitis herpetiformis, is known as an affection which is much more common in childhood than is generally supposed. In not a few instances it is undoubtedly wrongly diagnosed; and it is responsible for some, at all events, of the refractory cases classified under the all-containing rubric of eczema. The disease shows itself as a superficial inflammatory eruption of an eczematous character most frequently; and it is not strange that it should be confounded with the simple catarrhal affection on a superficial examination.

During the past two years I have had special occasion to study the cutaneous affections of childhood in a clinic where they composed two-thirds of the entire clientele. I have met several cases presenting at first sight all the characters of an eczema, dermatitis, or impetigo, and which had been indeed so diagnosed and treated elsewhere, which more careful and extended observation showed to be undoubted cases of Duhring's malady. Of these cases the two following histories, with the photographs, may be taken as examples.

The first patient, H. F., (Case I.) a native of America, was a normally developed and otherwise healthy girl of nine, who had suffered from the affection for five years. There was no history of chorea, chlorosis, or similar chronic affection. When the eruption first appeared at the age of four, the mother says that it was spread over the entire body, looked like measles, was called contagious, and was treated with green soap, sulphur ointment, and two daily baths; being evidently diagnosed as scabies. The treatment apparently did some good; the eruption improved, but it never got entirely well. From that time until the present day the patient has never been entirely free from the symptoms or the remains of the disease. Season does not seem to influence it; after a few weeks of quietude, during which the marks of the last series of efflorescences are slowly disappearing, a new attack begins,

and for a half to two months. All the attacks are exactly the same in character; and the patient and her mother have become so familiar with them that they can prescribe them accurately, and even predict their course. The face, hands, and legs have been the regions chiefly involved; but occasional patches have appeared upon the body.

All the attacks commence with a terrible itching of the part about to be affected; and this may be present for several



CASE I.—DERMATITIS HERPETIFORMIS.
Pustulo-Crustaceous form.

days in an apparently healthy skin before the first sign of dermatitis appears. Then there occurs a sudden eruption of grouped vesicles with but a very small amount of surrounding inflammation. These rapidly grow to pea size or larger, and become purulent and often confluent. The vesicular character of the eruption is preserved to the last, and the new lesions that appear daily are always similar to the first. Finally the vesicles rupture, and their secretion dries up into dirty scabs; when

these fall off they leave a reddened and perhaps slightly excoriated surface behind. The pruritus diminishes and disappears as the period of quiescence sets in.

I have had an opportunity to observe four of these attacks from the very beginning, and can vouch for the accuracy of the



CASE II.—DERMATITIS HERPETIFORMIS.
Vesiculo bullous form.

description. Two were on the hands and arms, one chiefly upon the body, and one upon the face. The patient's mother would bring her to me, saying that a new attack was coming on, as shown by the intense burning and itching, of which the

child complained. The patient had learned by experience, however, the ill effects of scratching, and controlled herself sufficiently to avoid all possible additional irritation of the affected area. Nothing was visible at first save a slight redness; then in from one to three days the eruption would appear. It was always vesicular in the beginning, and sometimes remained so throughout the attack; more frequently the lesions became pustular before rupture, and occasionally distinct bullæ formed. The fully developed eruption was usually of a mixed type; erythematous, vesicular, bullous lesions and moist areas being present.

The second typical case (Case II.) was that of a healthy boy of twelve, Wm. McG., who had had the trouble for thirteen months. In his case there was more scratching, and the adventitious lesions of the skin often formed the most prominent part of the clinical feature. The attacks came on at very frequent intervals, sometimes only a few days apart, and were distinctly bullous in type. They always began on or around the genitals, spreading from thence onto the abdomen and limbs. Beginning or florid lesions, or their remains could be observed at any time. Not less than ten or twelve distinct attacks ran their course during the time that he was under my observation.

One or more vesicular lesions would appear suddenly, usually upon the sheath of the penis, scrotum, or the inner surface of the thighs, but not preceded by the marked prodromal pruritus of the first case. They rapidly developed into bullæ filled with a turbid serum. New ones appeared, and the coalescence of neighboring lesions and their rupture led to the formation of larger weeping and erythematous areas. When the dried crusts fell off they left a stain that persisted for some time. Scratch marks and local infections from the boy's finger-nails always formed part of the picture, showing that itching, though not much complained of, was a marked feature of the eruption.

These two cases show the symptoms of a disease looking very much like an eczema at first sight, and yet presenting notable points of difference. The itching, multiformity, and the primary lesions are characteristic of the commoner malady. But the pruritus is excessive, and the malady is very chronic and obstinate, reappearing continuously upon the same location. The usual treatment for eczema, also, whilst it may have some

favorable effect upon the individual lesions, is entirely unavailing to prevent recurrence of the attacks. Multiformity, herpetic character, chronicity, recurrence, intense pruritus, and refractoriness to treatment, are the characteristics that distinguish the disease from an ordinary eczema.

Duhring insists upon the importance of the herpetic lesions and their invariable presence at some stage or other of the disease. This is not agreed with by all observers; and the designation of dermatitis multiformis has been proposed by some of them as a more appropriate name for the affection.

We have but little definite information as regards its causation. Cases have occurred after physical or mental shock; but many of them, as the two here recorded, appear in apparently healthy individuals. The cases occurring in connection with pregnancy and parturition, and known as herpes gestationis, are undoubted examples of the affection. Some cases, like pemphigus, seem to be dependent upon septic infection. It occurs at all ages save infancy; Arning has reported one at six years, but it is seen most often in adult life. As I have stated before, I believe it to be much commoner in children than is generally supposed, being diagnosed as eczema, dermatitis, impetigo, etc., in accordance with the stage at which it chanced to be observed.

Little that is of value can be said about the treatment. I have found it very unsatisfactory; the recurrences appear at regular or irregular intervals, no matter what remedies were employed. Arsenic, phenacetin, and cannabis indica, recommended by some authorities, do not seem, in my hands, to have had much influence upon the disease. I now restrict myself to general tonic and hygienic measures, and believe that a change of air and scene, when possible, is more efficacious in postponing and preventing relapses than drugs. Locally any of the bland or cooling salves, or ichthyol in 5 or 10 per cent. solution or ointment, may be employed.

144 WEST FORTY-EIGHTH STREET.

Local Applications for Whooping-Cough.—Dr. Guida (*Journal de médecine interne*, January 15, 1901) advises carbolic applications to the pharynx to be made during the access. He uses:

℞ Crystallized carbolic acid.....	15 grains;
Glycerin.....	180 minims;
Solution of cocaine hydrochlorid, 2 per cent.....	75 “

—*New York Medical Journal.*

ABSCESS OF THE ETHMOID AND ANTRUM OF HIGH-MORE. *

BY J. MORRISON RAY, M.D.,

Louisville, Ky.

The following is a brief report of an interesting case of sinus disease with which I have recently had an experience. A child four years of age was sent to me from the country, with the history that when one year old its face became swollen. It had been called erysipelas. An abscess formed over the malar region and ruptured, and a sinus discharged for some time. This, however, gradually closed. Soon afterward another sinus appeared in the floor of the orbit near the inner canthus. From this sinus at the inner canthus several pieces of bone discharged, and as healing began to take place the contraction produced a very ugly and unsightly ectropion.

When I first saw the child there was a very free discharge of pus from the sinus, with a constant overflow on the cheek causing a large amount of excoriation. The child was so intractable that it became apparent no examination could be made. I tried to introduce a probe through the opening, and when the probe had entered about an inch a large cavity was found. Looking into the mouth I saw a scar where there had been an opening just above the canine tooth.

The child was sent to the infirmary. Chloroform was given, as I determined to go through the canine fossa and get into the cavity, bearing in mind that the maxillary sinus in the child was very small. I chiseled away until I entered a cavity in which I found two or three teeth. I scooped out these teeth and thought I had gotten into the maxillary sinus, and as I could not get into the cavity containing the pus I decided, for the time being, that I would stop the operation and make further investigation. I then enlarged the external opening and packed it with gauze. I was not satisfied with this procedure and the second day afterward made up my mind to again give chloroform and if necessary to take away a large portion of the superior maxillary. I enlarged the original opening with the mal-

* Abstracted from Proceedings of the Louisville Medico-Chirurgical Society.

let and chisel and took away quite a large portion of the front wall of the superior maxilla and so entered a large cavity which must have involved both the ethmoid and the antrum of Highmore. After two days the secretion was very much less, and the child improved rapidly.

From the history of the case it looks to me as if it was originally a periostitis, later involving the bone itself and getting into the sinuses secondarily.

REMARKS.

DR. T. C. EVANS.—I saw this case at the St. Joseph Infirmary. I thought at the first operation that Dr. Ray had opened the antrum of Highmore; however, as he was unable to pass a probe through this opening into the sinus I came to the conclusion that what he had opened was the alveolar sinus containing the roots of the permanent teeth, which he removed. He did not begin quite high enough in the canine fossa to enter the antrum. I am also satisfied that the abscess involved both the ethmoid and the antrum. It is a little strange that the disease should have lasted so long as it did in this case.

DR. S. G. DABNEY.—It is extremely rare for a healthy child to have periostitis which would lead to such results.

Vitiligo in a Baby Three Days Old.—Yukovski in *Medit-sinskoe Obozrenie*, April, 1900, says that vitiligo in children is very rare. Most of the cases observed have been among negroes. The child observed by the author was the offspring of white parents presenting no specific history. The child had exophthalmos, myxedematous skin on the neck and face, a guttural voice, and icterus. The vitiligo was noticed only on the third day. The question arises, whether or not those spots were present at birth. The author accepts the theory of the neurotic origin of the disease. Under the influence of some neurotic power we have either a local dilatation of the blood-vessels, decomposition of red blood corpuscles, and emigration of melanocytes, followed by deep local pigmentation, or local spasm of the blood-vessels, obliteration of the arteries, and secondary pigment atrophy.—*Medical Record.*

ARCHIVES OF PEDIATRICS.

JUNE, 1901.

EDITED BY

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CLEAN MILK.

Cow's milk is practically the universal food of early life and hence its production and handling are most important considerations for the physician. That the profession is becoming alive to this question is evidenced in a number of ways. The hygienic condition of the dairy farm, the care of the cows, the personal habits of the milkers, the utensils used in collection and transportation of the milk, the proper temperature to be maintained and various other factors in the problem have all been subjected to the closest study. The question practically reduces itself to one of strictest cleanliness and a constant

application of cold in the care of the milk. The test of uncleanness consists in an increase in the proportion of lactic acid generated in the milk and in a large increase in the number of bacteria per cubic centimeter. Lactic acid is an expression of bacterial growth.

In a recent work by Farrington and Woll is found the following paragraph, which well epitomizes present knowledge on the subject: "Bacteriological examinations of milk from different sources and of the same milk at different times have shown that there is a direct relation between the bacteria found in normal milk and its acidity; the larger the number of bacteria per unit of milk, the higher the acidity of milk. The increase in the acidity of milk on standing is caused by the breaking down of milk-sugar into lactic acid through the influence of acid-forming bacteria. Since the bacteria get into the milk through lack of cleanliness during the milking, and careless handling of the milk after milking, this being kept under conditions that favor the multiplication of the bacteria contained therein, it follows that an acidity test of fresh milk will give a good clue to the care bestowed in handling the milk. Such a test will show which patrons take good care of their milk and those who do not wash their cans clean, or their hands and the udders of the cows before milking, and have dirty ways generally in milking and caring for the milk." These facts should be brought to the attention of farmers and milk-dealers generally, as a very simple test will show the proportion of lactic acid present in a given sample of milk and hence indirectly of its cleanliness. Over two hundred species of bacteria have been found in milk, about twenty of which produce lactic acid. Some species of bacteria produce peculiar effects in milk that may embarrass the dealer. These effects may show as ropy, slimy, blue and red milk. The way to keep the bacteria out of milk is to collect and keep it under conditions of the strictest cleanliness. With such precautions milk will keep sweet and wholesome for a long time. Chapin in a recent article makes the statement

that properly handled and cooled, milk shipped from Illinois, New York and New Jersey to the Paris Exposition last summer was used when it arrived, and was then better than the average daily milk supply of Paris. This shows the possibilities in the problem of clean milk.

The certifying of clean milk by medical commissioners, as inaugurated by Coit, is now carried on in Boston, New York, Philadelphia, Newark and Buffalo. These commissions deal usually with one dairyman who must follow the rules of the commission and subject his milk to frequent examinations. The New York County Medical Society has recently appointed a commission that stands ready to certify the milk of any dealer that comes up to the required standard. Directions concerning the care of the stable, the cows and the milk are furnished as a guide.

The circular containing the directions closes as follows:

“The Milk Commission of the New York County Medical Society agrees to guarantee or certify the milk of all dealers desiring such certificate. A special label will be furnished for this purpose. The standard required to obtain this indorsement will be that the acidity must not be higher than .2 per cent., and that the milk must not contain more than 30,000 germs, or bacteria of any kind, to the cubic centimeter. This will be tentatively adopted as a standard of clean milk, as bacteria get into the milk through lack of cleanliness during the milking and careless handling of the milk after the milking, and hence is a good clue to the care bestowed in the production and general handling of milk. The milk, before testing, must be in its natural state, not having been heated and without the addition of coloring matter or preservatives. The butter fat must reach 3.5 per cent. Examinations must be made by the experts retained by the commission, with a frequency at its option, according to the season and the general condition of the milk under inspection, and at least once a month. The commission reserves the right to change its

standard, in any reasonable manner, upon due notice being given to the dealer. The expense of the examination will be met by the dealer. All reports of examinations will be strictly confidential between the commission and the individual dealer."

It is to be hoped that this movement in the direction of better and cleaner milk will be successful, and extend wherever milk is used for infant feeding.

The Transactions of the American Pediatric Society for 1900 contains many valuable papers and is a well-printed volume of two hundred and fifty pages. E. B. Treat & Co., 241 West 23d Street, New York, have a few copies of the book for sale at \$1.00 each.

The Etiology of Idiocy and Imbecility.—Martin W. Barr, in the *Philadelphia Medical Journal*, Vol. v., No. 23, gives the result of fifteen years' study of the etiology of idiocy and imbecility. The causes were grouped under heredity, malnutrition, and accident. Statistics were given from his own studies of 3,040 cases, and from other writers showing the effects of heredity. In his own series, 13 per cent. had a family history of imbecility, and 5 per cent. of insanity. He fails to find consanguineous marriages a cause of imbecility unless there is a neurotic tendency of some sort in the families of the parties who marry. There is a danger in such relatives marrying. Only 1 per cent. of his cases came from consanguineous marriages, and he regards such union with but little apprehension when there is no family taint. The law should not lop off the branches of the tree by forbidding these marriages, but should begin at the root by forbidding the marriage of persons having a neurotic taint. Figures showing the relation of various neuroses, and malnutrition following disease as etiologic factors were given. There was a history of phthisis in 9 per cent. of his cases, and of intemperance in 3 per cent.; under the head of accidents, instrumental delivery seemed to bear a causative relation in 1 per cent.

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Saunders' Question Compend. Essentials of the Diseases of Children. By **William M. Powell, M.D.** Third Edition. Thoroughly Revised by **Alfred Hand, Jr., M.D.**, Dispensary Physician and Pathologist to the Children's Hospital, Philadelphia. Pp. 259. Philadelphia and London: W. B. Saunders & Company. 1901. Price \$1.00, net.

In the revised edition of this quiz compend Dr. Hand has rewritten a number of chapters so as to bring them to the present position of our knowledge of diseases of children. Most of the alterations have been well done and the answers to questions are clear. Occasionally, however, a sentence like the following, describing the pasteurization of milk, could be better expressed: "Its advantages are that it does not change the taste nor digestibility of the milk, and it is almost always safe; its disadvantage is that it is not always safe, pathogenic germs sometimes surviving it."

Ready made prescriptions are not needed in a book written for students, but with this exception, the book is suitable for general use in the clinic and lecture room. A student who reads it when he is studying cases cannot fail to receive benefit from its pages.

Infant-Feeding in its Relation to Health and Disease. By **Louis Fischer, M.D.** Fifty-two Illustrations with Twenty-three Charts and Tables. Pp. 259. Philadelphia: F. A. Davis Company. 1901.

The title of this book should elicit the attention of the medical profession as we have not a good, concise compendium of infant feeding, giving the best opinions in this country at the present time, and it is to be regretted that this book cannot be said to fill this requirement.

Dr. Fischer's work presents a considerable amount of material collected from different sources, but carelessly edited and presenting more the German-American idea of infant feeding than that of the leading practitioners of this country. This is well illustrated by contrasting his views on modified milk with those of the so-called condensed milks. With laboratory milk, which has been used with great satisfaction by most of

the leading specialists on diseases of children in the large cities of this country, he has had no success, while with canned milks, such as Gaertner's milk, he has had success.

While the book is planned to cover a considerable range of the problems connected with infant feeding, the different chapters are, as a rule, found to be unsatisfactory.

The author quotes in succession different works and articles which he has consulted without taking advantage of the editorial privilege of commenting upon the value of them.

A peculiar chapter is No. 8 under the title (found only in the table of contents) "Bacteria of the Intestine." Without any introductory remarks as to the number and variety of intestinal bacteria, the author describes the occurrence, biological characters, etc., of nine bacteria, which have been isolated from the intestine. The book contains no statement that any other bacteria have ever been found in the intestine.

Some statements contained in the book seem open to considerable doubt, as for instance the one on page 37, that milk sugar contains many bacteria from the milk from which it is derived although on page 36 the author tells us that the milk product is twice boiled in the manufacture of milk sugar. A more serious error occurs in the statements concerning the composition of cow's milk. The author states "The average percentage of fat found is 4 per cent. This does not vary particularly . . . in New York City." This statement is certainly most misleading for although the better class of milk in New York does contain 4 per cent. of fat and some of it 5 per cent. a large part of the milk sold, contains little more than the 3 per cent. demanded by the Board of Health. This book, while possibly a convenience on the shelf of a well informed man, is not a reliable guide for those seeking information.

Bacteriological Study of Meningitis Cerebrospinalis Epidemica.—After a very exhaustive study of the literature of this subject, and based upon his own observation of an epidemic of cerebrospinal meningitis, Khtegloff (*Meditsinskoe Obozrenie*, April, 1900), comes to the following conclusions: (1) The disease is caused by Weichselbaum's intracellular meningococcus; (2) that the meningococcus is a coccus *sui generis*, not to be confounded with other diplococci; (3) that its vitality in agar cultures is especially characteristic; (4) its presence in the nasal secretion of the patient suffering with meningitis is of diagnostic value.—*Medical Record*.

Society Reports.

THE NEW YORK ACADEMY OF MEDICINE—SECTION ON PEDIATRICS.

Stated Meeting, March 14, 1901.

WILLIAM L. STOWELL, M.D., CHAIRMAN.

CONGENITAL HEART AFFECTIONS.

DR. A. BASSLER presented a child supposed to have congenital pulmonary stenosis.

DR. H. HEIMAN presented a boy of six years in whom the physical signs apparently pointed to pulmonary stenosis with a defect in the ventricular septum. The apex beat could be detected on both sides of the thorax, and a murmur was audible not only in the chest but over the abdomen. Such cases, he said, were supposed to have their origin in some constitutional infection occurring while the child was in utero.

PATHOLOGY OF TYPHOID FEVER.

DR. MARTHA WOLLSTEIN read a paper on this subject. She said that while water is the most common means of disseminating typhoid infection, milk is an excellent culture medium for the bacillus, and is a prominent factor in the transmission of the disease in children. The disease may sometimes be conveyed by the air. The gastrointestinal tract is the most frequent point of entrance for the typhoid bacillus; cases have been reported in which rectal infection occurred in hospitals by means of the thermometer or enema tube. It has been abundantly demonstrated that the typhoid bacilli can pass through the placenta and infect the fetus. The bacilli have been cultivated from the rose spots of the typhoid eruption and from the blood during life. They are rarely found in the secretions of the throat, they occur in the urine in about 25 per cent. of the cases examined, appearing in the third week and persisting throughout convalescence. The author divided the cases of typhoid fever in children into three classes, viz.: (1) Those without characteristic intestinal lesions, comparable to the cases of typhoid septicemia occurring in adults; (2) cases presenting few intestinal lesions

and those of limited extent; and (3) cases which may show intestinal lesions as severe and as extensive as any occurring in adults. Hemorrhage and perforation are not unknown. The ulcers usually occur about the ileocecal valve, but may be found in any portion of the intestine; and in 1 case they are reported in the stomach.

The number of red blood corpuscles diminishes progressively from the onset to defervescence, or the first week of convalescence. The number of leucocytes is subnormal throughout the course of typhoid fever, the diminution progressing with the increase in the severity and duration of the disease. Inflammatory complications are associated with a leukocytosis.

THE VALUE OF THE WIDAL REACTION.

DR. JOHN LOVETT MORSE, of Boston, read this paper. (See page 338.)

DR. W. P. NORTHRUP referred to the case of an infant of nine months, already reported, in which an attempt had been made to establish the diagnosis of typhoid by the Widal reaction. At the time the child had been admitted to the hospital its father and two brothers were already there sick with typhoid. The child had a temperature of 103°F.; a distended and tympanitic abdomen, a scanty though characteristic eruption, enlargement of the liver and spleen and moderate diarrhea. By the nineteenth day the temperature had returned to normal, and the other symptoms had all improved. Repeated examinations of the blood had failed to show the malarial plasmodium or give the Widal reaction, and no typhoid bacilli could be found in the urine. The blood of the other members of the family had not given the Widal reaction until the temperature had returned to normal, but the reaction had then been prompt and unequivocal. He believed that children under two years of age are only slightly susceptible to typhoid fever except in epidemics where there are repeated exposures. Although no less than 22,-260 children were under the care of the New York Foundling Hospital and about 1,200 of these were "farmed" out in the suburbs of New York City, Dr. O'Dwyer, Dr. J. Lewis Smith and himself had not met with a single case of typhoid fever among them in the course of a service of many years.

DR. DAVID BOVAIRD, JR., suggested that the reason for such differences of opinion regarding the prevalence of typhoid

among children was to be found in the varying prevalence of typhoid among adults in different localities.

DR. JAMES J. WALSH asked for further information in support of the opinion that cases in which the appearance of the Widal reaction is delayed are more prone to relapse. His own experience with typhoid children comprised two cases, one in a child of twelve years, and the other in a patient of fifteen. In these cases the Widal reaction had been first observed on the twenty-sixth and twenty-eighth days respectively and both cases had suffered a relapse.

DR. MORSE emphasized the importance of the white blood count as an aid to diagnosis, it being often present earlier than the Widal reaction. His impression was that the Widal reaction was one of immunity rather than of infection. He had not noted any relation between the date of the appearance of the reaction and the occurrence of relapses.

DR. E. LIBMAN said that he had had a large experience with the Widal reaction, including 70 cases of typhoid in children. Many of these had not presented the usual clinical symptoms of typhoid, yet in many instances other members of the same family had been proved to have this disease. The Widal reaction had been of the greatest assistance in the diagnosis of cases simulating pneumonia and meningitis. In the series of observations referred to he had employed a dilution of one in twenty and a time limit of fifteen minutes, and since he had adopted the plan of growing the bacilli at 30° C. there had been a much larger proportion of cases giving the Widal reaction.

Among the children were included all those cases under fourteen years of age. The youngest case was that of a child thirteen months old. The Widal reaction in this case had been negative until two days before death, when it became positive in a dilution of 1 to 200. An older member of the family was, at the time, under treatment for an undoubted attack of typhoid fever. Among the cases there were three children, two years old. Most of the children suffering from the disease were over four years of age. Before adopting the method above described, there had been 60 cases in which the blood had been repeatedly examined. Six failed to give a positive reaction. Since that time there had been 10 more cases, in all of which a reaction had been obtained.

THE PHILADELPHIA PEDIATRIC SOCIETY.

Stated Meeting, March 12, 1901.

DR. THOMPSON S. WESTCOTT, PRESIDENT.

DR. J. A. SCOTT read a brief paper on

INTESTINAL SAND.

He made a short *resumé* of the literature, which includes but six or seven articles. La Boullbene, in 1873, first reported a case in which sandy material, which proved to be vegetable material with silicious particles attached, passed per rectum. He calls this material *sable intestinale*. Sheridan Delapine, in 1880, reported 4 cases before the London Pathological Society, followed in more recent years by D. Thomas, Lamb, G. Shattuck, Dieulafoy, Matthew and Riechaud, R. S. Thomson and Alex. R. Ferguson and Eichhorst. Dr. Scott's first case was a patient of Dr. J. M. DaCosta's, a woman about forty, with no organic lesions, who passed gritty material with the stools. Examination showed it to be a light yellow or yellowish-red concretion, not unlike coin-dust in appearance, microscopically looking like uric acid, but careful examination by chemical methods showed its absence. It was considered vegetable in its origin. The second case was that of a child aged three and one-fourth years, for eight months subject to attacks of duodenal and iliac catarrh, with marked toxic symptoms. In the beginning of these attacks, together with undigested curds and mucus, would be found a very firm gritty reddish or pinkish sand, which would disappear as the stools approached normal. After maceration in strong acids the sand would gradually soften with but little effervescence, and gummatous material, crystals looking like the fatty acids, such as are seen in fat neurosis, and epithelial cells were found. The tendency for certain materials to remain for long periods in the intestine was remarked upon. A specimen of biliary sand (cholesterin) was also shown.

DR. J. P. CROZER GRIFFITH said that there is one source of foreign substances in the feces that we should never forget in children, viz.: the purely extraneous matters which are idly swallowed. Children have so constantly a habit of putting all sorts of objects in their mouths—earth, sand, plaster from the

wall, and so on—that it cannot surprise us if occasionally some of these appear in the stools. He had seen some curious instances of this sort. This, however, was not true in the child which he saw with Dr. Scott, for it was particularly carefully guarded, and it was certain that it did not at any time introduce any such foreign bodies into its mouth. It has seemed to him possible that in some of the cases of true intestinal sand, such as Dr. Scott's cases represent, some insoluble organic salts of lime may constitute the material found. There is no proof of this, however, in Dr. Scott's cases.

DR. ESHNER thought that these cases are perhaps less rare than we are accustomed to believe, but in spite of Dr. Scott's suggestion he did not think that they can be common. Eichhorst recently reported the only 2 cases in his large experience which were not mentioned by Dr. Scott. Both of these occurred in neurotic women, who presented symptoms of mucous colitis, and it occurred to him that perhaps the condition may be in some instances a secretory neurosis, an abnormal secretion occurring from the intestine precipitating out the so-called intestinal sand after passing the intestinal wall, and thus giving rise to the appearance of sand in the intestinal contents.

DR. GEORGE McCLELLAN then delivered an address on

THE ANATOMY OF CHILDHOOD,

and exhibited a series of lantern slides prepared from personal dissections of the adult and child, which exhibited many of the anatomical differences at different periods of life.

Congenital Elephantiasis.—J. E. Dubé gives (*L'Union Médicale du Canada*, June, 1900) with illustration an account of a child two and a half months old, whose right leg was enlarged at birth and continued to increase in size until the foot was almost hidden from view, and the calf and thigh presented enormous proportions. The mother had had a fright in the third month of her pregnancy. The leg was treated by deep multiple puncture and elastic compression. At each sitting a large amount of orange yellow thick serum ran out and coagulated at once. There was some improvement up to the time the patient disappeared from observation.—*Medical Record*.

SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN—
LONDON.

*Meeting of April 19, 1901, at the North-Eastern Hospital
for Children, London.*

DR. A. ERNEST SANSOM, CHAIRMAN.

THE CHAIRMAN showed a boy, aged eleven years, many of whose joints were affected with

OSTITIS DEFORMANS.

There was complete ankylosis of both knee-joints and thickening about the cervical vertebræ (spondylitis); the muscles were wasted and the skin slightly pigmented, but there was no enlargement of the spleen and no structural affection of the heart. The disease had commenced in December last with a febrile affection simulating "rheumatic fever." Considerable improvement had taken place under massage and measures likely to promote good nutrition.

MR. R. CLEMENT LUCAS suggested that the joint mischief might have originated from a focus of suppuration about the jaws, tonsils, ears or eyes. In a recent case of osteoarthritis he had found staphylococci in fluid from the hip-joint. He inquired whether a bacteriological examination had been made.

DR. THEODORE FISHER argued that arthritis deformans was merely a variety of rheumatism altered by the idiosyncrasy of the patient.

DR. D. MILNER BURGESS inquired whether there was any history of rheumatism in the child's family. In a case at present under his charge most of the members of the family had acute or chronic rheumatism.

DR. GEORGE CARPENTER pointed out that the skiagrams presented no alterations in the bones but some adventitious material round the parts, so that the thickening of the joints was more apparent than real. He thought the case was identical with the secondary joint disease of meningitis. In the plastic material around the joints Still had found a specific organism.

THE CHAIRMAN replied that there had been no evidence of suppuration, nor had a bacteriological examination been made.

There was no rheumatic heredity in the case. He thought that organic heart disease, found sometimes with *ostitis deformans*, was an epi-phenomenon.

DR. JAMES TAYLOR exhibited a case which he believed was
A CONNECTING LINK BETWEEN CASES OF PSEUDO-HYPERTROPHIC
PARALYSIS,

in which no lesion of the spinal cord is found, and cases of chronic degeneration of anterior horn-cells of the spinal cord (progressive muscular atrophy). The boy, now ten years of age, had been observed for three years. He had not become obviously worse, and sometimes had decidedly improved. The disease was not symmetrical; there were marked fibrillary twitchings in the affected muscles.

DR. J. H. SEQUEIRA showed

THREE BOYS SUFFERING FROM PROGRESSIVE MUSCULAR DYSTROPHY.

Each was an advanced case and had been some years under observation. The characteristic phenomena were present. An interesting feature was, that although all three patients were members of large families, there was no similar affection in the brothers or sisters.

MR. DOUGLAS DREW showed

THREE CASES OF NEVO-LIPOMA

for Mr. A. B. Roxburgh (introduced). The first showed extensive nevas of the venous type affecting the leg and lower part of the thigh, with marked thickening of the subcutaneous fatty tissue. The second case was a child of twelve months, with a large lipoma of the thigh. The third case was a baby of three months, with fatty growth of the axillary, pectoral and infra-spinous regions. It also involved the under surface of the arm, and portions of this part of the tumor were nevoid.

He also showed a child of six years with

RICKETY DEFORMITY OF THE LOWER LIMBS.

Twelve months ago McEwen's osteotomy was performed for marked genu valgum with dislocation of the patella outwards when the knee was flexed. The result of the operation was satisfactory so far as the straightening of the knee was concerned, but it had failed to cure the dislocation, although splints had been worn since the operation. He was about to perform a second operation for the cure of the dislocation.

DR. J. PORTER PARKINSON showed two specimens: (1) A GUMMA IN THE WALL OF THE HEART OF AN INFANT, aged three months; (2) A PERFORATING ACUTE GASTRIC ULCER IN A MALE CHILD, aged two years and two months. The patient from whom the first specimen was taken was brought to the hospital in a dying state. At the autopsy the child was seen to be wasted, with the remains of a blotchy rash on the body. In the lungs and spleen were numerous tubercles. In the wall of the left ventricle, just below the auriculo-ventricular groove, close under the visceral pericardium, was a pale, tough, yellow mass three-fourths inch in diameter and one-fourth inch thick, well marked off from the adjacent muscle. The valves and rest of the heart appeared healthy. The other organs of the body were normal to the naked eye. The growth was examined microscopically, and Dr. Targett furnished the following report. "The nodule in the heart is composed of young inflammatory tissue in various stages of development, and the adjacent muscle is infiltrated or destroyed. The lesion is evidently syphilitic, and may be regarded as a gumma of the heart." He remarked that the records of the Pathological Society contain only one similar specimen, exhibited by Mr. Shattock in the year 1880. The lesion therefore was extremely rare.

The second specimen was from a child who had suffered for ten days from slight fever, occasional vomiting and gastric symptoms. It suddenly vomited blood and became collapsed, with typical symptoms of acute peritonitis. At the post-mortem examination, sixty hours later, the peritoneal cavity was found to contain about a pint of turbid fluid. The omentum was thickened and matted by adhesions, but no tubercles were seen. Liver and spleen normal. Near the center of the posterior wall of the stomach was a punched-out ulcer with thickened edges, and a perforation, a little larger than a pin's head, at its base. The peritoneum forming the posterior wall of the small bag of the peritoneum was adherent to the stomach, and there was no escape of the stomach contents. One or two of Peyer's patches were slightly swollen. A second small ulcer was to be seen in the posterior wall of the stomach near the one described.

DR. GEORGE CARPENTER thought the mass might be equally well one of tubercle. He had published an almost identical case in a child a year old. The child was both syphilitic and tuber-

cular, and he did not commit himself beyond the statement that it was an example of fibroid disease of the heart.

DR. THEODORE FISHER regarded the absence of caseation from the specimen as a point in favor of its syphilitic origin.

DR. PARKINSON, in reply, said the evidence of gumma depended on the hardness of the lesion, the absence of caseation, and the microscopical report.

DR. J. H. SEQUEIRA showed three children, two boys and a girl, with

LUPUS, TREATED BY THE FINSEN METHOD.

The results had been excellent. Photographs of the patients before treatment were shown, and attention was drawn to the advantages of this form of treatment over surgical methods, especially when the disease attacked the face. The chief drawback was the time occupied by the treatment. One of the patients, in whom nearly the whole of the left cheek had been affected, required over fifty sittings.

DR. G. A. SUTHERLAND asked whether the excision of the lesions would not have produced as good a result and much more speedily. Was the light treatment any guarantee against recurrence?

DR. SEQUEIRA said excision could have been carried out in only one of the cases. The Finsen method was painless. Recurrence might follow excision, but, not so far as he knew, the light treatment.

DR. D. MCKENZIE showed a

BABY, AGED ELEVEN MONTHS, WITH SCURVY.

She had been brought up on proprietary food. She showed pain and tenderness in her lower limbs and changes in the gums, but no anemia; no signs of rickets.

DR. J. H. SANDERS mentioned a case where benefit had followed alteration in diet and the legs had been put up in plaster of Paris.

DR. GEORGE CARPENTER had a case of scurvy in a medical man's child where the gums had been treated with chlorate of potash, with the result that the liver became much enlarged and the child nearly died.

THE CHAIRMAN said chlorate of potash was a dangerous drug, owing to its destructive influence on blood corpuscles. He deprecated its use in children.

DR. THEODORE FISHER read a paper upon a

CASE OF SWELLING OF THE EYELIDS AFTER A WARM BATH.

A girl, aged nine years, frequently suffered from swelling of the eyelids after a warm bath. The swelling, which was considerable, was fully developed from one-half hour to an hour after the bath, and lasted twelve to twenty-four hours. That the swelling did not occur after every bath was a curious feature of the case, and no definite reason for this spasmodic character could be made out. It was thought that atmospheric influence might have something to do with it. No intermittent albuminuria was found in this case as he had found in some of the more marked cases of swelling of the eyelids occurring in children.

DR. GEORGE CARPENTER asked whether urticaria was present and had the child any gastrointestinal disturbance?

DR. G. A. SUTHERLAND inquired whether there was any family or personal history of asthma or eczema.

MR. SYDNEY STEPHENSON said that he had had brought to him on several occasions children with swollen eyelids, and in more than one such case, on stripping them, he had found patches of urticaria upon the body.

DR. THEODORE FISHER said he would inquire into the suggestion that urticaria was the cause. He believed that there was no eczema, but could not be certain about asthma.

Etiology of Congenital Dislocation of Hip-Joint.—P. Bade (*Centralblatt f. Chirurgie*) in twenty-five out of ninety-four cases of congenital dislocation of the hip-joint, Röntgen photographs showed more or less alteration of a similar nature on the sound side; the acetabulum unduly wide, the roof flat, the sides of the socket thickened, asymmetrical atrophy, or else anomalies in the growth of the head. Congenital dislocation is, therefore, due to a primary defect in formation, which may be so slight as not to induce dislocation. If the primary alterations are located in the upper portion of the neck and not in the acetabulum, coxa vara may result.—*The Journal of the American Medical Association.*

Current Literature.

MEDICINE.

Lemonnier : Hereditary Syphilitic Diabetes. (*Arch. de Méd. des Enf.* Vol. iv., No. 3.)

A little girl seven and one-half years old had had symptoms of congenital syphilis during the first months of life; they had yielded to treatment. For three months the present illness had been progressing, with emaciation, great thirst and polyuria, four to five liters being passed per day. There was much sugar present. Mercurial inunctions and iodid of potassium were given; the diet was regulated by forbidding fruits and sugars only. In four months cure was complete, but the inunctions were continued for some time longer.

Certain nervous or pancreatic lesions of syphilitic origin may cause diabetes. Very probably the diabetes may occur in the course of syphilis as one of the manifestations of the diathesis, or even the only one. Treatment will be effectual in either of these cases. Finally, perhaps syphilis prepares the ground for the development of the diabetic dyscrasia in the offspring; in that case treatment will be of no avail.

Rolleston, H. D., and Crofton-Atkins, R. : A Case of Congenital Hypertrophy with Stenosis of the Pylorus. (*The British Medical Journal.* No. 2086. 1900.)

A male infant, born at term, bottle-fed, developed vomiting and convulsions when two weeks old. Diarrhea appeared, and was followed by constipation. The vomiting continued irregularly, completely digested but highly acid material being returned. Convulsions were repeated. No tumor in the pyloric region could be made out, but three days before death dilatation of the stomach appeared. Emaciation and asthenia were progressive, and death occurred at the age of seven weeks and five days. The autopsy showed hypertrophy with almost complete occlusion of the lumen of the pylorus, the point of a pin being barely able to enter. The thickness of the pyloric wall (8 mm.) was largely due to increase in the circular muscular coat. Microscopic examination showed a catarrhal condition of the

gastric mucosa; this had manifested itself clinically by the appearance of blood in the vomit five days before death.

This is the forty-fifth case of this kind on record. The cause seems to be a congenital hyperplasia of the pyloric sphincter, with the supervention of spasm, which is largely responsible for the symptoms manifested. The best plan of treatment in slight cases would be a combination of nasal and rectal feeding with a cautious return to ordinary means. Of the six cases operated upon but one recovered.

Baumel, L. : Diabetes in a Baby Six Months Old ; Cure. (*Arch. de Méd. des Enf.* Vol. iv., No. 3.)

The child was breast-fed, not syphilitic, and developed polyuria, polydipsia and marked general edema. The urine contained one gram of glucose to the liter. Lactophosphate of lime was given and the feedings regulated. Improvement was gradual. There was no return of the diabetic condition during the following eighteen months, although the child was seen at intervals and treated for bronchopneumonia, varicella and measles.

It is not impossible that the etiology of this case was a nervous one, the terminal filaments of the trigeminal nerve being excited by the erupting teeth, and in turn causing irritation of the glycosuric center.

Tollemer : A Case of Lobar Pneumonia Due to Eberth's Bacillus. (*Rev. Mens. des Mal. de l'Enf.* Vol. xix., No. 2.)

A boy of thirteen, convalescing from typhoid fever, developed a lobar pneumonia on the right side after his temperature had been normal for some days. The sputum contained typhoid bacilli and some streptococci of slight virulence, but no pneumococci.

Widal, Sicard and Ravaut : The Cytodiagnosis of Tuberculous Meningitis. (*La Presse Médicale.* Vol. liii., No. 8.)

Normally the cerebrospinal fluid obtained by lumbar puncture during life contains no cellular elements. In cases of tuberculous meningitis the fluid is sometimes cloudy, sometimes sanguinolent, but usually limpid and hardly distinguishable from the normal. After centrifuging, microscopic examination

of the sediment shows a preponderance of lymphocytes, although there may be polynuclear cells present. Two cases of cerebrospinal meningitis were examined and showed polynuclear cells only. So that the presence of lymphocytes may be an important diagnostic aid in cases of tuberculous meningitis.

Baginsky, A.: Mixed Infection of Bacillus Proteus and Streptococcus. (*Transactions of the XVI Meeting of the Gesellschaft für Kinderheilkunde.*)

This occurred in an infant seven months old. The skin showed a bluish-red mottled condition, which spread very rapidly, causing death on the third day of its illness. A constant accompanying symptom was vomiting.

Post-mortem examination showed hypertrophy of the thymus gland. Hemorrhages into the skin. Recent follicularis, enteritis. Bacteriologic examination of the heart blood, intestinal contents and also of the parenchyma, showed the presence of streptococci and also proteus vulgaris. The thymus gland was sterile.

Baginsky, A.: Secondary Infections in Children. (*Transactions of the XVI Meeting of the Gesellschaft für Kinderheilkunde.*)

He describes a series of peculiar secondary infections. One was a case of ecthyma gangrenosum in which an infection with bacillus pyocyaneus took place in a child sixteen months old. This patient had pneumonia along with otitis media purulenta requiring paracentesis. The infection took place at the tip of the nose. Similar cases have been described by Escherich and Blum. The clinical knowledge of these cases we owe to the careful publication of Hirschmann and Kreibich. Peculiarities of this case are that the invasion was confined to the skin and was, therefore, superficial involving externally the tip of the nose, causing internally rhinitis resembling diphtheria. The autopsy showed that the abdominal lymph nodes were not involved, nor was the liver, nor kidneys.

Thursfield, Hugh: Posterior Basic Meningitis. (*Lancet*, No. 4042.)

The author reports 17 cases with 2 recoveries and 14 deaths. In 8 of the 9 autopsies in which a bacteriological examination

was made an intercellular diplococcus alone was found. The ninth was negative. The vitality of the organism on artificial media was found not to exceed one week. Ten of the cases were males, 7 females; the age varied from three months to four years, the average being nine months. The writer believes a peculiar gray discoloration of the disc to be peculiar to the disease and retraction of the upper lid to be very characteristic of this form of meningitis. The possible difficulties of differential diagnosis are illustrated in 3 cases with atypical symptomatology. Removal of cerebrospinal fluid by lumbar puncture as a therapeutic means is said to be of possible value only during the first week.

Haas, Leopold F. W.: Diabetes Mellitus in Children.

(*Journal of the American Medical Association.* Vol. xxxv., No. 20.)

Two cases in one family, brother and sister, aged respectively five and nine years, are reported. There was a strong tuberculous predisposition, a fact of considerable interest. In neither case could the date of origin of the disease be surmised. The boy's case may have been due to an injury. The girl first consulted the author for an attack of peliosis rheumatica, and the diabetic condition was discovered incidentally. Both patients were alive when the paper was written, and were evidently confirmed diabetics, although their general condition was good when upon a moderately strict anti-diabetic diet. No rational symptoms of diabetes are present, with the possible exception of carious teeth in the girl.

In the discussion which followed the reading of this paper, Dr. Heinrich Stern cited the results obtained by him in the direction of statistical research, which appear to show that of the total mortality from diabetes but 4.25 per cent. of the cases occur before the twentieth year. Out of a total of 1867 deaths there were but 13 under the age of five years, and but five during the nursing period. He believed that diabetes in children was essentially different from the affection of the same name in adults.

Dr. Louis Fischer had seen glycosuria in young children without evidences of diabetes.

Dr. Edwin Rosenthal had seen two fatal cases of diabetes in

children, which he thought might possibly have been due to artificial feeding with prepared foods, and Dr. De Venney had seen a case similar to these in every respect.

Tuley, Henry E. : Purpura Hemorrhagica or Scorbutus? (*Journal of the American Medical Association.* Vol. xxxv., No. 20.)

He reports a typical case of scorbutus in a child aged two years and seven months; spongy, bleeding gums; fusiform swellings at the ankle joints; hyperesthesia; pain and inability to walk; hemorrhage from the bowels; petechial spots and ecchymoses all over the body, especially the lower extremities and lower portion of the trunk; diarrhea and considerable temperature. These symptoms, however, also conform to the picture of purpura hemorrhagica; and scurvy would appear to be excluded in diagnosis by the fact that the patient's diet was more or less general in character. The supervention of fatal pneumonia made it impossible to test the nature of the case by the administration of antiscorbutic diet. He is inclined to believe that cases of this sort teach us that purpura hemorrhagica is merely a symptom of different conditions, of which scorbutus is but one. In the discussion which followed the delivery of Tuley's paper, Griffith (Philadelphia) stated that he had treated various cases of purpura with antiscorbutic regimen, but without benefit. Morse (Boston) thought that scorbutus was no longer held to be a necessary result of a certain diet. Cotton (Chicago) stated that spongy gums are not pathognomonic of scurvy.

Fischer, Louis : Athrepsia Infantum—Marasmus or Wasting Disease—Atrophy—Malassimilation of Food. (*Journal of the American Medical Association.* Vol. xxxvi., No. 3.)

In marasmus hand feeding may occasionally give better results than breast milk, and has an advantage in the fact that the ingesta may be accurately measured. Artificial feeding with milk takes cognizance of four modifications, according as the milk is humanized, sterilized, pasteurized or peptonized.

Daily home sterilization is by far preferable to buying sterilized milk from wholesale manufacturers, because this process is on the whole pernicious unless the milk so treated is

quickly consumed. In using modified milk of any sort, one method of determining an excess of proteids in the diet is connected with examination of the feces; the presence of curds in the stools is an indication of such excess, as may also be the presence of vomiting. Humanized milk is practically cow's milk diluted with whey, with the original amount of cream readded after it has been once separated. This dilution with whey comes about technically through precipitation of the curds by rennet.

Considerable space is given to the method of modifying milk known as partial hydration, which consisted originally in adding twenty drops of a 10 per cent. solution of chlorhydric acid to one quart of milk and one pint of water and boiling for twenty minutes. Milk so prepared should contain no free acid.

Cases of marasmus, which are simply examples of neglected gastrointestinal disorders, never recover spontaneously, and the children can be saved only by suitable natural or artificial feeding.

La Fétra, L. E. : Infantile Croup with Unusual Temperature Range. (*Medical News*, No. 1457.)

A case reported in detail has, as the most important features, the following:

1. On the sixth and tenth days the temperature fell below 95°, showing profound infection.
2. The temperature showed wide excursions; on one occasion the fall amounted to 10½°.
3. Recovery could be attributed to change of air alone.
4. There was evidence that the germ of influenza had persisted in the house for months despite sulphur fumigation.

The age of the child was about fourteen months.

Maude, Arthur : An Instance of Excessive Enteric Rash in Childhood. (*Lancet*, No. 4032. 1900.)

A well-nourished boy of twelve years had typhoid fever with a rash that appeared on the tenth day and reached its greatest development five days later. The spots were crowded over the abdomen and chest; they were numerous on the back, the arms, the thighs and the neck; they appeared on the face and invaded the margin of the mucous membrane of the lips.

These spots were typical in every way, though a few were larger in size than usual. The child was one of a family of young children, nearly all of whom had severe enteric fever. This patient was very ill.

Loude and Froin: Ganglionic Fever Due to Pneumococci; Probable Contagion. (*Rev. Mens. des Mal. de l'Enf.* Vol. xix., No. 2.)

A boy of three years had a coryza, followed in three weeks by swelling of the submaxillary and retromaxillary lymph nodes on the left side. Two distinct nodules could be palpated, and were painful. Fever oscillated between 38° and 38.5° C. The pharynx was diffusely reddened, but there was no swelling of the tonsils nor the posterior pharyngeal wall; there was no stomatitis, and no cough. Bacteriological examination of the pharyngeal mucus showed the presence of Fraenkel's pneumococcus in pure culture, virulent for white mice. The general condition improved rapidly, but the two enlarged lymph nodes remained palpable for some weeks.

It is possible that the child owed his infection to a fatal case of pneumonia occurring in the family at the time when his coryza began.

Brasch: Hereditary and Infantile Tabes. (*Die med. Woche.* No. 11. 1901.)

He reports a case of hereditary and infantile tabes in a girl of fifteen years. There were pupil symptoms, absence of patella reflex and some slight staggering in the dark. Father died of tabes and had an old specific history. The mother has had two miscarriages, two healthy children, and one that died in infancy. This child had an eruption during infancy but has developed well.

Phillips, S.: Two Cases of Typhoid Fever, with Abscesses of Lung and Empyema. (*British Medical Journal.* No. 2095, 1901.)

Brothers, four and one-half and three years old respectively, had typhoid fever, beginning with sore throat, headache, delirium and diarrhea. There was intense hyperesthesia over the whole surface of the body, distension of the abdomen, and signs of pleurisy and pneumonia over the right base in the older, and over the left base in the younger child. In the case of the latter,

eight ounces of pus were evacuated from the left pleural sac two days before death, which occurred during the fourth week in both cases and was due to sepsis. No typhoid spots nor enlargement of the spleen appeared in either patient.

The autopsies showed both healed and healing typhoid ulcers in the Peyer's patches and solitary follicles, pneumonia, empyema and abscesses in the consolidated lung in both cases. The older case showed recent vegetations on the mitral valve, and in the pleural pus the streptococcus lanceolatus was found.

It is a singular coincidence that both brothers should have suffered from the same sequence of events somewhat uncommon in typhoid fever, but Murchison has shown that there is often a striking similarity in the cases of typhoid fever occurring in the same house. Probably both children received a double infection from the outset.

Blumer, G. : Hemorrhagic Infection in an Infant Due to the Typhoid Bacillus. (*The Journal of the American Medical Association.* Vol. xxxv., No. 26.)

A female baby, born at term, four and one-half months after the mother had passed through an attack of typhoid fever, had a convulsion after nursing on the third day. Two days later blood was passed by the vagina, coming from an eroded cervix. Slight bleeding from the gums and a petechial eruption over the forehead developed before death occurred on the ninth day. There were slight rises of temperature during the attack. At the base of the dried umbilical cord was a small excoriation. The autopsy showed hemorrhagic follicular colitis and ileitis; swelling of the spleen and mesenterics, with hemorrhages into the latter; cloudy swelling of the liver and kidneys, congestion of the lower lobes of the lungs, dilatation of the uterus with hemorrhage into the endometrium, and hemorrhages into the kidney and submucosa of the bladder.

Microscopically the affected intestinal follicles show a partial disappearance of their lymphoid cells and the presence of large epithelioid cells with phagocytic properties; the endothelial cells lining the vessels show fairly well marked proliferation and the assumption of phagocytic powers. The spleen and mesenterics show similar changes, and the large phagocytic cells were found in the blood-vessels in the heart, lungs, liver, kidneys, adrenals, pancreas and uterus. The typhoid bacillus

was cultivated from the lung, spleen, bile and umbilical cord; it was also present in the large intestine, together with the colon bacillus. Cultures from the heart's blood, liver and kidney remained negative.

The case differs from all those reported in that the child was born four and one-half months after the mother's typhoid, and not during the attack. It seems likely that the typhoid bacillus remained latent in the fetal tissues throughout this time, and that the case is really one of congenital typhoid. The septicemic character of the disease is characteristic of this class of cases, and the hemorrhagic tendency is seen at times both in children and in adults. There would seem to be a bare possibility of a post-natal infection, but the child was breast-fed, and typhoid bacilli have never been isolated from breast milk. The excoriation at the base of the umbilical cord must be mentioned as a possible source of entrance for the bacilli; but there is no case on record of typhoid fever contracted through wound inoculation, and the mother's urine (a possible source of contamination) contained no typhoid bacilli.

Wilson, W. Reynolds: Intracranial Hemorrhage in the New-Born. (*Philadelphia Medical Journal.* No. 162.)

This accident may be termed a natural consequence of the traumatism of labor and is believed to be the cause of death in at least one-third of all still births and cases which succumb soon after delivery.

The baby may appear normal at birth, especially if the hemorrhage has been intrauterine. The symptom-complex which then develops is characterized by somnolence, vomiting, a piercing cry and convulsions. Death, which is almost inevitable, results from coma. In a case cited by the author, evidences of intrauterine asphyxia had been present (irregular fetal heart action, with meconium in the amniotic fluid). The child did well, however, for the first four days, after which bilateral nystagmus developed, with a rise of temperature. On the next day opisthotonus appeared, with a shrill incessant cry. On the sixth day various paralyses appeared, followed by convulsions, coma and death. As diagnostic tokens may be mentioned bulging of the anterior fontanelle from increased intracranial pressure, together with evidences of paralysis of central origin.

The treatment of this condition is in part that for simple

asphyxia neonatorum, which is generally present in these hemorrhages. The principal indications are to overcome the atelectasis by forced inspiration. The treatment for shock must be superadded together with ice to the head.

Bolognini, Pirro: Case of Nerve-Nevus. (*La Pediatria.* Anno viii., No. 12.)

His conclusions, based upon study of his case, are as follows: The flat vascular nevus which was present in this case is certainly radicular, constituting an anomaly of development in the cutaneous area innervated by prolongations of the posterior roots of the fourth, fifth, sixth, seventh and in part the eighth cervical nerves.

Such anomalies are of embryonal origin, and due probably to a very mild infection affecting either the ectoderm or cerebro-spinal axis of the fetus.

Vipond, Albert E.: Sudden Death in Infancy and Childhood. (*Montreal Medical Journal.* Vol. xxx., No. 1.)

The causes of sudden death in nurslings are often obscure, and hardly illuminated by the result of autopsy. A most important feature is the fixing of responsibility on the part of those in charge of the child. As a matter of fact, death from "overlying," the latter by its mother or nurse, is of extremely rare occurrence. Sudden death in the midst of apparent health may have been due to a severe attack of convulsions or laryngismus stridulus, this kind of fatality being common in rachitic children; or to compression of the trachea by an enlarged thymus gland, or to blows in the territory of the vagus, death being then due to fatal inhibition of the function of that nerve.

Death may take place suddenly in children who are already ailing from cardiac failure (very common in diphtheria), from pulmonary congestion, bronchopneumonia, etc.

We must look especially for sudden death in children who are naturally predisposed to convulsions; in those who are exposed to the dangers of asphyxia, whether from conditions within or without the air passages; in cases in which there is tendency to heart-failure, and finally, as a general class, in sufferers with gastroenteric troubles, who are prone to expire suddenly from exhaustion.

Iovane, Antonio: Toxemic Nephritis in a Child Aged Three and a Half Years. (*La Pediatria.* Anno ix., No. 2.)

The patient upon admission to the clinic was pale with a tendency to lividity of the extremities. General anasarca was present. The urine, which could not be obtained in quantity sufficient to take its density, was turbid, reddish-brown, acid, and contained about 2 grs. per 1,000 of albumin. The microscope revealed the presence of red corpuscles, hyaline casts and renal epithelia. The pulse was imperceptible and the coldness of the extremities seemed to foretell a fatal issue. Caffein and ether were rapidly injected, and hot water bottles applied. Death took place seventeen hours after admission.

Clinically the case was one of simple acute nephritis. The autopsy, however, revealed the presence of adhesive pericarditis, with formation of pus in the pericardial sac. This condition, which had not been suspected during life, probably dated back some five months.

Griffith, J. P. Crozer: Scurvy Not Rheumatism. (*Philadelphia Medical Journal.* No. 162.)

Scurvy is usually easy of recognition, but in a certain number of cases, rheumatism is closely simulated. The author narrates 16 cases in which there was more or less difficulty in diagnosis.

One case occurred in a bottle-fed baby aged three months. Weak and emaciated at first she soon improved under scientific feeding. However, she developed, some six months after the first consultation, a condition of extreme general sensitiveness to the touch. There was not the least evidence of a scorbutic condition, but the child promptly recovered when placed on orange-juice. The cause of the dyscrasic condition was set down as a low proportion of proteids in the pasteurized milk.

Lesné, E., and Merklen, P.: A Study of the Functions and Changes of the Liver and Kidney in the Course of Gastroenteritis in Infancy. (*Rev. Mens. des Mal. de l'Enf.* Vol. xix., Nos. 2 and 3.)

The liver and kidneys do not show any specific changes in gastroenteritis; but according to the duration of the disease, may be congested, or show epithelial degeneration or sclerosis.

Indicanuria is common, but not constant in infantile gastroenteritis. The diazo-reaction is absent from the urine; alimentary glycosuria, showing hepatic insufficiency, occurs in the chronic forms, not in the acute; urea is excreted in diminished quantity in every form of the disease, and the toxicity of the urine is increased. The amount of salts eliminated seems to diminish with the severity of the attack. From the stools of infants suffering from acute or subacute gastroenteritis, colon bacilli were isolated, having been found alone (5 cases) or associated with streptococci (2 cases). Experiments were made on guinea-pigs, feeding them with the feces of gastroenteritis patients, feeding them with colon bacilli cultures, and inoculating them subcutaneously with the cultures. It was found possible to produce lesions in the liver and kidney resembling those present in babies dying of gastroenteritis. It is difficult to prove whether the liver or the kidney is affected first or whether both are involved simultaneously; but they both re-act harmfully, the one upon the other. Autointoxication added to toxic infection explains the characteristic symptoms of the subacute and prolonged cases, and also the slowness of the recovery from gastroenteritis.

Hektoen, L.: Rare Cardiac Anomalies. (*American Journal of the Medical Sciences.* Vol. cxxi., No. 2.)

1. A newly-born infant, well-developed, without external malformations, showed, at autopsy, a normally developed heart with a large defect in the septum between the pulmonary artery and the aorta, a patent ductus arteriosus and a hypertrophied right ventricle. The foramen ovale was open, but the veins, valves and arterial branches were normal, as was the ventricular septum. The defect between the aorta and pulmonary artery was oval, 1.5 cm. in its greatest diameter, and situated a little above the semilunar valves, so that at this point there was a common arterial trunk whose greatest diameter was 3 cm. This defect is rare (only nine similar cases are reported in medical literature) and it is to be distinguished from communication between the aorta and pulmonary artery due to a persistent ductus arteriosus, which is situated at the arch of the aorta.

2. Well developed, newly-born child, whose autopsy showed a hypertrophied heart, dilated ductus arteriosus, and regurgitation through a smooth depression under the base of

the anterior aortic valve, which was attached to and carried across by a tendinous bridge. The foramen ovale was open, the mitral orifice small, and the aortic valves large and higher than normal. There were three segments, the anterior one being attached to a firm, band-like bridge, 2 mm. thick, which extended across an oval depression in the upper part of the interventricular septum and the lower aspect of the aorta which here showed a marked bulging anteriorly between the aorta and the pulmonary artery. It looked as if the lower end of the aorta and the interventricular septum had failed to develop fully, but the septum was not perforated. The beginning of the aorta, just above the sinuses of Valsalva, was wider than usual but smooth.

No mention of any similar anomaly of the aortic septum was found in the literature on the subject. The marked leakage under the base of the anterior valve produced hypertrophy of the heart, especially of the left side; it also led to marked dilatation of the arterial duct and to pulmonary and general venous congestion. It was the result of purely developmental disturbances.

In the first case there was a general infection with the bacillus mucosus capsulatus.

Selter, P. : The Perityphlitis of Children. (*Arch. f. Kinderhk.* Vol. xxxi., Nos. 1 and 2.)

From a review of the literature and a study of 28 cases of perityphlitis which came under the author's own observation, he is convinced that the disease is often overlooked or wrongly diagnosed in its early stages. Simple appendicitis is of far more frequent occurrence. Of the 28 cases 6 developed a general peritonitis, 11 a circumscribed abscess and 11 recovered without any apparent bad consequences—remaining well. The abscess either heals spontaneously (resorption) or it burrows downward and to the left into the pelvis, fills the vesicorectal excavation and ascends on the left side of the pelvis. Consequently, when palpated through the rectum, the abscess tumor gives the impression of being forked, with points directed upwards.

As to the etiology, foreign bodies in the appendix are rare; fecal concretions are more common, especially between the ages of five and twenty years. Traumatism and errors in diet play a part in a certain percentage of the cases.

The only absolutely reliable symptom is a feeling of resistance of the right pelvic wall when palpated through the rectum. All other signs—vomiting, constipation, fever, changes in the pelvis, local pain and pelvic tumor—may be absent.

Even severe cases should be treated with opium, ice and fluid diet for one or two days. If at the end of that time the tumor increases in size and the symptoms grow more marked, operative interference must not be delayed. Should the appendix not be found easily, it need not be removed unless it be the source of suppuration, painful thickening or adhesions.

SURGERY.

Lannelongue: Note on a Congenital Lachrymo-Pharyngo-facial Fistula Opened Below the Right Nostril. (*La Presse Médicale.* No. 19. 1901.)

A two year old girl presented a round opening below the right nostril, and separated from it by a bridge of skin and cartilage. A probe passed into the abnormal orifice entered the pharynx, passing below the palatine vault. The fistulous tract, 6 to 7 mm. in diameter, was quite independent of the right side of the nose, the posterior opening of which was obstructed. The olfactory sense was not impaired. The right lachrymal duct communicated with the fistula. By operation the tract was incorporated in the right nasal fossa, and the result was excellent, no trace of the anomaly remaining.

This congenital fistula was manifestly due to a lack of coalescence of the facial buds, its superior wall coming from the external nasal bud and its inferior wall from the superior maxillary.

Cotton, F. J.: Subperiosteal Fractures. (*Boston Medical and Surgical Journal.* Vol. cxliii., No. 22.)

These fractures differ from the green-stick variety in that there is no deformity, because there are no torn surfaces, but a clean-cut crack or cross fracture; and no bent or half-broken layer of bone to prevent the motion necessary to readjustment of the surfaces. The lack of crepitus and mobility seems to be largely or entirely dependent upon the strength of the thick intact periosteal layer.

Ten cases are cited, occurring in children from three to thirteen years of age, and involving the radius in 4, the clav-

icle in 2, the tibia in 2, the olecranon in 1, and the humerus in 1. The X-ray was used for diagnostic purposes.

Some experiments were made on cadavers of newly-born, normal infants to see how readily clean-cut fractures could be produced and how much the periosteum hindered displacement at the time of breaking and on subsequent manipulation. It would seem from these that blows are less likely than a slower acting strain to produce typical green-stick fractures, and it is at least obvious that even the soft bones of the newly-born may be broken or cracked in clean-cut approximately transverse fracture lines by forces moderate enough to leave the periosteum intact.

Fractures in children showing no deformity and no appreciable mobility are not uncommon; they may readily be overlooked; they often need no reduction, having no deformity; they repair with callus and quickly.

Nicoll, James H. : Three Cases of Cervical Spina Bifida Treated as Out-Patients by Open Operation. (*Lancet*, No. 4044.)

Spina bifida is not uncommon in the cervical region; and in this locality is especially adapted for out-patient treatment. Much depends for the success of the treatment upon the intelligence and faithfulness of the mother. For the technique of the operation, the author refers to the Glasgow Hospital Reports for 1900; also the *British Medical Journal*, October 15, 1898.

In the three cases which constitute the subject of his paper, the sac was excised under chloroform. The ages of the infants were four, seven and seven months respectively. Two of the cases are mentioned as having been pure meningoceles. The operation-wounds were closed by sutures and each case healed by first intention. The children were at once sent home after the operation where they were nursed by their mothers, aided by some of the hospital sisters.

McQueen, James: A Case of Absence of the Anus and Rectum, with Communication Between the Intestine and Urinary Tract. Operation with Recovery. (*Lancet*. No. 4037.)

There was no anus, and fecal matter escaped by the urethra. The locality where the former should have been was marked by a papillary formation. After dissecting upwards for over an

inch the gut was located, pulled down to the incision, and opened, allowing the escape of a large amount of meconium. The lips of the incision were stitched to the external wound. On the third day the sutures cut through, with slight retraction of the gut. Attempts at restoration were not entirely successful and healing was allowed to occur as it best could. Bougies were passed daily to prevent contraction of the opening. Fecal matter escaped by the urethra whenever the newly-formed anus was not kept patulous. The fistulous communication which had undoubtedly existed between the gut and the urinary tract appeared to undergo spontaneous obliteration in time.

In cases of this character authorities have generally advised the performance of colotomy. McQueen's case appears to show the wisdom of first attempting a perineal operation.

The anomaly in this patient appeared to be an example of persistence of the neck of the allantois, associated with absence of the proctodeum, with resulting inability of the fetus to develop a rectum.

Berg, A. A.: (1) **A Case of Ambulatory Typhoid Fever with Intestinal Perforation**; (2) **A Case of Traumatic Rupture of the Intestine. Operation; Recoveries.** (*Medical Record.* No. 1585.)

A seven-year old boy was taken with symptoms pointing to appendicitis and resulting diffuse peritonitis. Laparotomy, however, revealed the fact that the appendix was seemingly healthy although it was thought best to extirpate it. In searching for the real origin of the mischief, a perforation was found low down in the ileum, corresponding to an enlarged Peyer's patch. The opening was closed with Lembert sutures, the abdominal cavity sponged dry, and the laparotomy wound closed. A wick of gauze was allowed to remain for forty-eight hours to protect the appendicular stump. During a period of nine days following operation the temperature remained considerably elevated. Roseola was absent and the stools were not characteristic of typhoid. Ehrlich's reaction could not be obtained in the urine. The Widal test was positive (1-40). The child made a good recovery. The history of the case in its inception corresponded to that usually obtained in ambulatory typhoid; the patient did not take to his bed until the perforation occurred.

The other case was an example of successful laparotomy for traumatic rupture of the intestines, performed twenty-six hours after the occurrence of the accident. The patient was a boy aged ten years, who had been run over by a coal cart. After the operation symptoms of intestinal obstruction developed, necessitating a second operation. The complication was found to be due to recent peritoneal adhesions. Recovery was uninterrupted after the adhesions had been separated.

HYGIENE AND THERAPEUTICS.

Crandall, Floyd M.: Start the Babies Right. (*International Medical Magazine.* Vol. x., No. 2.)

The problem of artificial feeding is one which is growing in importance yearly. An attack of indigestion in a very young child is always a serious matter, for it may be very difficult to restore the normal equilibrium. An intestinal catarrh is especially difficult to cure. Prevention is better than cure. The author recommends that during the first two weeks the food-mixture should not be too strong, not greater in fact than 2 per cent. fat, 6 per cent. sugar, and .6 per cent. of proteid. Thus, to make 12 oz. we should require top-milk, 2 oz.; lime water, $\frac{3}{4}$ oz.; water, $9\frac{1}{4}$ oz., and milk-sugar, $1\frac{1}{2}$ even tablespoonsful.

Ferrer, R. Gomez: Treatment of Diphtheritic Paralysis. (*La Medicina delos Ninos.* Tome ii., No. 15.)

Some, at least, of the diphtheritic paralyses are due to the direct action of the Klebs-Löffler bacillus upon the nervous centers, and this etiological variety is amenable to treatment by antitoxin. In one case paralysis affected the soft palate, constructors of the larynx, vocal cords, diaphragm, trapezius and sternomastoid with paresis of the extremities. This patient received 20 c.c. daily of Roux's serum on October 27th and 29th and November 1st, 6th and 10th. At the latter period the child, which was two years old, was able to move its head and the power had returned to its limbs. Recovery was rapid and complete.

The second case was in a child aged nine months, and the paralyses were extensive, involving the neck, limbs and voice.

Roux's serum was administered in 20 c.c. doses on December 13th, 16th, 17th and 18th. All symptoms had vanished by December 21st.

The author regards these cases as proof that the paralysis was due to the direct action of the bacillus upon the bulbo-protuberantial and spinal centers.

White, Franklin W., and Ladd, Maynard: Whey-Cream Modifications in Infant Feeding. (*Philadelphia Medical Journal.* No. 162.)

By using whey as a diluent of creams we are able so to modify cow's milk that its proportions of caseinogen and whey proteids will closely correspond to the proportions present in human milk. The best temperature for destroying the rennet enzyme in whey is 65.5° C. Whey or whey mixtures should not be heated above 69.3° in order to avoid the coagulation of whey proteids. The percentage of the latter obtained by the authors from the whey was 1 per cent.

Whey-cream mixtures prepared on this basis were found to contain from .25 per cent. to .90 per cent. whey proteids; caseinogen, 25 per cent. to 1 per cent.; fats, 1 per cent. to 4 per cent. and milk-sugar 4 per cent. to 7 per cent.

The emulsion of fat in whey, barley water, gravity-cream and centrifugal cream mixtures was the same both macro- and microscopically. Hot weather and transportation combined will partly destroy any emulsion of modified milk; hence the necessity of keeping the milk cool while in transit.

Whey-cream mixtures yield a much finer, less bulky and more digestible coagulum than plain, modified mixture with the same total proteids; the coagulum is equalled in firmness only by that of barley water mixtures.

Coates, G.: The Treatment of a Case of Acute Dilatation of the Stomach. (*The Lancet.* No. 4032. 1900.)

The girl baby seemed healthy at birth and during the first three weeks of life, when vomiting began. Humanized milk was the food given. The stomach became enormously dilated; micturition scanty; nothing but mucus, stained almost black, with altered bile was in the intestines; and the vomiting occurred but once a day, as much as a pint being ejected. It was impossible to say whether there was stenosis of the pylorus or

only a kink produced by the gastric dilatation. The treatment consisted of regular feeding, the administration of a mixture of hydrochloric acid, pepsin and carbolic acid, nutrient enemata and washing of the bowel. A severe attack of gastrointestinal catarrh was followed by the development of a loud endocardial mitral regurgitant murmur. Emaciation was extreme. Stomach washing was resorted to, and improvement began at once. Large quantities of mucus were removed, but gradually grew less. Meat juice and breast milk were given at first, then breast milk alone. The heart murmur disappeared and the body weight increased steadily. The stools became natural, and no signs of an abnormally large stomach or narrow pylorus remained.

The main point in the treatment seems to be the removal of the residues of curds and mucus. The sensations of hunger were greater when the stomach contained three to four ounces of curd and slime than they were when two ounces of milk were given after gastric cleansing, showing that her sensations of repletion depended on the nutrient value rather than on the quantity of the matter in the stomach.

Burney, Geo. I.: The Treatment of Tuberculous Peritonitis. (*The Lancet.* No. 4046. 1901.)

The author's belief that pleural and peritoneal tubercle are eminently curable is strengthened by the results obtained in three cases, as follows: 1. A girl of thirteen years, admitted with right pleural effusion and symptoms of tuberculous peritonitis (hectic fever, abdominal pain and swelling, fetid diarrhea, night sweats, ascites), was treated for more than three months with abdominal inunctions of iodoform ointment and cod-liver oil (equal parts), and pills containing a quarter of a grain of iodoform and half a minim of creosote thrice daily. Although there were several relapses of fever and diarrhea, the child's condition at the end of three months was excellent. The pleural effusion had disappeared, all abdominal symptoms were gone, and the body weight had risen from four stones, twelve pounds, to six stones, eight pounds. 2. Young lady under twenty, had been operated upon for appendicitis, and tuberculous peritonitis found. The iodoform pills and inunctions brought about a cure. 3. A girl eleven years old had an acute illness with severe vomiting, emaciation, distended and tym-

panitic abdomen. The iodoform treatment was begun, and improvement noted in two weeks, with final complete recovery.

Observations showed that the iodoform inunctions are followed in four to fifteen hours by the appearance of iodine and iodine salts in the urine. The antagonism between iodine and tubercle has long been known. The best results are obtained in the early stage of tuberculous peritonitis when there is more or less ascites. It has been known to fail in chronic cases of the dry adhesive type, in which the results of surgical interference are also less favorable.

Williams, Chas. H. : Gonorrhoeal Conjunctivitis. (*Boston Medical and Surgical Journal.* Vol. cxliv., No. 6.)

Purulent conjunctivitis in the new-born is not necessarily due to the gonococcus, so that a bacteriological examination should always be made. The main indication is to flush out the conjunctival sac with a warm saturated solution of boracic acid applied by means of a fountain syringe, the nurse's eyes being protected by goggles. Cold should be persistently applied unless the cornea becomes involved. In some debilitated patients heat answers better from the start. If the cornea become involved continue the irrigation, and instill 1 per cent. atropine in the eye three times daily. Credé's prophylactic use of the silver salts has done much to diminish the frequency of gonorrhoeal ophthalmia in institutions.

Koplik, Henry : Cerebrospinal Meningitis (Weichselbaum, Jaeger) Treated by Repeated Lumbar Puncture. (*Medical News.* No. 1471.)

A series of cases is reported in which Quincke's method was applied at repeated intervals after diagnosis of cerebrospinal meningitis had been confirmed by bacteriological investigations. Five patients received collectively fifteen punctures. The latter were made as early as the fifth and as late as the thirty-seventh day of the disease. Four of the five cases recovered. The fatal case occurred in a child eight months old, and appeared to be due to convulsions.

The indications for puncture were continuous headache accompanied by somnolence and delirium, chills, sharp rise of temperature, increase in opisthotonus, increase in coma. If improvement followed puncture the operation was repeated if

the indications reappeared. If improvement appeared to be permanent no further puncture was made. The effects of puncture were various. The pressure relieved was in some cases extreme, but the author does not state whether the relief was correspondingly great. In one case delirium furnished the indication and was relieved by puncture; eleven days later the indication reappeared, but the operation gave no relief until repeated a second time, and not then until the day following.

He concludes with the following: "The relief seems to be more in the direction of a diminution of pain and a reduction of those symptoms which may fairly be traced to toxemia and mechanical pressure. At the same time we cannot but feel that the withdrawal of an appreciable amount of any fluid from the spinal canal which contains bacteria and the toxic products of inflammation must be beneficial in the long run on the course of the disease. It is premature as yet to say to what extent the prognosis is favorably influenced by this procedure. It is, however, a method which it is certain will come more and more into general vogue, and take its place with aspiration of the pleural cavity as a curative method."

Trumpp, J. : Intubation in Private Practice and its Perfection. (*Journal of the American Medical Association.* Vol. xxxiii., No. 4.)

In 1899 the author sent a circular letter to 89 practitioners in Europe and America, in reference to the use of intubation in private practice. Of those thus interrogated fifty-five think the operation applicable to private practice, twenty reported no experience in the matter, while the remaining fourteen were opposed to intubation save when done under such control as obtains only in hospital practice.

Who are competent to intubate? Only such practitioners as have operated upon the cadaver and animals. The physician cannot remain constantly with his case, but must see it often and a trustworthy attendant, properly instructed, should be in charge. What method of technical execution is to be recommended? This is largely immaterial, although much depends on the caliber of the tube. Generally speaking, those tubes should be used which can just pass the larynx without force. If smaller, spontaneous extubation may occur.

In regard to material for tubes quite a number of experts

now advocate rubber, as less favorable to obstruction, pressure-sores, detubage, etc. The author finds them more difficult to insert than those made of metal. He would be inclined to recommend their use in private practice, were it not for the fact that Rosenthal, has after special study urged numerous objections to their employment.

Success in private intubation must necessarily be obtainable only by strict attention to such details, which are the outgrowth of clinical experience.

Collier, W. : The Effects of Severe Muscular Exertion, Sudden and Prolonged, in Young Adolescents. (*British Medical Journal.* No. 2094.)

The author writes from the standpoint of school athletics, their advisability and limitations. All boys before being allowed to participate in school sports should undergo medical inspection, and the badly developed, weakly and flabby muscled youth should be excluded from competitions although encouraged to take part in graduated exercises.

Boys who are growing at an unusually rapid rate should avoid for the time being exercises which require great muscular exertion and those who appear to be perfectly sound and tolerant of violent exercise should nevertheless be examined once or twice a year for possible overstrain of the heart.

Severe and sudden physical breakdown is extremely infrequent in school-boys who are well-fed.

Bates, W. H. : Suprarenal Extract in Diseases of the Eye. (*The Medical Council.* Vol. vi., No. 3.)

In an article with this heading he advocates the use of the suprarenal extract to promote the healing of corneal ulcers and also in the keratitis usually associated with ulceration. It has no effect on the cause of keratitis such as syphilis or rheumatism.

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Original Communications.

THE EARLY HISTORY OF THE SUMMER DIARRHŒAS OF INFANTS.*

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For many years I have been deeply interested in the summer diarrhœas of infants, and since my attention was first directed to this subject, I have been impressed with the obscurity of the early history of these affections, and the difficulty of tracing the development of our knowledge concerning them. The literature on this subject can be found only in old books and journals, which are scattered in different libraries throughout this country, and are becoming scarcer and more difficult to obtain every year.

In selecting a subject for my address on this occasion, it occurred to me that a brief review of this literature might not be unworthy of your attention.

About the middle of the Eighteenth Century there occurred, in the towns and cities along the Atlantic coast of the United States of America, a serious disease among infants which had not been observed before. It was characterized more especially by vomiting and diarrhœa, and was confined almost exclusively to children in the first two years of life. Its incidence was limited to the summer months, and it appeared each year in an epidemic form with such regularity that it was looked for as an annual visitor—"the dread of parents and the opprobrium of physicians." It was thought to be peculiar to America, "and was viewed in the light of one of those physical occurrences which occasionally give rise to diseases before unknown, while others from causes equally unscrutable, disappear." This opinion, although an

* Presidential Address, American Pediatric Society, Niagara Falls, N. Y., May 27, 28, 29, 1901.

erroneous one, prevailed for many years, and has rendered it a difficult task to trace the history of the malady to its origin. The disease was not recognized in Europe; it was unknown to the aborigines of our continent; and the first settlers of the colonies have left us no record of its existence. It was not until the people began to collect in towns and villages that the disease was engendered, and "it had no local habitation or name" until it was described by Benjamin Rush in 1777 in a paper entitled "An Inquiry into the Cause and Cure of The Cholera Infantum."* In Philadelphia it was called "vomiting and purging of children," and also from the regularity of its appearance in the summer months, "the disease of the season." In Charleston, S. C., it was distinguished as the "April and May disorder" since it was more especially prevalent in these two months.

It seems strange that a disease so familiar to us as cholera infantum, so striking in its symptoms, and frightful in its mortality, should have escaped professional attention for so long a time; nor is it a less remarkable fact that after its importance had been made known by American physicians, the disorder should have remained almost entirely unappreciated in Europe for half a century. If we seek an explanation for this strange neglect, it may be found in the low estimate formerly placed upon the lives of infants, and the consequent indifference to their diseases in general, and especially to those of the digestive tract, which were relegated for the most part to the care of mothers and ignorant nurses.

That the summer diarrhœas of children received an earlier recognition in America may be attributed to the importance to a new country of increase of population, as well as to the greater prevalence and more serious nature of the disease. It would almost seem as if some strange fate had destined that throughout its history, at all times, the medical profession should be too blind or too indifferent to recognize its vast importance as a scourge to the human race. Even to-day when the pathologist and bacteriologist are revolutionizing our knowledge on so many subjects in medicine, the summer diarrhœas of infancy which is so appropriately within their sphere of work, have not received

* "Cholera infantum" was used by Dr. Rush and his cotemporaries as a generic term to embrace the group of affections which, at the present time, are classed under the head of summer diarrhœas of infants. The term is used in this article in the sense intended by Dr. Rush.

any serious consideration at their hands. Whatever has been learned of their nature and etiology through the application of modern facilities for investigation, we owe entirely to the work of the clinician. While we have no clear history of the disease previous to the time it was recognized in this country, references found in the literature to the prevalence of diarrhœal troubles in infants in the summer months indicate its existence in all ages and in almost all countries.

Aretæus the Cappadocian, who wrote in the Second Century of our era, says in his chapter on cœliac affections: "Children are subject to continual diarrhœa from an ephemeral intemperance of food; but in their case the disease is not seated in the cavity of the stomach. Summer engenders the disease more than any other season, autumn next; and the coldest season, winter, also, if the heat be almost extinguished."

Harris in his "De Morbis Acutis Infantum," published in London in 1650 says: "From the middle of the month of July to the middle of September, gripes of the belly are so mortal and epidemical to children, (their strength being quite exhausted by the heat) that more of them die yearly in this one month than any three or four months of the year."

Cleghorn writing on the "Epidemical Diseases of Minorca," from 1744 to 1749 inclusive, describes an epidemic form of diarrhœa in that island which occurs in children in the summer months, and appears to be identical with cholera infantum. He says: "As the summer and autumnal weather of one year never varies from that of another, so the same tribe of distempers return regularly with the season. Towards the end of June the young children (who suffer first by excessive heat or cold), are attacked with a vomiting and purging, and periodical fever, often of the erratic kind and without any fixed type. In 1747 the extraordinary heat of May ushered in the summer diseases sooner than usual, for about the end of that month the cholera morbus carried off many children, and in June the tertian began. In 1748 the summer proved very unhealthy to children, many of them dying of cholera morbus and periodical fever. In 1749 the drought was so great that the harvest failed. At the same time it was excessively hot in June, and the weather had seldom been felt so excessively hot and sultry as in this year in July. The medium height of the temperature was, in July, about one degree and a half greater than it had been in the six previous summers.

But notwithstanding this excessive heat in June and July, there were some specimens of the summer diseases, but so few that they scarcely deserve to be called epidemical; while in the preceding summers, one of which was not as hot as usual, the cholera was very fatal."

Rosenstein devotes forty pages of his book on diseases of children, published in Stockholm in 1750, to diarrhœal affections, of which fourteen different kinds are described. These are distinguished from an etiological standpoint. The fifth kind, diarrhœa biliosa, he says, comes from overloading the stomach, especially with fatty food; also from other causes, as the effect of a hot and dry summer, etc. Special caution is given to relieve a protracted diarrhœa in July and August, when it is hot in the day and cool in the evening, as it may easily change to the dysentery.

The writings of American physicians on cholera infantum were noticed in Germany at an earlier period than in other European countries, although they failed to arouse any enthusiasm on the subject, and it was many years before the importance of the disease was recognized. They succeeded, however, in calling attention to the subject, which resulted in positive evidence of the existence of this disease in Germany at the time it was first observed in America.

Girtanner's book on the diseases of children, published in Berlin, in 1792, contains a full abstract of the original article on cholera infantum by Rush, and the author says that, while the disease is of frequent occurrence in America, it is but seldom seen in Germany. Reusch describes an epidemic form of diarrhœa which occurred in children, from six months to two years of age, in Königsburg in the summer of 1812. Henke's *Handbuch der Kinderkrankheiten*, published in Berlin, in 1818, contains a reference to Girtanner's report of Rush's article on cholera infantum. "The disease occurs in Germany for the most part only sporadically, and especially when the teeth are breaking through the gums. However, it is seen at times also frequently, especially when after great summer heat diarrhœa and dysentery become epidemic in the fall." The fourth edition of this handbook, published in 1837, contains the identical article on cholera infantum as the first edition, without any new matter. Jahn's *Ueber Kinderkrankheiten*, Arnstadt, 1803, only mentions diarrhœa as being among other diseases of

frequent occurrence in children, and Wendt's *Die Kinderkrankheiten*, Breslau, 1835, a book of 470 pages, has nothing to say about diarrhœa. Meissner's *Die Kinderkrankheiten*, (Leipzig, 1838,) speaks of cholera as a disease of children occurring epidemically in America, but mostly sporadically in Germany; although it sometimes approaches epidemic proportions as a diarrhœa and dysentery together, when the nights are cold after hot days. Bressler's *Die Kinderkrankheiten*, (Berlin, 1842,) contains a chapter on cholera infantum, composed chiefly of quotations from American writers. The author still speaks of it as a sporadic disease in Germany.

The French physicians were later than their German neighbors in recognizing cholera infantum. Capuron's book on diseases of children, (Paris, 1821,) mentions the frequency of diarrhœal affections in infants, "to which they are predisposed by natural weakness and sensibility," and gives as exciting cause of these disorders, cold and moisture, and improper food. Nothing is said of the effect of atmospheric heat, or of special prevalence of the disease at any one season of the year. Billard, in the third edition of his book on diseases of children, (Paris, 1840,) recognizes the importance of intestinal disorders in infants, and devotes fifty pages to the discussion of the different forms. Under the heading of cholera, he says: "Cholera is not generally noted in our climate; it is a disease peculiar to infants in the United States; and as I have not observed anything analogous to this affection, I must be indebted to Dr. Dewees for the principal details of the symptoms."

The physicians of Great Britain were also slow in recognizing cholera infantum, and it was not until the middle of the Nineteenth Century that the disease was properly appreciated by them. According to the account given by Dr. John Cheyne, this omission was not due to any lack of prevalence of the disease, but to the indifference of the physicians and their failure to observe it. Cheyne describes in his "Essays on the Diseases of Children," published in Edinburgh in 1801, in the chapter on Bowel Complaints, affections which appear to be analogous to cholera infantum, and which he designated as "green scours" and "atrophia ablactatorum" or "weaning brash." He reports a case of green scours in a child nine months old, who was taken sick on the 10th of June, which we would not hesitate to consider an instance of cholera infantum. "This disease is sup-

posed to be caused by diet offensive to the stomach, or cold." He considers "weaning brash" one of the most fatal of the diseases of children, and states that it had been overlooked by those physicians who had made these diseases their study. As evidence of its fatality, he mentions that he had lost seven cases of it in one season. He does not associate the disease in any manner with atmospheric heat, and gives no evidence of acquaintance with the description of cholera infantum by American writers. He holds it to be "an undescribed disease belonging to the autumnal season, seldom occurring before the solstice or after the end of the year. It is an atrophy, the consequence of weaning children too suddenly at an unfavorable season of the year. It sometimes comes on in two or three days after weaning; frequently not for three or four weeks; sometimes not before five or six weeks have elapsed. It begins with purging and griping pains, and after continuing for some time, there is added a retching with or without vomiting." These studies of Cheyne are exceedingly valuable and represent the first original work done on this subject in Europe. His book contains reports of a number of cases of weaning brash and of post-mortem examinations. In most of the cases reported the sickness began in the summer months. They seem to have resembled the cases of cholera infantum encountered by us, which drag along through the summer, the patients beginning to improve or dying when cool weather sets in. He found in the autopsies "the intestine generally pale and without evidence of inflammation; mesenteric glands enlarged and red; liver exceedingly firm, larger than natural, and of a bright red color." The experience thus gained led him to believe that the mesenteric enlargement was an effect and not, as had been supposed, the cause of the disease; and that weaning brash in its confirmed form is imputable to an increased secretion of acid bile, or rather to the morbid state of the liver which occasions this. This condition of the liver he attributes to irritation of the intestine caused by improper food.

In the treatment of the disease he believed that the success of remedies depended upon strict attention to diet. His knowledge of dietetics, indeed, was far in advance of his time, and the rules laid down by him are far more appropriate than those recommended by the American physicians in the treatment of cholera infantum. He allowed animal broths, juice of lean

meat, milk and eggs, and particularly recommended thin rice-water or barley-water with a small proportion of skim-milk as a very proper drink for children. He found calomel very useful, and used it in half-grain doses, morning and evening, and says that he had much better success after adopting this remedy.

The second edition of Underwood's "Treatise on Diseases of Children," published in London in 1789, contains a chapter on diarrhœa, in which he says, "Diarrhœa is a complaint often as difficult to treat as any in the infant state. Lientery, or true watery gripes, is esteemed the most dangerous of all purges. Vomiting and purging often exist together, and they frequently arise from unwholesome milk or other food, and from moist, cold air." He makes no reference to any greater prevalence of these affections in the summer months, nor does he show that he had any knowledge of cholera infantum. The third edition of this book, published in 1815, has a similar article on diarrhœa and contains no reference to the American disease. Armstrong, in 1792, described a diarrhœa in infants which resembles cholera infantum, but he did not recognize it as such. Herdman's "On the Management of Infants," London, 1807, contains nothing on diarrhœa except a short quotation from Underwood.

Burns in his work on "Diseases of Women and Children," published in London in 1814, recognizes the importance of diarrhœal affections in infants. He considered purging to be a disease of the utmost importance, and one that should be early attended to. "It annually carries off many children, some of them suddenly, most of them after a lingering illness." No mention is made of any relation of the diarrhœa to a particular season of the year or to the cholera infantum of America.

The "Treatise on Diseases of Children," by Evanson and Maunsell, published in Dublin in 1836, has a chapter on cholera infantum which gives the earliest description of its recognition in Great Britain that I have been able to find. It is described as a disease of a very formidable character, occurring in the autumnal months as an epidemic, like other bowel complaints prevailing at this season.

The authenticated history of the summer diarrhœas of infants begins with the article on "An Inquiry into the Cause and Cure of The Cholera Infantum," written by Benjamin Rush, in 1773, and published in the second volume of his "Medical Inquiries and Observations." The additions to this history up to

the middle of the Nineteenth Century have been made exclusively by American writers: and if we have to regret the paucity in the number of papers written on the subject within that time, we find compensation in the value of those which have been handed down to us. Among those who recognized the importance of cholera infantum in those early days, and who have left us an account of their experience on this subject, are some of the ablest medical men this country has produced. So thorough and careful were the observations which they made, that apart from the lessons taught by the new science of bacteriology, the latter half of the Nineteenth Century has added but little to what was known on the subject in the first half. Dr. Rush's paper gives a description of the stools, the symptoms of cholera infantum, and a discussion of its etiology and treatment. It is only six pages long, and has not a superfluous word in it. It is remarkable for the amount of information it contains, and for the accurate description of the clinical features of the disease. He denies the etiological importance which, up to that time, had been ascribed to such factors as dentition, worms and summer fruits, and gives his views as to the nature of the disease as follows: "From the discharge of bile which generally introduces the disease, from the remissions and exacerbations of the fever which accompanies it, and from its occurring nearly in the same season with the cholera and remitting fever in adults, I am disposed to consider it as a modification of the same disease. Its appearance earlier in the season than the cholera and remitting fever in adults, must be ascribed to the constitution of children being more predisposed from weakness to be acted upon by the remote causes which produce those diseases." He does not attempt to explain any relation of the disease to atmospheric heat, and contents himself with saying that "the disease seldom appears in Philadelphia till the middle of June, and generally continues till near the middle of September; and its frequency and danger are always in proportion to the heat of the weather."

In the treatment he considered that the first indication was to evacuate the offending contents from the stomach and bowels. For the former he advised gentle doses of ipecacuanha or tartar emetic, and for the latter calomel, manna, castor oil or magnesia. "When there is reason to believe that the offending contents have been discharged by

nature, emetics and purges should by no means be given; but instead of them, opiates should be administered to quiet the stomach and bowels and to relieve pain." He also advised demulcent drinks; clysters of flaxseed tea or starch solution with a few drops of laudanum; warm applications to the abdomen, and warm baths. As soon as the more violent symptoms of the disease were composed he ordered tonics and cordial medicines, especially decoction of bark and port wine. His dietetic treatment would be considered exceedingly bold from a modern standpoint. He says, "After the disease has continued for some time, we often see an appetite suddenly awakened for articles of diet of a stimulating nature. I have seen many children recover from being gratified in an inclination to eat salted fish, and the different kinds of salted meat. In some instances they discover an appetite for butter and the richest gravies of roasted meats, and eat them with obvious relief to all their symptoms. I once saw a child sixteen months old, perfectly restored from the lowest stage of the disease by eating large quantities of rancid English cheese and drinking two or three glasses of port wine every day. She would in no instance eat bread with the cheese, nor taste the wine if it was mixed with water. After all that has been said in favor of the medicines above mentioned we have often seen them administered without effect." His principal dependence for many years had been placed in country air. Out of many hundred children sent into the country in every stage of the disease he had lost but three. He advised that they be carried out on horseback or in a carriage every day. As a prophylactic he recommended the removal of children to the country before the approach of hot weather, and cleanliness both with respect to the skin and clothing. He concludes his views on treatment with the statement that cholera infantum sometimes assumes symptoms of such malignity as to require bleeding to cure it. In some cases he says two or three bleedings were necessary for that purpose.

Twenty years after the appearance of this first paper on cholera infantum, Dr. Ed. Miller contributed the second article entitled, "Remarks on the Cholera or Bilious Diarrhœa of Infants," which was published in the *Medical Repository*, Vol. I., 1798. This is a practical paper, one of the principal objects of which is to recommend the trial of mercury alone, or with

opium, as different states and exigencies of the disorder may require. He says, "Calomel not only possesses special advantages as a purgative, but also other qualities of value in the relief of this disease, such as facility of exhibition, the difficulty of dislodging it from the stomach by the most violent vomiting; by its combination with opium much more of each ingredient can be safely and advantageously given than in a separate state; it is calculated to obviate the most fatal tendencies of the disease such as effusion in the head, or destruction of the organization of the stomach and bowels. Calomel when combined with opium, and especially when exhibited in small doses, excites a strong absorbent action, with respect to the fluids poured into the stomach and bowels. Calomel, though commonly safe and gentle, is the most penetrating, detrusive, and effectual of all the means employed to cleanse the intestinal canal; it dislodges substances not to be moved by other purgatives; and often discharges more bilious and other acrid matter of every description at one, than other cathartics at several evacuations. As to the dose of the medicine and the mode of exhibiting it, it is sufficiently explicit to observe that from $\frac{1}{8}$ to 1 grain combined with $\frac{1}{10}$ to $\frac{1}{2}$ grain of opium repeated every second, fourth or eighth hour, will comprise all the range of variety necessary in the treatment of the disease." Dr. Miller also advised careful attention to the skin and particularly cold baths in fever, also enemata of cold water. In the advanced stages of the disease he considered alum very valuable. He believed, with Dr. Rush, in the malarial origin of the disease.

Dr. James Mann, of Boston, wrote "A Dissertation on Cholera Infantum"* in 1803, which was published in pamphlet form, and for which he was awarded the Boylstonian prize. He considered all the varieties of complaints of the alimentary canal with which children are epidemically attacked in the months of summer and autumn, however differently modified in external appearances, as radically constituting only one disease, originating from a common cause, and requiring the same general remedies. He believed the disease originated from an infectious state of the atmosphere which was derived from filth and dirt, combined with heat and moisture. "The

* This dissertation was reviewed at length in Vol. viii. of the *Medical Repository* and it is from this review that the present account is taken.

characteristic principles of these subtle materials elude our researches. They have been variously denominated according to what has been supposed their nature and origin, morbid effluvia, marsh miasmata, mephitic vapor, animalcule contagion, putrid fermentation, nitrous acid gas or septan. It is probable that they may not be dissimilar to those offensive agents which are generated within the alimentary canal from acetous and putrid fermentation. These principles of infection must always exist in the common atmosphere, but become active only when they are in a concentrated state. This is one reason for greater prevalence of the disease in cities and towns. If the preceding statements are just, heat will be considered as one remote cause of cholera infantum, a torpor of the liver induced by the excessive excitement of that active agent as an intermediate cause, and a superabundance of acids in the alimentary canal in consequence of defect of bile as an immediate or proximate cause."

In the treatment of the disease Dr. Mann claimed to be very successful. He used mild emetics and cathartics to remove offensive material from the alimentary canal, and for this he preferred ipecacuanha and calomel. He attached special importance to correcting acidity with a weak solution of carbonate of potash or soda, repeated every two or three hours. "If inflammation has taken place, this should be allayed by giving a full dose of calomel and then administering it in small doses with or without opium. When the diarrhœa is accompanied with tenesmus, calomel combined with opium seems to possess specific property. In cases of violent vomiting and purging, commonly called cholera infantum, emetics and cathartics are not proper. A full dose of solution of alkali should be administered, and repeated as often as it is rejected. If vomiting continues, add to the alkali one or two drops of laudanum or embrocate the stomach with the strongest laudanum." He also used clysters with laudanum and clysters of cold water, applied blisters to the back, and smeared the skin all over with oil. He says in more than one hundred cases of the several forms of diarrhœa treated according to the above plan, only one patient had died.

In 1812 Dr. James Jackson, of Boston, contributed in the *New England Medical and Surgical Journal* one of the most complete and valuable articles that has ever been written on cholera infantum. He says, "The disorder is rarely seen in

Boston before the month of August, and it grows more frequently and is commonly more severe in September than in August. In most cases it is preceded by the diarrhœa of teething children. In its most exquisite form it is clearly distinguished from the diarrhœa; but there are many cases which are intermediate." He gives an accurate description of the stools and of the symptoms of the disease. He says, "In the protracted form of the complaint, the child lies asleep in its crib, cold amid the load of woolen in which he is wrapped, unless during a febrile paroxysm, when an acrid warmth is spread over him; his limbs so peculiarly dead in their appearance that it would seem that life was preserved only in its sacred temple in this 'little world'; his countenance more than deathly, and with which the visage of pulmonary consumption will scarcely compare; his pulses quick and wiry, and his respiration scarcely to be heard. So strongly, under these circumstances, are the characters of death impressed on the little subject, that the inexperienced observer cannot doubt that a few hours will decide the case forever. That the appearances have been the same for days and even sometimes for weeks, seems to be impossible. But the patient is wonderfully altered when he wakes. There is not perhaps any case where the distinction of animal and organic life, and their nearly independent existence, is more strongly marked. His clear eye seems to view the objects around him with peculiar intelligence. With the utmost decision, he chooses the pleasant and rejects the offensive things which are offered to him. He seems almost to tell you, by his actions, that his stomach is faint, and sinking, and distressed; that the call for something to support it is most painfully imperious; but that he can scarcely find an article which does not disgust it. The child is not disposed to make exertion, but when he does, there is often displayed a momentary energy of will, altogether disproportioned to the other appearances about him. In this situation the patient may continue for weeks, with some fluctuations, and at length recover. When death ensues to the feeble state, which has been described, the patient shrinks still more, and the countenance grows yet more sharp and hollow; or it becomes bloated, and has a fulness which deceives only the most careless observer. The feeble powers of life are at length surrendered, when they can scarcely allow to death the glory of a triumph."

The pathology is enriched by a number of autopsies which

were made in common by Dr. J. C. Warren and Dr. Jackson, during a period of several years. These autopsies are the first which have been reported on cholera infantum, and are of great value in establishing the inflammatory character of the disease. The record says, "The body is emaciated, often very much. In every case marks of disease have been found in the mucous membrane of the stomach and intestine. In the stomach there have usually been observed one or two spots of an irregular shape, in which the mucous membrane was red, inclining a little to purple, and the mucous membrane is commonly lined with an adhesive mucus. In the duodenum there have been found invariably one or more spots much larger than in the stomach, in which the mucous membrane has been considerably inflamed, and for the most part swollen. In almost every case such an inflamed patch has been found at the very commencement of the duodenum. In other parts of the small intestine other such inflamed portions of the same membrane have been seen in every case. In the large intestine it is rare to discover marks of disease; but such have sometimes been discovered, and particularly where dysenteric symptoms had existed. In one case there were strong marks of inflammation of the membrane throughout the large intestine, and frequent small ulcerations, resembling the canker spots in the mouth. The organs of the thorax, and the other organs of the abdominal cavity presented a normal appearance, excepting the liver, which was enlarged in some cases, but otherwise seemed healthy. The contents of the cranium were not examined. It is to this inflammation of the mucous membrane of the stomach and small intestine that the peculiar phenomena of cholera infantum may be traced in the same manner as those of dysentery have been found to be owing to a similar affection of the large intestine. It is when this inflammation supervenes in the autumnal diarrhœa of infants that the disease assumes its serious and threatening aspect; and it is at this time that the popular remark is made, that now the 'canker has seized the bowels.' This inflammation is no doubt much more severe and extensive during life, than it is found to be after a slow and lingering death."

Jackson attributed the chemical changes which take place in the contents of the stomach and bowels "to putrefaction of animal food, and the acetous fermentation of that

which is vegetable." He summarizes the legitimate effects of the inflammation as follows: "1st. The sensibility and the irritability of the parts will be augmented. 2d. The parts will cease to perform their proper or peculiar functions, or perform them with difficulty. 3d. The parts will secrete fluids different in quantity and quality from those secreted in health. 4th. The organs affected will be in some measure incapable strongly and vigorously to propel their contents; while in consequence of the increase in their irritability and sensibility they will frequently be excited to painful efforts to this purpose. 5th. Organs subsidiary to those immediately affected will have their secretions altered in quality and quantity. 6th. The constitution will be affected by sympathy, and the whole system will suffer, though not so immediately, from want of nourishment." He considered the principal remote causes of the disease to be, dentition, the season, improper food, restraint from exercise in the open air, and an impure atmosphere. Under the head of season, he says, "It is evident that there must be some cause operating in the summer and autumnal months favorable to the production of this disease. Whether there is one or whether there are various causes belonging to this season, to which its various diseases may be attributed, we do not undertake to consider. Nor shall we inquire in what manner the season operates in producing any of the causes of disease."

In the treatment of cholera infantum he considered it of first importance to remove all noxious matter from the stomach and intestine, and through the whole course of the disease to prevent the undue retention of fecal material. Calomel in doses of four to six grains he considered best for this purpose. He used opium to lessen the irritability of the intestine, and gave careful direction for the use of this remedy, and against its abuse. He recognized that milk was not always digested, and when it disagreed, he advised decoction of animal broths, and juice expressed from broiled beef. When the stomach was very irritable he gave very small quantities of liquid, a teaspoonful at a time.

Dr. C. D. Meigs, in an article "On Cholera Infantum or Summer Complaint of Children," published in the *American Medical Recorder*, 1820, advanced the congestion theory of the disease, and held dentition to be one of the most important

etiological factors concerned. He says "the cutting of the teeth in all seasons is commonly attended by symptoms which characterize in some degree the cholera infantum, such as, marks of an imperfect or vitiated digestion, restless, fretfulness, thirst, cough, cutaneous eruptions, and commonly more or less fever. All these circumstances, in connection with the vitiated atmosphere of a populous city, in the hot season, are sufficient to lay the foundation of a disease which exerts such a fatal sway. Increased excitement destroys the equilibrium of the circulation, producing a determination towards the larger trunks of vessels. In children these directions are principally towards the brain or hepatic veins. Continued atmospheric heat exhausts the tone of the skin from the incessant demands on its great and important function of perspiration. The skin becomes dry and dusky, and no longer performs with regularity its important share of elimination; the kidneys are not rendered more active, but on the contrary less so, and hence the alimentary canal becomes diseased by a load of crude matter rapidly and, therefore, imperfectly secreted. It would seem that in violent cases the portal system is so charged with blood, that a complete apoplexy exists in the liver, and that the organ is so oppressed by this condition as to be unable to relieve itself by a free secretion." He believed that cholera infantum depends principally on a loss of the healthy function of the liver, and that most of the collateral symptoms may be traced to the prevailing influence exercised by it over the other organs of the body; that the disorder arises not from an organic change in the structure of the organ, but probably from a congested state of the whole system of the vena portæ.

Dr. Meigs was very conservative in his treatment of cholera infantum, and deprecated the doctrine of purgatives which was so universally applied in his day, although he considered it necessary to keep the bowels free. His chief dependence was placed upon such measures as are calculated to restore the lost or vitiated secretion of the liver. For this he relied upon calomel in $\frac{1}{12}$ grain doses with an equal proportion of opium and ipecacuanha. This combination carefully administered every hour, or every two, three, or four hours, he says, rarely failed to bring down a free secretion of yellow bile, and was often followed by the happiest effects. He believed that calomel had a specific relation with the liver, by exciting in it a grade of

action compatible with its mode of vitality, and that when properly administered its exhibition is followed by an increase of biliary secretion, which is generally of a better quality, and as this stimulates the intestine, it improves digestion, while its flow relieves the congested vessels. In his experience a copious bilious stool was almost always followed by an improvement in the condition of the patient. He gave calomel, only in small doses, for its alterative effects, castor oil with laudanum to procure the regular evacuations of the bowels, and vegetable astringents to restrain their excessive movements. He paid strict attention to clothing and diet, and his advice in respect to both of these matters is excellent. He considered gum-arabic with lime-water and new milk, or preparations of arrow-root, sago, or tapioca with a proper admixture of milk, to be the most suitable diet for this disease. After all, in his opinion, no plan of treatment could stand in competition with that of sending children to the country.

Dr. E. Howell, of Philadelphia, has an article on "Cholera Infantum" in the *Medical Recorder* for 1823, in which special stress is laid on atmospheric heat in the causation of cholera infantum. He says, "Whatever consideration attaches to irregularities in diet, inattention to cleanliness, difficulty of dentition, etc., I am disposed to consider the violent heats of the summer in conjunction with sudden aerial vicissitudes, or with exposure to a moist and vitiated atmosphere, as the most usual exciting cause of the complaint. Infancy is the season of sickness. The various modes of vital action, not as yet strengthened and confirmed by habit, become susceptible of rapid changes from otherwise slight causes. The digestive system, in particular, from having an excessive function to perform in building up the corporeal frame, is liable to frequent derangement, particularly during the development of the primordial teeth. Vacillations occurring between the cutaneous secretions on the one hand, and that of the digestive canal on the other from frequent and sudden changes of temperature, as they render the system more accessible to the impressions of external agents, so they diminish the capacity of resistance to the operation of their noxious qualities. As the tone and energy of the digestive organs under the increased action of the cutaneous vessels become impaired, while its irritability under the powerful impression of heat is increased, it is thus more readily disposed, especially when

subjected to the concurrent influences of some of the above causes, to take on inflammatory action." He believed cholera infantum and the bilious or remittent fevers were produced by the same cause, viz., sudden vicissitudes of temperature accompanied with moisture. He shows an intelligent acquaintance with the pathological lesions of the disease, and mentioned those usually found in post-mortem examinations, but does not tell us by whom these examinations were made. He mentions a post-mortem condition which had not previously been noticed, as follows: "So trifling are the marks of preceding inflammation that we are at a loss to what circumstance to attribute the death of our patient, except to excessive exhaustion, or a peculiar state of the cerebral organs."

The first account of cholera infantum in the Southern States is found in a little book written by Dr. George Logan, of Charleston, S. C., in 1825, entitled "Practical Observations on Diseases of Children." Dr. Logan tells us that when cholera infantum first appeared it was of a much more serious character that it had become at the time of his writing. "The mortality among infants from this cause, anterior to the last thirty years, was awful and distressing; and it continues to occur, but by no means so general and severe as at those periods. It cannot fail to excite the most pleasing and grateful emotions, to observe that this evil does not increase, but very sensibly diminishes. Previous to 1820, Reports of Health exhibited the death of a larger portion by one-fifth, than has been subsequently known. An increased salubrity of climate, which accurate records, faithfully preserved for many years, incontestably prove, has greatly diminished this source of anxiety. The late Dr. Ramsey, in his valuable Medical History of South Carolina remarks prior to 1800, that the spring months were formerly the terror of parents, and that diseases of that season had become less frequent and less mortal."

Logan attributed the disease to "pain and irritation of teething, season of the year, neglect of cleanliness, and local circumstances. These concur in producing an increased and vitiated state of bilious secretion, acrimony and other disturbances in the first passages."

Dr. D. F. Condie made a valuable contribution to the treatment of cholera infantum in an article on the "Pathology and Treatment of Cholera Infantum," in the *Philadelphia Journal of*

Medical and Physical Sciences for 1825. He, however, said but little on the pathology of the disease, although he appreciated the importance of this part of the subject, as is indicated by the following sentence: "Had only a portion of that time and those talents which have been wasted on useless inquiries into the cause of life and the essential nature of fever, been spent in carefully investigating the pathology and method of treating cholera infantum and other diseases, which, though of frequent occurrence, are but little understood, it would no doubt have been the means of preserving, not individuals, but thousands and tens of thousands from a premature grave." He believed the disease to be a mere variety of the bilious fever of our climate, "the force of which is turned inwards upon the intestines," and that it owed its origin to an overheated and vitiated state of the atmosphere. "By constant exposure to excessive heat, particularly when from any cause the surrounding air has become vitiated or loaded with miasmatic exhalations, a debility of the cutaneous vessels is produced by which they are rendered unequal to the circulation of their accustomed fluids; the consequence is, perspiration is diminished, and, at length entirely suspended, while the circulating mass driven from the surface, accumulates progressively in the central trunks; the vessels of the internal viscera become morbidly distended by the influx of blood; the lining coats of the stomach and bowels acquire a high degree of irritability, and their secretions are much increased and changed in quality, whence they become irritating, and excite the prominent symptoms of the disease. The surrounding organs participate in this irritation, resulting in functional derangement with suspended or vitiated secretion."

Dr. Condie followed the purgative plan of treating cholera infantum, and he makes a statement on this subject which I have not seen before: "There is a prejudice with many practitioners, though it is happily fast wearing away, against the use of any purgative, but particularly calomel, in cholera infantum." He preferred calomel as a cathartic to procure bilious evacuations, and generally gave it in combination with ipecacuanha. He found that as soon as a copious bilious stool was produced, all the symptoms of the case were ameliorated. He disapproved of emetics, and of opium and astringents. If nature needed assistance in removing offensive matter from the stom-

ach, he employed diluent drinks, and thought that he had obtained good results from the use of spirits of turpentine in ten to thirty drop doses, in quieting the violent action of the stomach. He believed bleeding to be necessary under certain circumstances. For diet he recommended mother's milk, decoction of arrow-root, sago or rice, in milk, and fresh whey. Like Dr. Rush he had seen cases benefited by the use of salted meats.

Dr. Dewees in his "Treatise on the Physical and Medical Treatment of the Diseases of Children," published in Philadelphia in 1825, devotes a chapter to cholera infantum, which gives a good history of the disease, and excellent recommendations for its treatment. He does not discuss the remote etiology, and gives as the chief exciting causes, improper diet and clothing. His views on the pathology of the disease appear to have been derived from Dr. Jackson's work. In the treatment of cholera infantum he disapproved of emetics and purgatives for evacuating the stomach and bowels. For this purpose he had found nothing so certain or so prompt as an injection into the bowels of a gill of warm water, in which is dissolved a large teaspoonful of common salt. He says, "If it operates immediately and brings with it a fecal or bilious discharge, the stomach becomes almost immediately quieted. This injection should be repeated whenever the vomiting is severe. If it should fail to quiet the stomach, draughts of warm water or even cold water, where the warm will not be drunk, or strong coffee in teaspoonful doses every fifteen minutes, may be given." If these measures failed to tranquillize the stomach, he resorted to calomel in doses of a half, a quarter, or an eighth of a grain. Dr. Dewees was one of the first to employ calomel in this disease in small doses, as he began the use of it in this manner in 1795, and he was severely ridiculed by some of his medical friends for the supposed insufficiency of the dose. In the later stage of the disease he used vegetable astringents, opium, sugar of lead, and chalk mixtures. For diet he preferred breast-milk, but he recommended that care should be exercised in giving the breast, not to allow the child to suck too much, nor too often, especially if thirst is excessive. When the child would not take the breast, he used milk diluted with barley-water, rice-water, or gum-arabic tea. The only remedy he regarded as sovereign and nearly unailing was a change of air.

Cholera infantum extended rapidly with the advance of immigration into the interior of this country, and in the third decade of the last century several interesting papers on the subject were written by physicians in the western states. In 1826 Dr. Samuel A. Cartwright, of Natchez, Miss., published an essay on the "Pathology and Treatment of Cholera Infantum," which appeared in the *Medical Recorder*, Vol. X, and for which he was awarded a prize by the Medical and Chirurgical Faculty of Maryland. He states that the disease prevailed to an alarming extent in Cincinnati, being particularly severe in 1819. His paper contains one of the most complete and accurate accounts of the clinical features of the disease to be found in the early literature. Dr. Cartwright was also the first observer who noted the frequent appearance of a cough when the disease has passed to an inflammation of the intestine. His views on the pathology are novel and purely theoretical. He divides the disease according to seven different pathological states of the system, as follows: 1, Visceral congestion; 2, congestion with an ataxic or broken reaction; 3, congestion with a general reaction or fever; 4, local inflammation with general reaction or fever; 5, local inflammation, with an ataxic reaction, or broken or partial fever; 6, local inflammation unattended with reaction; 7, local inflammation, terminating in effusions, or in structural derangement of some viscus. He says that in some cases one or more of these states are entirely absent. He adapts a special treatment to each of these conditions, and describes under each head the distinctive phenomena to which they give rise. He believes in the miasmatic origin of cholera infantum, and that the miasm enters the body through the air-passages and affects "the pneumoganglionic nerves, which are interwoven in the extensive mucous membrane of the lungs, producing a morbid impression which interrupts in some measure the arterIALIZATION of the blood. The miasmata applied to the extremities of the nerves in the lungs, during the respiration of the atmosphere of an infected district, produce a morbid impression which is conveyed to the ganglion, the centers of the nerves of organic life, and there produce disease. All those parts which are supplied with nerves from the ganglions in the liver, the stomach, the bowels, etc., become diseased in consequence of the diseased state of the ganglions, and their plexuses from which they derive their nerves." This opinion was founded

upon the diseased condition of the ganglions and their primitive plexuses which he had found in numerous post-mortem examinations in miasmatic disease.

Dr. Cartwright devotes seventeen pages of his paper to the treatment of the disease, and though he advocates the use of many remedies in heroic doses, his careful study of each patient and special adaptation of the treatment to the particular condition of the system is interesting and instructive. He had an abiding faith in tartar emetic in certain stages of the disease, and gave it in half-grain doses every two hours, believing that in the appropriate stage this amount is not so liable to produce vomiting as the smaller dose. He gave calomel in four grain doses to a child in the second summer, and never less than three to five grains to a child no matter how young. "In these doses calomel not only excites the liver, but other organs, as the kidneys and skin, to action, and it acts on the bowels more certainly, more readily, and less copiously than the smaller dose. He preferred croton oil to castor oil for cleansing the bowels, and gave it in doses of one-third of a drop. For the exhausting discharges he says the greatest benefits are derived from a combination of extract of white walnut, sugar of lead and opium, which had been recommended by Dr. Henderson, who treated this disease with unparalleled success. He considered blood-letting often necessary to quell the arterial commotion, and preferred local to general blood-letting. Why half the quantity of blood taken away by leeches has a better effect in abating arterial reaction than twice the quantity drawn by the lancet, he did not know. He recommended warm and tepid baths, and cold sponging in fever, and for diet, vegetable broths when breast-milk was not available.

In 1828, in the *Transylvania Medical Journal*, Dr. John P. Harrison gave an account of cholera infantum as it appeared in Louisville, Ky. He considered atmospheric heat to be the general predisposing or remote cause of the disease, and improper diet the most important exciting cause. He thought that dentition might aggravate the disease when existing, and might even act as an exciting irritant in developing it, but considered it only as an adventitious circumstance. He explained the mode in which heat predisposes to intestinal derangement as follows: "There is an intimate relationship of function between the stomach with its dependent organs, and the surface. In

cold weather the power of digestion is increased by the tone imparted to the stomach from the tonic influence of moderate cold on the skin. In hot weather there is a diminution in the power of the stomach produced by the action of heat on the skin. This paper gives a good description of the symptoms of the disease, and valuable directions for its treatment. The indications recognized are: to remove the existing cause; to restore the natural functional action of the stomach, bowels, liver and skin; to sustain, when restored, such healthy action. For emptying the stomach he preferred ipecac to tartar emetic, as he considered the latter too severe for children, and stated that several deaths had been supposed to result from its depressing effects. He advocated the use of fractional doses of calomel as the safest practice in the majority of cases.

The same volume of the *Transylvania Medical Journal* contains "An Essay on Cholera Infantum," by Dr. John Esten Cooke, of Transylvania University, which gives an able discussion of the etiology of the disease. He says, "Although hot weather is the season in which cholera infantum is epidemic, and heat is essential to the prevalence of this epidemic, and, therefore, to the existence of the cause of it, it is not itself the cause. The opinion that heat alone is the cause of cholera infantum has derived its chief support from the authority of Rush, who says its frequency and danger is always in proportion to the heat of the weather. This does not always hold good as is shown by the observations of Cleghorn in the Island of Minorca, and by my own experience in Virginia in the summer of 1821, which was uncommonly hot and dry, and nevertheless uncommonly healthy. There is evidently something more than heat necessary to the production of the disease, and to discover what this is, it is necessary to consider the circumstances in which the disease appears in different situations." In this connection he comments as follows upon Cleghorn's table representing the state of the weather, and the diseases in each year from 1747 to 1749 inclusive. "These years differ not so much in heat as in moisture. Though the former differs but little, there is a great difference in the latter, and on comparing the different summers together, we find that the wettest were the most sickly. From these facts it is evident that cholera infantum depends on some cause arising out of this combination of heat and moisture, when this is considered in connection with the

additional facts, viz., that cholera and tertians prevail together in every year; that when one appears earlier the other does also; both in consequence of the earlier appearance of that combination of heat and moisture which produces them both; and lastly that when there is a considerable deficiency of moisture neither tertians nor cholera are very prevalent, notwithstanding the heat of the weather is extreme, it is very evident that they both depend on the same remote cause arising out of this combination of heat and moisture, viz., on miasmata. The nature of the internal derangement produced by this remote cause consists of accumulation of blood in the vena cava and its branches. The stomach is affected by the same accumulation, which causes a deficiency of the gastric secretion. Fermentation takes place in the stomach owing to deficiency of gastric juice, and vomiting and purging result from the action of the fermented mass on the stomach and bowels, as well as from the increased sensibility and irritability of the alimentary canal, proceeding from the same accumulation in all the interior veins and small arteries entering into them." He adds, "In accordance with this view of the pathology of the disease the main dependence for its cure is in purging, so managed as to produce evacuations from the liver, and continued daily until health is restored. When the discharges are thin, serous and profuse, it is important to procure, as speedily as possible, consistent discharges from the liver, and to continue them. Calomel is better adapted to the end in view than any known remedy; in five grain doses every twelve hours, oftener in severe cases. It almost invariably effects the desired alteration in the passages in twenty-four to forty-eight hours. It sometimes happens that calomel does not purge the patient; the thin discharges cease entirely but no others appear. In this case rhubarb, jalap or scammony in five grain doses must be added. The object is to get the discharges green or dark and when this is accomplished the calomel may be diminished or omitted. When the case is not urgent the calomel should be given at bed time, as it relieves discomfort and procures sleep. This course of treatment has been entirely successful for many years." He disapproved of emetics, and of opium, and allowed anything for diet that the child desired and could retain, but recommended chiefly milk and water.

The first contribution devoted exclusively to the pathologi-

cal study of cholera infantum was made by Dr. W. E. Horner, of the University of Pennsylvania, and was published in the *American Journal of the Medical Sciences* for 1828, under the title of "An Inquiry into the Anatomical Characters of Infantile Follicular Inflammation of the Gastro-intestinal Mucous Membrane, and into its Probable Identity with Cholera Infantum." This valuable work attracted considerable attention. It contained a detailed report of the autopsies made on five infants dead of follicular inflammation of the intestinal canal—the symptoms being those of cholera infantum—accompanied with four beautiful plates illustrating the enlarged and ulcerated follicles. He says: "In all of the cases the muciparous glands of the colon were enlarged so as to represent small grains of white sand sprinkled over the mucous membrane and about the size of millet-seed. There was in each a little depression of a darker color than the rest of the gland, and from its position at the apex was taken for the orifice of the gland. The muciparous glands of the small intestine were also tumid and irritated. In a few of these follicles in both the small and large intestines ulceration had begun to show itself." He concluded from this study that "cholera infantum is pathologically rather a follicular than an erythemoid inflammation; that it is rather a disease of the innumerable mucous glands or follicles, extended from one end to the other of the alimentary canal, than a common vascular or erythemoid inflammation." In one of the cases Dr. Horner observed that the bile in the jejunum was yellow, but green in the colon, and offers the following explanation: "We know that frequently in cholera the alvine discharges are in a state of fermentation, and are sour. Is this process confined to the colon? If so, the rationale is that the bile retains its natural character in the small intestines, but becomes green in the colon, from meeting with acescent matters made so by fermentation." He found the other organs of the abdominal cavity healthy, but did not examine the thoracic or cranial cavities.

Dr. Nathaniel Potter, of the University of Maryland, contributed an able and interesting article entitled "Observations on Cholera Infantum," to the *Baltimore Medical and Surgical Journal and Review* for 1833. He urged the necessity of understanding the remote cause of cholera infantum, not only as a means to elucidate its pathology, but also to indicate an easy

prophylaxis. He says: "No palpable cause can be assigned in early summer so obvious as the overwhelming influence of a high temperature upon the exquisitely sensitive nervous system of children. It is scarcely possible to resist the conclusion that the matter of heat gives the first impulse, and that it originates a peculiar train of symptoms in the relative condition of infancy and childhood for which no other cause can account. That cholera is more clearly defined here than in other countries is due to the character of our climate. It is not only more variable than any other, but the vicissitudes are more frequent and the changes of temperature greater and more sudden. The disparity between winter and summer shows a contrast to which there is no parallel in any other country. In addition to this we have no gradually opening spring, but a sudden influx of heat in the later vernal months, which constitutes a sudden transition to summer. In its country localities the disease has uniformly increased in the ratio of the insolation of the soil. The first settlements which were soonest cleared of woods and underwood, and therefore more exposed to solar heat, were the first seats of cholera infantum. It is well known that there are many farms that were formerly resorted to as places of refuge, which are now infected with cholera. In traversing the forests of Caroline County, in this State, in the summer of 1796, while the disease might be said to be epidemic in the old settlements, the new dwellings and solitary log houses, invested by a thick and rich foliage, presented, without an exception, children with blooming complexions, the emblems of health." Dr. Potter considered marsh effluvia to have no agency whatever in the causation of cholera infantum, and mentioned, among other causes to which the disease has been attributed, a deficiency of oxygen in the atmosphere, which rendered it physically impossible for the lungs to perform their office in oxygenating the blood. Some of the adherents to this visionary theory proposed to increase the quantity of vital air by artificial means, and were so carried away with this idea that they invented an apparatus for the purpose of manufacturing and diffusing oxygen in a more concentrated form through the apartments of children in the summer. * He adds: Great improvements have been made in the treatment of the disease, and under favorable circumstances it can generally be cured, and the successful management is always accomplished by a few simple

means. Removal to the country, notwithstanding its acknowledged advantage, is not entitled to the high regard which it justly acquired at an early period of our medical history. A hut surrounded by woods with only a yard and kitchen garden is the most eligible spot that can be selected as an asylum against the disease.

The importance of establishing the correct etiology of cholera infantum was appreciated by these authors from the first, but their views upon the subject varied widely; inasmuch as the disease had not been recognized in other countries, it was supposed that a new disorder had come into existence, originating with the settlement of this country, and as the various types were confined to children in the first two years of life, and to a special season of the year, the solution of the etiological problem was sought for in the local conditions peculiar to this country, in conditions peculiar to the age of infancy, and to the summer season, which might be operative in the causation of the disease.

At first two factors, the presence of worms and dentition, were held to be the main excitants. Against both, however, Dr. Rush brought forward strong arguments which, as regards the former, were so convincing that it was removed entirely from etiological consideration, although dentition still continued to be considered by many as of great importance in this connection. By Dr. Jackson it was thought to be one of the necessary causes of the disease, and Dr. Meigs, as late as 1820, classed it as one of the most important. Some writers, however, held the views expressed by Dr. Rush, that dentition might aggravate an already existing summer diarrhœa, but never induced one. They attributed the influence of age in the etiology of cholera infantum to the greater impressibility of infants owing to weakness of organization, the digestive organs being particularly liable to derangement at this age from the excessive function required of them in building up the rapidly growing body.

A causative relation was observed between the summer season and cholera infantum, but no explanation for this was attempted by the earliest writers on the subject, further than to say that heat may be considered as one of the remote causes, and that the frequency and danger of the disease were in proportion to the heat of the weather. In 1823 Dr. Howell gave greater prominence to heat as an etiological factor. He con-

sidered it in connection with sudden atmospheric changes, or a vitiated atmosphere, to be the most usual excitant of cholera infantum. Ten years later Dr. Potter declared that heat was almost the exclusive remote cause.

That the disorder was so much more clearly defined here than in other countries was referred to the character of our climate—to the frequency, severity, and suddenness of the changes of temperature, and to the sudden transition from winter to summer, without the intervention of a gradually opening spring. According to the generally accepted opinion, heat, dentition, improper food, and a changeable climate were not sufficient to account for an epidemic of cholera infantum. Something else was required, and this was suspected to be of an infectious nature. In the absence of any knowledge of bacteria in this connection, attention was directed to marsh miasm as the most probable agent. The discrepancies between cholera infantum and malarial fever are so apparent to us, that an identity or close relationship of these affections could not be suspected. But viewed in the light of the knowledge existing at that time, it is not surprising that cholera infantum should have been classed with the remitting fevers. Indeed the fact that the exciting cause was sought for among the infectious agents speaks strongly for the careful consideration given to the etiology of cholera infantum.

The mode of action of atmospheric heat in causing cholera infantum was the subject of considerable controversy, and various theories were advanced in explanation of it. These were, for the most part, based on the prevailing conception of the existence of a cutaneo-hepatic sympathy. By some the heat of summer was supposed to exhaust the tone of the skin, or to disturb its healthy action, and thus determine an undue quantity of blood into the abdominal viscera, causing a congestion of these organs. By others the disturbance of the intimate relation between the surface of the body and the digestive organs, caused by protracted heat, impaired the tone and energy of the stomach, rendered the system more accessible to impressions exercised by external agents, and diminished its resistance to them. The most important advancement in the interpretation of the action of heat was made by Dr. Cooke in 1828. He considered that hot weather was essential to the existence of the cause of cholera infantum, but was not itself

the cause. This opinion in connection with that expressed above corresponds with the modern conception of the subject.

The pathology of cholera infantum received less attention than its etiology, although the advantages to be derived from a clear understanding of its nature appeared to have been fully appreciated. Considerable importance was attached to the condition of the liver by many of the writers. The organ was supposed to be congested and greatly enlarged, and its healthy function impaired or lost. By some this disturbance was thought to constitute the principal trouble of cholera infantum, and to account for most of the symptoms. This opinion was purely theoretical, but it had such a firm hold on the minds of the physicians of that day, that it was not abandoned even after proof of its falsity had been adduced by anatomical investigation. More correct views of the pathology of cholera infantum were first obtained from the anatomical studies made by Dr. Jackson, and later from those of Dr. Horner. Dr. Jackson clearly demonstrated the inflammatory lesions in the stomach and intestine, to which he ascribed the phenomena peculiar to the disease, but this valuable work failed to attract the attention it deserved. Dr. Horner's studies exerted a much wider influence, and by some have been credited with laying the first correct foundation of the pathology of cholera infantum. This opinion, however, would do manifest injustice to Dr. Jackson, whose work preceded that of Dr. Horner by nearly twenty years. Moreover, although the observations made by Dr. Horner led to conclusions different from those of his predecessor, the divergence was due not to any lack of accuracy on the part of Dr. Jackson, but to the small number of autopsies made by each of these distinguished observers. Those of Dr. Jackson were confined to cases of catarrhal enteritis, which is now recognized as one anatomical form of summer diarrhœa, whereas those of Dr. Horner were confined to another form, ulcerative or follicular enteritis.

Many of the writers recognized the injurious influence produced in cholera infantum by acetous and putrefactive fermentation in the intestine, and by alteration in the quality and quantity of the normal secretions in the digestive tract.

The treatment of cholera infantum varied almost with the individual writer, and was based largely upon their conception of its nature. The purgative plan was employed by many, and

purgatives were given in heroic doses; by others this method of treatment was disapproved. Calomel was regarded as a most valuable remedy by all of the writers, without exception. It was given in large and in small doses, and was used both for its purgative action, and its supposed efficacy in restoring the healthy function of the liver. Emetics were considered by some to be of great value, by others to be dangerous. Removal to the country was regarded as the most useful of all measures for the relief of cholera infantum, and in Dr. Rush's experience was sufficient in most cases to afford complete relief. Later, its beneficial effects were not so apparent. The dietetic treatment varied from cereal waters and milk whey and these in small quantities, to almost anything on the table and in unlimited quantities. There are few measures and remedies now in use for the relief of cholera infantum that have not been recommended by some of these writers. However numerous and opposing the different plans of treatment employed, good results were claimed by all of them.

I have now presented a brief summary of the more important literature on cholera infantum up to the fourth decade of the last century. The views of each of the authors on the etiology, pathology and treatment of cholera infantum have been given in greater detail than may be of interest to any one not specially engaged in the study of this affection. The clinical history of the disease as portrayed by these writers corresponds so closely with that in the text-books on pediatrics of the present day that no advantage could be derived from its repetition.

Bacteriology has given us clearer ideas on the etiology of cholera infantum. Improved methods for pathological investigation have enabled us to determine more accurately the nature of the lesions of the stomach and intestine, and extension of the changes to other organs of the body. Our treatment still leaves much to be desired, and perhaps our greatest triumphs are won by careful dieting and hygiene, which are still our main reliance for combating the disease, and what is still more important undoubtedly affords the best prophylaxis.

A REPORT OF TWELVE OPERATIONS ON INFANTS AND YOUNG CHILDREN DURING SPINAL ANALGESIA.*

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Sub-arachnoid injection as an operative means continues to demand the attention of the medical profession. Competent evidence is gradually accumulating and it should not be long before the final verdict can be reached.

Those who have used this method have largely employed it in adults of all ages. In the *New York Medical Record* of December 15, 1900, I reported the first work done along this line on young children. Since then I have had twelve operations on patients from four months to six and a half years, and over forty on those under fifteen years of age.

The following cases tell their own story:

CASE I.—C. B., male, five years of age; general condition good. Marked phimosis.

Cocain analgesia, April 29, 1901. Place of puncture to the right between the third and fourth lumbar vertebræ. Amount of cocain m. 12, of a 2 per cent. solution. Injection completed at 12.05½ P.M. Analgesia began in the lower extremities at 12.09 and was complete to the level of the diaphragm at 12.11. Operation began at 12.12 and ended at 12.30. During the operation, which consisted of a circumcision, there was no nausea, vomiting, headache or discomfort of any kind. The patient remained perfectly quiet. At the end of the operation tests showed an absence of the pain sense over the entire body, including the mouth, eyes, tongue and nose. During the period of complete analgesia the pulse and respiration were perfectly normal, showing no depression of the vital centers. The patient was able to answer questions and seemed perfectly rational. Before operation: temperature, † 99°; pulse, 100; res-

* Read before the Section on Pediatrics, the New York Academy of Medicine, May 9, 1901.

† Temperatures as given in this paper were all taken by rectum unless otherwise specified.

piration, 24. Highest temperature after operation: 99.6°; pulse, 99; respiration, 22. Analgesia completely disappeared at 1 P.M. During the afternoon the patient seemed perfectly normal and insisted upon sitting up in bed. An early supper was thoroughly enjoyed. Late in the evening complained of slight headache. One one-hundredth of a grain of nitroglycerin was given and immediate relief followed. The patient slept all night.

April 30th.—Patient apparently perfectly well.

May 8th.—Convalescence uneventful.

Much has been claimed for eucaïn as a rival of cocain. A comparison of the two agents on the same patient under very similar circumstances certainly gives the fairest estimate of their relative values. The following case clearly emphasizes what I have found in other instances of spinal puncture, that beta-eucaïn is far less reliable than cocain.

CASE II.—B. K., male, aged two years and eight months; general condition excellent. A large double scrotal inguinal hernia, tending to become irreducible and at times painful.

Cocain analgesia, October 25, 1900. Place of puncture to the left between the third and fourth lumbar vertebræ. (1) Amount of cocain m. 13, of a 1 per cent. solution. Nausea and vomited twice frothy mucus in five minutes. Analgesia in ten minutes up to the level of the hips, but not including the inguinal regions. (2) Second injection in twelve minutes after the completion of the first. Place of puncture to the right between the same vertebræ. Amount of cocain m. 12, of a 1 per cent. solution. Analgesia complete to the level of the diaphragm in six minutes. Involuntary evacuation about the same time. Operation lasted thirty-eight minutes, and consisted of Bassini's radical cure on the right side where the hernia was the larger and distinctly painful. During the operation the patient cried out occasionally, but there was complete insensibility to pain below the level of the chest. There was no vomiting, and the operation was performed without difficulty. One hour before operation: temperature, 99°; pulse, 120; respiration, 26. Five hours after operation: temperature, 99.4°; pulse, 120; respiration, 32. Although the patient was in good condition, it was deemed advisable not to perform the double operation at this time. At the end of the operation the analgesia began to disappear, and was completely gone in one-half hour later.

October 26th.—No after effects from the cocain. Highest temperature since the operation: 99.2°; pulse, 124; respiration, 40. Sleeping and eating well.

November 3d.—Stitches removed; primary union; general condition normal.

November 24, 1900.—The patient was in good general condition. The previous operation had been completely successful, but the left scrotal hernia at times became somewhat irreducible and the use of a truss was not a success.

EUCAIN ANALGESIA.—Place of puncture to the right between the fourth and fifth lumbar vertebræ. (1) Amount of eucain m. 8 of a 1 per cent. solution. Nausea and vomiting for a few minutes. Pupils contracted. No loss of pain sense in twelve minutes. (2) Second injection to the left between the fourth and fifth lumbar vertebræ. Amount of eucain m. 10 of a 1 per cent. solution. Waited eleven minutes and there was no apparent effect from the injection. (3) Third injection between the third and fourth lumbar vertebræ. Amount of eucain m. 8 of a 1 per cent. solution. Short period of nausea and vomiting followed in two minutes after the injection. Analgesia from the knees down in nine minutes, with areas of analgesia from the knees to the navel. There was not the uniform complete analgesia below definite levels as found when cocain had been used, so the patient was returned to the ward and no operation was performed, it being thought advisable not to continue the nerve strain of the child. A test of the eucain solution proved that it was not very potent as a dilator of the pupil or when used under the skin. Analgesia completely disappeared soon after returning to the ward. Nausea and vomiting six hours later. Slight headache. Before operation: temperature, 98.4°; pulse, 74; respiration, 26. One hour and forty minutes after returning to ward: temperature, 98.8°; pulse, 88; respiration, 28.

November 26th.—Patient in excellent condition and absolutely no after effects of the eucain.

CASE III.—Same patient, in good general condition; left inguinal hernia.

Cocain analgesia, December 6, 1900. Place of puncture to the right between the third and fourth lumbar vertebræ. Amount of cocain m. 20 of a 1 per cent. solution. Slight nausea and vomiting soon after injection. The operation lasted fifty

minutes, and consisted of a radical cure. Before operation: temperature, 99°; pulse, 120; respiration, 26. One hour after operation: temperature, 99.2°; pulse, 128; respiration, 24. Analgesia completely disappeared in one hour and fifty-five minutes. No pain or discomfort was evinced during the operation. The child held tightly and caressed a pet doll, and at times talked to the nurse while the surgeons were at work. During the afternoon, highest temperature, 102°; pulse, 138; respiration, 30. Evidently some slight headache at times. There was no nausea or vomiting, although milk was consumed within four hours after the operation.

December 8th.—Patient doing nicely. No after effects.

December 16th.—Convalescence uninterrupted.

March 20th.—Patient perfectly well.

CASE IV.—W. J., male, aged three years and two months; a strong well developed child. Has prolapsus recti which requires replacing after each defecation. For two years the local condition has remained unchanged.

Cocain analgesia, December 21, 1900. Place of puncture between the fourth and fifth lumbar vertebræ. Amount of cocain m. 10 of a 1 per cent. solution. Analgesia extended to the level of the diaphragm in eight minutes from the completion of the injection. The operation lasted five minutes, and consisted of a dilatation of the sphincter ani and a narrow linear cauterization of the rectal mucous membrane on either side for several inches above the anal outlet. Apparently there was not the slightest discomfort during the operation. Returned to the ward in excellent condition. Tests were made with hot and cold water in the parts where the pain sense had disappeared and the patient was able to detect the difference. Evidently the cautery point at a red-heat can be used without pain, while a lesser degree of temperature may produce discomfort. One minute after the injection of the cocain there was slight nausea but no vomiting. Emesis occurred once, one and three-quarter hours after the operation. One hour after the operation analgesia was complete to the level of the clavicles and disappeared in three hours and fifteen minutes. Before the operation: temperature, 100°; pulse, 109; respiration, 26. Five minutes after the operation: temperature, 101.4°; pulse, 124; respiration, 26. Three hours later the temperature was 98.8°; pulse, 136; res-

piration, 36. Complained of headache for a time, which was relieved by small doses of acetanilid, caffeine and sodium bicarbonate.

December 22d.—Some slight headache at times, but takes nourishment well and seems bright and happy.

December 23d.—No apparent after effects from the cocaine.

January 1st—Perfectly well, astringent enemata being used.

CASE V.—Same patient. General condition excellent. The previous operation has lessened the prolapsus. Further scarification thought best.

Cocain analgesia, January 19, 1901. Place of puncture between the fourth and fifth lumbar vertebræ. Amount of cocaine m. 12 of a 2 per cent. solution. Analgesia to level of diaphragm in two and one-half minutes. Operation lasted eight minutes, and consisted of dilatation of the sphincter and linear scarification of the rectal mucous membrane, both on the anterior and posterior aspect of the bowel. No nausea or vomiting, pain or discomfort. After the operation patient was allowed to stand, which was done with perfect ease. No ataxia was present on walking. Before operation: temperature, 99°; pulse, 102; respiration, 22. Three and one-half hours after operation: temperature, 98.4°; pulse, 112; respiration, 22. Analgesia disappeared in one hour. Considerable headache during the afternoon; vomited once in the evening.

January 20th.—Resting well; paregoric controlled the tenesmus.

January 21st.—Sleeping well.

January 22d.—Apparently no effects left from the spinal injection.

February 1st—Patient doing perfectly well. So far no return of the prolapsus.

March 28th.—Patient is up and about, perfectly well. Prolapsus improved. Hope for complete relief when the scar tissue fully contracts. Supporting the rectum on the four sides.

May 1st.—General condition excellent.

CASE VI.—A. C., male, aged three years; of moderate size and, except for the results of rachitis, a strong, healthy boy. Marked genu varum. Parents desire operation.

Cocain analgesia, February 11, 1901. Place of puncture to the right between the third and fourth lumbar vertebræ. Amount of

cocain m. 7 of a 2 per cent. solution. Analgesia to umbilicus in three minutes. Slight nausea for a moment soon after the puncture, but none thereafter. Double osteotomy was accomplished without apparent discomfort. Operation, including application of plaster splints, lasted forty minutes, and at the end of that time the analgesia was complete over the entire surface of the body except the face. Before operation: temperature, 99.6°; pulse, 124; respiration, 22. One hour after operation: temperature, 99.6°; pulse, 128; respiration, 38. Analgesia completely disappeared in one hour and twenty-five minutes after the operation was finished. Two hours after the operation patient retained milk. No vomiting. Considerable headache persisted during the night, in spite of the small doses of caffeine, acetanilid and bicarbonate of soda, combined with the use of the ice bag to the head and hot water bottles to the feet. The highest temperature reached was fourteen hours after the operation, 101°; pulse, 112; respiration, 32.

February 13th.—Slept well; condition normal.

April 1st.—Nothing to report. Convalescence uneventful.

CASE VII.—E. K., female, aged two years and nine months; strong, healthy child. Had marked congenital talipes equinovarus, which was operated upon under cocain November 2 and 27, 1900. The condition of the right foot is fairly satisfactory. The plantar fascia of the left foot and the tendo Achillis need still further incision to give a perfect result.*

Cocain analgesia, March 2, 1901. Place of puncture to the right between the fourth and fifth lumbar vertebræ. (1) Amount of cocain m. 6 of a 2 per cent. solution. Nausea and some retching in fifteen minutes; analgesia in the toes but not sufficient for the operation. (2) Second injection to the right between the third and fourth lumbar vertebræ. Amount of cocain m. 14 of a 2 per cent. solution. Analgesia complete to the hips in four minutes. Emesis and involuntary defecation in six minutes after the injection. Operation lasted twenty minutes, and consisted of an incision of the left plantar fascia and tenotomy of the left tendo Achillis with division of the flexor tendons of the right foot. No pain. Before operation: temperature, 97.4°; pulse, 122; respiration, 24. Four hours after

* For report of previous operations, see *New York Medical Record*, Vol. lviii., No. 24, page 937.

operation: temperature, 102.6°; pulse, 132; respiration, 28. Analgesia completely disappeared in forty-five minutes after operation was finished. Complained of some headache. At times restless. Slept well all night.

March 3d.—No apparent after effects from the cocain.

March 4th.—As well as before the operation.

March 25th—Wound healing.

May 1st.—Perfectly well.

CASE VIII.—E. B., male, aged six years and six months. General condition fair. Marked tuberculous arthritis of the left knee joint, with some contracture of the flexor tendons of the thigh.

Cocain analgesia, March 5, 1901. Place of puncture to the right between the third and fourth lumbar vertebræ. Amount of cocain about m. 12 of a 2 per cent. solution. Analgesia to the level of the umbilicus in three and one-half, and up to the diaphragm in four and one-half minutes. Operation lasted fifty minutes and consisted of an erosion of the knee joint and the removal of an almost completely disorganized patella. No pain or discomfort was apparent. No nausea or vomiting. Before operation: temperature, 98.8°; pulse, 96.6; respiration, 20. One hour and a half after operation: temperature, 99°; pulse, 106; respiration, 28. Analgesia completely disappeared in one hour and twenty-five minutes from the time of the injection. Complained of headache the first few hours. Relieved by hyoscin and bromids.

March 6th.—Has retained fluid diet without difficulty since two hours after the operation.

May 1st.—Convalescence has been uninterrupted; patient up and about ward on crutches.

CASE IX.—M. R., female, aged two years and five months; a well developed infant with cystitis and symptoms of vesical calculus.

Cocain analgesia, March 12, 1901. Place of puncture to the right between the fourth and fifth lumbar vertebræ. Amount of cocain m. 6 of a 2 per cent. solution. Analgesia to the level of the pubes in two, and to the umbilicus in six minutes. Careful sounding of the bladder took seven minutes; no stone found. Pain was not felt, and the child remained absolutely quiet during the entire procedure.

Before operation: temperature, 100.4°; pulse, 128; respiration, 28. Two and one-quarter hours after examination: temperature, 98.2°; pulse, 124; respiration, 32. Analgesia disappeared completely in two and one-half hours. Three hours after operation patient vomited. Restless during the night.

March 14th.—All effects of the cocain have disappeared.

March 19th.—Patient up and about. Receiving medical treatment for cystitis.

April 1st.—Much better.

CASE X.—D. S., female, aged six. Bad general condition; slightly feeble-minded. Marked cellulitis of the left calf, with a discharging sinus leading to dead bone. Evidently a specific necrosis with acute septic infection.

Cocain analgesia, March 12, 1901. Needle was inserted to the right between the fourth and fifth lumbar vertebræ, but became plugged by a small clot, while passing through the soft parts. It was withdrawn. The instrument was reinserted to the right between the third and fourth lumbar vertebræ. Amount of cocain m. 14 of a 2 per cent. solution. Analgesia complete to the umbilicus in three minutes. Operation lasted ten minutes, and consisted of a five-inch incision down to the tibia, with a removal of some superficial necrosis and the curettage of the sinus. At the end of the operation analgesia complete over the entire body, with the exception of the forehead and face, mouth and eyes. No nausea, vomiting, pain or discomfort. Analgesia disappeared in one and one-half hours. Before operation: temperature (axilla), 98°; pulse, 90; respiration, 24. Three hours and twenty-five minutes after the operation: temperature (axilla), 100.4°; pulse, 128; respiration, 24. Following the operation, complained of severe headache, especially through the temporal region. One-fiftieth of a grain of nitroglycerin quieted the patient almost immediately, and soon after she fell asleep and slept from three to four hours.

March 14th.—No headache. Had a comfortable night. No after effects from the cocain.

March 23d.—Patient is doing well.

May 1st.—Convalescence progressing satisfactorily.

CASE XI.—J. C., male, aged three years; strong, healthy child. Marked genu varum.

Cocain analgesia, March 20, 1901. Place of puncture be-

tween the third and fourth lumbar vertebræ. Amount of cocain m. 10 of a 2 per cent. solution. Analgesia to the level of the diaphragm in four minutes. Five minutes later, and lasting two minutes, nausea and retching followed by involuntary defecation and urination. Operation lasted fifteen minutes, and consisted of a double osteotomy with the application of plaster splints. Patient experienced no pain. Before operation: temperature, 98.6°; pulse, 74; respiration, 20. Four and one-half hours after the operation: temperature, 104°; pulse, 150; respiration, 39. This was the highest temperature, pulse and respiration since the operation. Analgesia completely disappeared in one hour and fifty-five minutes. Patient cried at intervals during the afternoon.

March 22d.—Slept well. No after effects from the cocain.
May 1st.—Convalescence uninterrupted.

CASE XII.—H. G., male, aged three months; very poor general condition. Double scrotal inguinal hernia. On admission to the hospital, February 18, 1901, the hernia on the right side was somewhat inflamed and reduction was accomplished with difficulty. Topical application of cold with a support was employed, preceded by taxis. It was certainly in danger of becoming strangulated.

February 22d.—General condition unchanged. Less local inflammation.

February 26th.—Several times during the last few days the right hernia came down into the scrotum and reduction was most difficult.

February 27th.—Hernia incarcerated. Chloroform narcosis. Bassini's operation performed on the right side. Very little chloroform was administered and still the anesthetic was not borne well. Respiration and heart action became very poor and most active stimulation was required. Patient removed to ward in bad condition.

February 28th.—Somewhat improved.

March 7th.—Wound looking well. Stitches removed.

March 19th.—The right hernia cured. The condition of the patient during the last few days has been getting worse. The left hernia has been a number of times practically irreducible and to-day is strangulated. We hesitated to do another operation on this patient of only four months with bad general

condition, a slight bronchitis and not able to stand chloroform. Under the circumstances it was determined to employ the spinal method.

Cocain analgesia, March 19, 1901. Point of puncture between the fourth and fifth lumbar vertebræ. Amount of cocain m. 6 of a 1 per cent. solution. Injection 11.32 A.M. Analgesia to the level of the diaphragm at 11.40. Operation began at 11.40½. Infant began to cry before the needle was inserted in the back and continued until the feeding bottle with a small quantity of milk was allowed. Vomited once. There was no pain and the patient remained quiet the most of the time. The sac was separated and opened, exposing intestines which were a deep blue color, showing that the operation was imperative. When the constricted neck of the sac was enlarged coils of intestine came down. There was difficulty experienced in reducing the intestine and a few breaths of chloroform were given with the purpose of still further relaxing the muscles and quieting the child who, by this time, had become frightened at the efforts to place the loop of intestine back in the abdominal cavity. The suturing of the abdominal wall and the completion of the operation were accomplished under the analgesia from the cocain. At the end of the operation, at 12.15, the loss of the pain sense was complete to the level of the diaphragm. There was no vomiting from the time of the initial emesis until the chloroform was administered. To those present at the operation it was very clear that chloroform would have killed the child and that cocain certainly enabled the operation to be done without pain. Before the operation: temperature, 98.8°; pulse, 120; respiration, 22. Eight hours after the operation: temperature, 102.3°; pulse, 140; respiration, 36. The condition following the operation was certainly very little worse than before. The time of the disappearance of the analgesia was not taken.

March 20th.—Patient has had two dark stools containing blood. No after effects from the cocain.

March 22d.—There has been no nausea or vomiting. Patient has taken food regularly. Temperature, pulse and respiration normal.

March 29th.—Patient steadily improving.

April 8th.—Continues to improve.

May 1st.—Has gained gradually in flesh and strength. Patient is perfectly well.

GENERAL COMMENTS.

Children of all ages stand this method exceedingly well. They may cry out before or during the injection, but they soon quiet down and usually remain calm during the operation.

In all cases the ether method of sterilization of cocain and eucain has been employed.

A short-bevelled needle having a steel point, the remainder of the needle down to the shank constructed of a soft metal, has been used in order to avoid the possible danger of breaking should the patient struggle.

I have given, what seemed at the time, large doses of cocain, but in only one instance have any alarming symptoms occurred. In this case it was impossible to say whether the injection was the cause, or the disease from which the patient was suffering. Usually the increase in the drug has resulted in a more satisfactory analgesia and fewer after effects.

Case I. is especially interesting as the second* instance on record of general analgesia.

Tracheotomy Tube.—Gersung recommends (*Weiner Klin. Woch.*, June 28, 1900), a tracheotomy tube of funnel shape and claims for it the following advantages: Its larger caliber permits freer respiration and its tracheal end never comes in contact with the mucous membranes. The widened tracheal part of the tube fills the lumen of the trachea completely and prevents the entrance of any blood or wound secretion into the tube. A disadvantage is that a larger opening into the trachea is necessary. Gersung claims that pressure necrosis never results after the use of this tube. The disadvantages of the ordinary tracheotomy tubes are that while their bend requires so much room in the trachea their caliber is usually quite small. The tube often presses against the mucosa of the larynx and by inaccurate adjustment is likely to cause pressure necrosis of the soft parts.—*Philadelphia Medical Journal*, Vol. vi., No. 9.

* For the first see the author's "Summary of Fifty Cases," *New York Medical News*, Vol. lxxvii., No. 18.

HEMORRHAGE FROM A PYOTHORAX.*

BY A. JACOBI, M.D., LL.D.,

Professor of the Diseases of Children, Columbia University,
New York.

Maria Chercher, seven years old, born in the United States, of Italian parentage, was admitted to "Jacobi Ward" of the Roosevelt Hospital, New York, October 29, 1900. Family history negative; personal history, according to the rather unintelligent parents, good until present illness. Child was taken ill a month previous to admission; felt languid, rather feverish, had no appetite, lost flesh, had some pain about right chest and coughed occasionally; temperature on admission was 102° F.; marked dulness over right lung, lower lobe, up to the fourth or fifth rib; flatness over the base; voice and breathing approaches the bronchial near apex, absent over base; respiration, 40; pulse, 140; appetite, good; sleep, fair.

Puncture on November 1st yielded pus.

Operation under chloroform November 2d.—Five centimeters of the sixth rib, in front of and below angle of scapula, were removed. White and inoffensive pus flowed out readily to the amount of perhaps 500 c.cm., not mixed with blood. Thiersch's solution was injected; it returned with a little more pus, which was slightly colored with blood. All at once a large quantity of blood was discharged, which, when the irrigation was stopped, proved to be undiluted blood. It was clear it could not come from the intercostal artery, which was not touched. Full irrigation was again resorted to for a few seconds; the light being good, and the opening large, the blood was seen oozing in quantities from tufts disseminated over the pulmonary pleura, the costal not being within view. These tufts could easily be distinguished with the fingers, extended over a large surface and were quite numerous, large and small, some nearly a centimeter in diameter, others apparently not over the size of a pinhead. Altogether at least 250 c.cm. of blood were thus lost. The lung not expanding readily, the cavity was immediately filled with large quantities of sterile gauze, which

* Read before the Association of American Physicians, Sixteenth Session, April 30, 1901.

was allowed to remain in place for two days. When it was removed some little fresh blood was seen to ooze from a few large granulations. Gauze in somewhat smaller quantities was introduced; it was removed after two more days, when no blood was found, with the exception of a few small clots swimming in pus. The cavity, which diminished in size, was again filled with gauze for some days, until a drainage tube could be safely inserted. At that time the pleural surface was no longer red, the granulations had shrunk so that the thickened membrane exhibited only some flat and occasionally rough elevations of a grayish-yellow color. A careful search for a malignant tumor had no results, nor was there a suspicion of tuberculosis* or of maceration and corrosion of the surface; and there was certainly no adhesion between the two pleuræ, the tearing of which could have given rise to some of the hemorrhage which took place.

Within a few days the temperature became normal and remained so with a few interruptions. The child's weight on October 29th was 39 pounds 7 ounces, on November 7th, 38 pounds—the difference apparently due to the pus and blood lost on November 2d; on the 14th, 39 pounds 10 ounces; 29th, 41 pounds 4 ounces; January 9th, 1901, 47 pounds 12 ounces. A few days after she was discharged, the recovery being retarded by the slowness of the expansion of the lung, held down as it was by the thickened pleura.

Hemorrhages into the pleura may take place from rupture of an aneurism, ulceration of the aorta, bleeding from the venæ cavæ, caries of the rib, penetrating wounds or contusions of the lungs, or thromboses. F. W. Zahn, Geneva, described (*Virchow's Archiv*, 1885, Vol. CII., p. 345) a case of bilateral hemorrhagic pleurisy following the thrombosis of the vena azygos. It was observed in an alcoholic coachman of thirty-two years and followed extensive trauma and inflammation of the inguinal region. In this case the pleurisy appears to have followed the hemorrhage.

Other causes are primary or secondary malignant tumors of the pleura. Even in those cases in which a copious hemorrhage into the pleura takes place with no suspicion of malignancy or

* During the discussion of this case Dr. Osler asked whether some tissue had been removed from the tufts for examination. That was omitted on account of the extensive hemorrhage which seemed to permit of no delay.

other adequate causation, the final history corrected the first impression.

In the Transactions of the Clinical Society of London (Vol. XI., 1878, p. 136), Dr. W. N. Broadbent published a case of very rapid effusion and extravasation into the right pleural cavity of a man of seventy-six years. The amount of blood was very large, the whole cavity being filled. Two quarts of serum and blood were removed by paracentesis, and the patient recovered, so that the diagnosis of a malignant tumor was given up. But within eight months dyspnea returned and symptoms of malignancy made their appearance, and within a year he died.

Hemorrhages may be caused by sepsis at any age, mainly in the newly born. Such hemorrhages, however, are mostly petechial.

In a *Thèse* of Lacaze-Duthiers there is a case, of Tardieu's, of pleural hemorrhage without inflammation which necessitated thoracocentesis. It occurred in a cachectic man with paralysis and cystitis.

Resembling the hematoma of the dura mater, a pleural hematoma is described by Mesnil and Netter. It is the result either of the rupture of newly formed blood-vessels or of diapedesis (Fraentzel). Andral (*Clin. Méd.*, 2d Edition, p. 473) has the case of a man of forty whose right pleural cavity, as far as it was not obstructed by adhesions of the upper lobe to the costal pleura, was filled with blood which extravasated from the fibrinous deposits of the pleura.

Contrary to what is observed in the common form of hemorrhagic pleurisy, where the blood amounts rarely to more than 10 per cent., more or less genuine hemorrhage is observed in purpura hemorrhagica, scurvy, hemophilia, pernicious anemia, variola, leucocythemia, icterus gravis, chronic diffuse nephritis or interstitial hepatitis. Pleural hemorrhages in heart diseases are rarely copious.

In tuberculosis there is, as a rule, hemorrhagic pleurisy but no clear blood. Still Henri Blumenthal has the case of a woman of sixty years who died with her pleural cavities filled with blood. He speaks of the presence of gray granulations which are evidently tubercles (*Thèse: sur les hémithorax non traumatiques*, 1868).

A case of pleural hemorrhage from Nothnagel's Clinic was reported by J. P. Crozer Griffith in *The Medical News* of August

1, 1885. It was not, as had been supposed, the result of a hemorrhagic diathesis but of miliary pleural tuberculosis.

My case was unique in my experience and furnished an additional cause of hemorrhage into the pleural cavity. Scanning the literature has not added to my knowledge on this special cause of bleeding. That is why I have asked a number of active surgeons in regard to it, and was told they had not seen its like. That is also why I claimed a very few minutes of your time to make this communication of a case in which the pleural abscess behaved to an unusual degree similarly to what may be observed in abscesses situated in looser tissues elsewhere, in which granulating tufts spring up from the surface with, occasionally, a very moderate tendency to bleed.

Oblique or Upright Writing.—Schubert (quoted in the *Boston Medical and Surgical Journal*, February 14, 1901) examined a number of children in the Nuremberg schools to determine the effect of the different styles of writing. Inclination of the head to the side is more frequent in oblique than in upright writing. The symmetrical position of the head is two and one-half times more frequent in upright writing than in oblique writing. Only one-third of the children held their shoulders in proper position in oblique writing, and one-half in upright writing. The shoulder position is better in both groups than the head position. Obliquity of the head was not only more frequent but was of a greater degree in oblique writing than in upright writing. The same was true of forward bending. In upright writing only eleven per cent. of the children were near-sighted, in oblique writing fifteen per cent. and in the changing position twelve per cent.—*Therapeutic Gazette*.

Clinical Memorandum.

REPORT OF TWO CASES OF TUBERCULOSIS OF THE HIP AND SPINE, TREATED WITH LARGE DOSES OF CREOSOTE.

BY AGNES WALKER. M. D.,
Late Interne of the Children's Hospital, San Francisco, Cal.

The following cases, occurring in the orthopedic ward of the Children's Hospital, are of interest solely on account of the unusually large amount of creosote administered to the children without producing any unpleasant or injurious results. It is not possible to deduce from so small a number of cases any conclusions as to the real effect of the internal administration of creosote upon the course or tubercular disease of the osseous system. In the two instances cited here the results were practically negative, but the cases are recorded because of the large doses employed.

The cases were under the care of Dr. Harry M. Sherman, and were as follows:

CASE I.—George R. Age three years. Under treatment for tuberculosis of left hip joint and dorsal vertebræ. General condition very poor. The lungs apparently somewhat implicated, respiration being rapid and irregular, although no definite physical signs were present. The usual hip-traction apparatus had already been worn for eighteen months before the creosote treatment was commenced. In December, 1893, the boy was put upon 1 minim doses of a 10 per cent. solution of creosote three times a day, the dose being increased one minim daily. By March 8th, he had reached a dose of 40 minims of this solution three times a day, or 12 minims of creosote daily. This amount was continued until April 23d, when owing to slight gastric disturbance, it was stopped. Night-cries, which had ceased whilst the child was taking the drug, returned, and his general condition seemed to deteriorate, so on April 23d, he was put on 15 minim doses of the 10 per cent. solution. From that date until August, 1894, he took the creosote solution in varying doses according to the condition of his digestion. From August, 1894, until November, 1895, the dose was steadily increased, and on November 26th he was getting a daily amount of 371 minims of the solution, with no apparent effect for good

or evil. During this entire time he had been confined to bed, with traction on the diseased hip. His joint and spine showed only such improvement as was to be expected from the prolonged rest; the general condition was somewhat better than it had been two years previously. The creosote was discontinued, and no further medical treatment employed. In October, 1897, the boy left the hospital. At that time the hip was practically well, the spinal deformity was stationary, and the general health fair. The patient walked well with crutches. On February 5, 1899, the writer visited the child at his home. At this time his general condition was extremely poor, the spinal deformity decidedly increased, and causing him much pain, and the hip-motions were limited. Since that time he has disappeared and all efforts to find him have proven unsuccessful.

[*Postscript to Case I.*—This boy is now again in the Children's Hospital. He is badly crippled, both in his spine and hip, and needs general hospital care, but no special local treatment. He has at present no evidence of an active tuberculous process, but there is surely much latent disease in him.—H. M. SHERMAN.]

CASE II.—May P. Age seven years. At the commencement of the creosote treatment this patient had been confined to bed wearing spinal tractions for three months. She had a marked kyphos in the dorsal spine, with a sinus in the groin, discharging a large amount of pus. The general condition was fairly good, but the child was very nervous and at times somewhat hysterical. On May 8, 1894, the 10 per cent. solution of creosote was prescribed in 10 minim doses three times a day. This was increased 1 minim daily, as in the other case. At no time was there any disturbance caused by the drug, which was taken constantly until the child left the hospital in September, 1894. At this date the daily quantity of the 10 per cent. solution of creosote being taken was 360 minims, or 36 minims of pure creosote. The girl left the hospital in excellent condition, wearing a plaster of paris jacket, the sinus having entirely closed. Since then her health has been excellent; the jacket was discarded in the spring of 1898, and when last heard from, about sixteen months ago, the patient was able to walk, run, bicycle, etc., as freely as her associates.

In both the above cases the urine was frequently examined for albumin or other evidences of renal disturbance, the examinations, however, being invariably negative.

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THE PROPER DESIGNATION FOR DISEASES OF THE ENTERIC TRACT.

At the recent meeting of the American Pediatric Society considerable discussion was aroused by the use of the term "summer diarrhea," and it was stated by some of the speakers to be both indefinite and unscientific. On the other hand, a number of the members of the Society said that there is a general understanding of "summer diarrhea" to be an acute dyspeptic diarrhea, with or without gastric irritability, limited to symptoms that do not indicate inflammatory origin. It is

unfortunate, however, that the word diarrhea is liable to be misinterpreted even by competent observers, according as to whether it is applied to describe the frequent movements of an acute indigestion or those due to processes that have lasted for a longer period.

A large proportion of the cases of acute diarrhea observed during the hot weather are irritative, and the symptoms subside with the relief afforded by the discharge of the offending material.

It may, at first, seem a difficult matter to classify many diarrheal cases under pathological headings or by descriptions that refer to the particular site of the irritation. Where there are gastric and intestinal symptoms that do not last for more than a few hours, it is probable that the stomach and upper intestine only are disturbed, but surely these cases have no particular right to the designation of summer diarrhea, for they may occur at any season of the year when there are changes produced in the food by bacteria or from a vitiated state of health.

It is well known that a persistence of diarrhea will add to the so-called functional derangement and cause symptoms of more serious import for which the term summer diarrhea has no application whatever, as the disease may be an ileocolitis or even a colitis.

Even if we are not at present fully prepared with a pathological classification, and cannot always determine the exact bacteria that cause enteric symptoms, there is no good reason why we should continue to apply a designation which is archaic, and which argues for a return to such doubtful terms as "inflammation of the bowels."

We need to attempt a classification based on our present knowledge of the anatomical site of intestinal disorders, and even if not accurate we cannot but fail to indicate more exactly the character of cases under observation than we do now by persisting in the use of the term "summer diarrhea." The classification suggested by the American Pediatric Society is a step in the right direction and should be followed.

Bibliography.

Des Kindes Ernährung, Ernährungsstörungen und Ernährungstherapie. Ein Handbuch für Aerzte, von Prof. Ad. Czerny, Director, und Dr. A. Keller, Assistent der Universitäts Kinderklinik zu Breslau. Erste Abtheilung. Franz Deuticke, Leipzig und Wien. 1901. Pp. 160. Price 4.50 marks.

This book is to be complete in ten parts, of which the first sets a very high standard of excellence. The term "Ernährungsstörungen" is used in preference to "digestive disturbances" or "gastrointestinal diseases," because these are both too narrow, the object being to consider all disturbances of general nutrition and metabolism. The literature is critically reviewed, in order to determine what facts have been proven by observation and experiment, what conclusions may be drawn from them, and what remains as hypothetical. By the help of this material, as well as by the authors' own experience and experiment, they aim to place the study of the nutrition and metabolism of the child—in health and disease—upon the scientific basis to which it may be entitled.

Beginning with the feeding of the infant during the first twenty-four hours, the ability of the mother to nurse her child is next considered, and the contra-indications discussed under the heads of those which hurt the mother, the child, or both. In the authors' opinion the fact that protective substances (antitoxins) have been proven to be transmitted in the milk is alone sufficient to warrant the statement that the milk of the mother and that of the wet-nurse are not identical in value. The directions for selecting a wet-nurse are very full. One chemical examination of breast-milk is emphatically stated to be valueless, and it is better to choose the nurse by the condition of her baby and that of her breasts. It is a good plan to compare the weights of the two infants, and so try to avoid the bad effects of too great differences between the secreting power of the nurse and the suckling power of the nursling.

The chapter on the anatomy and physiology of the gastroenteric tract and its adnexa is excellent, and includes a consideration of the rôle of the bacteria in the mouth, stomach and intestine.

The clinical composition of the body of the fetus and of the newly born infant is given in detail, and the technique used in the study of metabolism is described in a separate chapter; as is the chemical analysis of meconium.

After discussing the normal urine of the first days of life,

albuminuria of the newly born is considered; it is not to be looked upon as a physiological phenomenon.

The print of the volume is very clear and good. References to the literature are given as foot-notes throughout.

Diagnóstico de la Fiebre Amarilla. Par el Dr. Joaquin L. Duenas. Habana: Imp. P. Fernandez y Ca. 1901. Pp. 186.

We understand that this monograph on the diagnosis of yellow fever is to appear soon in an English translation; hence an extended notice of the original Spanish edition is perhaps unnecessary.

The book is naturally a valuable contribution to the literature of yellow fever and will prove of much benefit to the pediatricist because of the careful directions given for the diagnosis of this affection in very young children, which presents important differences when compared with its appearance in older individuals. Generally speaking, we see attenuated and abortive cases in extreme contrast with fulminating attacks, all of which are more or less atypical and liable to be confused with other tropical fevers, with febrile affections of the gastrointestinal passages, etc.; in fact, in the differential diagnosis in nurslings, the whole range of inflammatory affections has to be kept in mind. The very fact that the icteric discoloration, which gives yellow fever its familiar name, is seldom present when the disease attacks the nursling, should carry the conviction that a conscientious monograph on the diagnosis of the affection under consideration, written by an acknowledged authority, ought to be a welcome addition to the literature of the most formidable disease which prevails on our new frontier.

Eczema, with an Analysis of Eight Thousand Cases of the Disease. By L. Duncan Bulkley, A.M., M.D. Third Edition of "Eczema and its Management." Entirely Rewritten. New York and London: G. P. Putnam's Sons. The Knickerbocker Press. 1901. Pp. 368. Price \$1.25.

The aim and scope of this book, which is the second in chronological sequence of the "Students' Manual Series on Diseases of the Skin," are sufficiently indicated by the title of the book, since the original monograph of the author is well known to the practitioner. It is only necessary to add that the contents of the present edition have been brought up to date, particularly in regard to all matters of treatment, as may be seen by even a cursory glance through the formulary.

Society Reports.

THE NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, April 18, 1901.

ROBERT F. WEIR, M.D., PRESIDENT.

“Dull and Deficient Children” was the topic for discussion selected by the Section on Pediatrics.

INTRODUCTION TO THE PHYSIOLOGICAL STUDY OF DEFICIENT CHILDREN.

DR. WILLIAM B. NOYES read this paper. He said that, for purposes of education, it had been proposed to classify children as follows according to their suggestibility: (1) Those who are more or less of an automatic type; (2) children who respond most readily to suggestion when their emotions are appealed to; (3) children who are bright and a well-marked individuality, and who are often not readily influenced by suggestion except by exciting in them a spirit of opposition; (4) rebellious and obstinate children, and those who are degenerates or moral perverts. Sometimes a fifth class was made to include those in whom suggestibility is abnormally marked, as in those of hysterical temperament. In studying mentally defective children one would meet with the following important classes: (1) Those having defects of perception, *e.g.*, the deaf, dumb and blind; (2) those whose special senses are unimpaired, but who lack the power of attention; (3) those exhibiting defect or disorder of the will, and (4) those who are morally defective. Loss of will power is a common manifestation of hysteria. It might be impaired almost to the point of extinction.

ETIOLOGY OF MENTAL DEFICIENCY.

DR. PIERCE BAILEY presented a paper on this subject. He looked upon idiocy, imbecility and feeble-mindedness as different forms of the same condition. Mental defects might arise in infancy or be prenatal. The disastrous effects of alcohol on the developing ovum had been demonstrated experimentally; but in his experience, while the progeny of alcoholics were of un-

stable, nervous organization, he had not found idiocy especially common among them. Unfortunately society places almost no barriers to the marriage of persons who are either mentally or physically unfit. In the first two or three weeks of life it is impossible to determine whether or not an infant's mentality is normal. The rapidity with which the brain develops, as shown by the fact that at the end of the second year it weighs three times what it did at birth, emphasizes the great importance of detecting mental defects at an early age and endeavoring to correct them as far as possible. It was well known that infantile convulsions arise from a great variety of reflex irritations, and he was of the opinion that where convulsions occur with sufficient frequency the epileptic habit may become established. In this way he would explain certain cases of epilepsy apparently idiopathic and occurring in persons having a clean family history.

DULNESS DUE TO EYE DEFECTS.

DR. CHARLES STEDMAN BULL discussed this phase of the subject. He said that defective vision was a very common form of apparent mental dulness. The difficulty experienced by hypermetropic children in sustaining the accommodative effort necessary for near vision led them to be slow and to appear dull, yet that they were in reality not stupid was abundantly proved by the remarkable change in them noted on properly correcting the error of refraction. Astigmatism was another common defect of the eye important in this connection, but by far the most important was myopia. He would commend to the earnest attention of sanitarians and educators the fact that the number of short-sighted pupils increases from the lowest to the highest grades in our schools, and is in direct proportion to the number of hours of study. Insufficiencies of the ocular muscles were commonly associated with some refractive error. Among the congenital anomalies of the eyes resulting in defective vision were mentioned: (1) Congenital cataract; (2) dislocation of the lens; (3) more or less marked absence of pigment in the uvule tract, notably the iris; (4) coloboma or fissure of the iris or choroid or both; (5) entire absence of the iris. Where there was congenital word blindness or lack of visual memory, early and persistent instruction in reading would be of material benefit.

FUNCTION OF TEACHER IN DISCOVERING AND TREATING MENTAL DEFICIENCY.

PROFESSOR LIGHTNER WITMER, of the University of Pennsylvania, read a paper with this title. He believed that the teacher had better opportunities than the physician for detecting mental deficiency in children. Fully one-tenth of the teacher's time and effort was expended in endeavoring to instruct mentally backward children. He advised the segregation of mentally defective children, and the formation of separate classes for those intellectually defective and those morally defective, with specially trained instructors.

THE CITY'S OBLIGATION TO PROVIDE SPECIAL EDUCATION FOR DEFECTIVE CHILDREN.

SUPERINTENDENT C. E. MELENEY, of the Board of Education, discussed this question. He found sufficient justification for the provision of special instruction for mentally defective children in the marvelous results secured in our State institutions. It was evident from the statistics now being gathered in New York City that there were already enough of such children to warrant the formation of several special classes; but one of the greatest obstacles to work in this direction was to be found in the unwillingness of parents to admit that their children are mentally deficient. Small schools or special classes were better than large institutions, and, in his opinion, it was wise to keep the children, while educating them, as nearly as possible in the environment they would have later in life.

DR. LEROY M. YALE called attention to the tendency of children to develop like their parents, and added that parents who in childhood had been slow in development seemed to forget this fact in the success achieved subsequently, and were disposed to demand of their children greater mental activity and more rapid development.

MR. MAXIMILIAN GROSZMAN thought it was often most important to remove these children from their environment, not only in the case of tenement house children but where the children of the wealthier classes were living in an atmosphere of overstimulation. The apparently dull children were often those having the greater mental strength, and the ones who become the more intellectual and successful men and women. Unfortu-

nately our schools showed a growing tendency to take cognizance more especially of the bright children. Those whom every one recognized as mentally defective were not the most unfortunate, but the ones presenting minor mental abnormalities, and he desired to plead earnestly in behalf of the latter.

DR. T. ALEXANDER MACNICHOLL gave briefly some of the results of an investigation that he had conducted with reference to the relation of heredity to mental deficiency. Of 10,000 children 8.8 per cent. showed more or less mental deficiency. He had traced 463 children in 150 different families through three generations. Of this number, 17 were precocious in some one thing; 403 were generally deficient; 313 had drunken fathers and 51 drunken mothers; 265 had intemperate grandparents and 246 had intemperate parents as well as grandparents. Two per cent. of these children showed less than the average intelligence. A study of 51 strictly temperate families with 231 children showed less than 3 per cent. dull children.

DR. HERMANN KNAPP said that the optic memorizing center and the acoustic memorizing center were separate and distinct, and that the child born blind was not stupid but had no visual memory.

The discussion was continued by Dr. L. A. Coffin and by Mr. Godwin, Superintendent in the Department of Education.

Prevention of Tuberculosis in Children.—Feer observes that (in *Therapeutische Monatshefte*, December, 1900), absolute cleanliness, sunshine, fresh air and exercise out of doors are the factors in the prevention of tuberculosis as well for children as for adults. Among the minor points Feer mentions that the bedding in hotels, etc., should be covered with a washable sheet to prevent infection from the blankets, and that a sheet should be spread on the floor for young children to play on, never putting them down on a carpet, especially in a hotel. If possible, the child should be confined to the sheet with a light, folding fence around it. The teeth should be carefully supervised, as tubercular infection may occur through a cavity at any age. Precautions should be multiplied in case of children with a tendency to glandular affections.—*Journal of the American Medical Association.*

THE PHILADELPHIA PEDIATRIC SOCIETY.

Stated Meeting, April 9, 1901.

DR. THOMPSON S. WESTCOTT, PRESIDENT.

DR. L. EMMETT HOLT addressed the Society on "Some Forms of Indigestion in Infants and Young Children, with Especial Reference to Their Dietetic Treatment."

He spoke mainly of the chronic forms of indigestion. He said that almost as much trouble is caused by bad nursing as by bad feeding. To be successful the pediatricist should have charge of the infant from birth and not begin when it is one month old. His initial formula is generally 1 per cent. fat, 6 per cent. sugar and .33 proteids. The proof of whether an infant is doing well is its comfort. Constipation will frequently disappear when the food is made stronger.

Early feeding will prevent the initial loss in weight. Vomiting is caused more often by a high amount of fat than by any other condition. In three cases avoid milk and cream and give milk and water. Stomach washing and in some cases irrigation may be tried. When there is mucus, stomach washing is the only remedy.

Attacks of acute indigestion are dangerous and are often caused by surprisingly small quantities of cow's milk. Attention should always be paid to the previous history of the baby. Although a firm believer in artificial feeding he said that a wet-nurse may be required in some cases. Every mother cannot nurse her baby and harm is done when the milk does not agree. Some of the points emphasized were: (1) The simplicity of the question of feeding infants when they possess healthy organs and the complexity of the problem when these organs are deranged; (2) the comfort of the infant is the guide as to the correctness of the feeding; (3) no mother should nurse her infant which has persistent indigestion and does not gain in weight; (4) if there is a gain in weight, then try to overcome the indigestion; (5) there is no more troublesome symptom than vomiting. This is due in the majority of cases to too large an amount of fat, hence that ingredient should not be increased too rapidly; (6) too much attention should not be paid to traditional opinions regarding the amount of fat, proteids, etc.

J. P. CROZER GRIFFITH stated that one of the main character-

istics of the suggestions in treatment that Dr. Holt had made was care as to small details. Dr. Griffith insisted upon the importance of this, and stated that he believed that Dr. Holt's success in the management of these cases was largely due to his carefulness in investigating all the details of the baby's life, and his appreciation of the importance of many factors which are often overlooked. He had felt especially pleased at Dr. Holt's insistence upon the fact that it is not always bad food that causes digestive disturbance, but is rather in many instances some peculiarity of the baby itself. The food may seem to be entirely suited to the baby's age and condition from a theoretical standpoint, but while it is, as Dr. Holt stated, no trouble to feed a baby in good health, a sick baby does not by any means conform to rules in the diet which it can take, and one must always study the individual patient and not attempt to go by any regular plan. One comes, after a certain amount of experience to accept or reject a method of feeding in a special case, not so much on account of special theoretical rules, but rather because experience teaches one that certain methods will do in one case, but will be unsuccessful in another. One of the most important factors in causing digestive disturbance is certainly imperfect arrangements as to the hygiene of the baby's life, and certainly, as Dr. Holt stated, the failure in the use of foods which are apparently proper is oftentimes to be attributed not so much to the food itself as to improper care of the baby. Dr. Griffith also expressed his appreciation of Dr. Holt's statements concerning mild constipation in infants when no evidence of distress result from the constipation. In his opinion, a tendency to constipation without any signs of digestive disturbance usually means a good digestion, and he insisted that it is often of importance not to allow one's self to be persuaded to attempt to overcome this constipation.

DR. E. E. GRAHAM was much interested at one point which he noticed in the reports of several of Dr. Holt's cases. He should judge from his reports of treatment in these cases which he had discussed in his paper that he is quite willing to put a child with indigestion on a milk mixture as soon as it comes under his care. In Philadelphia physicians are certainly opposed to such a measure, and he thought it a general practice here among pediatricists to stop the use of milk for four or five days or

perhaps more if an attack of indigestion occurred, and meanwhile to use albumen water, beef juice, or similar foods. In spite of the recommendations made by some others, particularly Dr. Rotch, in some of his writings, Dr. Graham stated that he preferred to use sterile water for about twenty-four hours, after this albumen water for forty-eight hours or so, and then beef juice, a day or two afterward, cautiously beginning with a very weak milk mixture, preferably peptonized. He believed that peptonization is not used with sufficient frequency; it gives a certain amount of rest to the digestive organs, and is often very valuable in the treatment of acute attacks. He agreed with Dr. Holt in considering rectal feeding a valuable temporary procedure. He had also had very good results in a considerable number of cases from gavage, and desired to learn Dr. Holt's opinion concerning this measure.

DR. ALFRED STENGEL stated that while we have not reached a period when fundamental principles in the feeding of infants have become well established, there are to his mind several definite points in the management of digestive disturbance in infants and young children which were suggested by Dr. Holt and that are so important as to deserve to be called fundamental principles. One of these is the importance of avoiding an undue quantity of food and a consequent severe mechanical strain upon the stomach. In the management of digestive disturbance in adults, reduction in the amount of food taken has grown to be a well-established principle. Different physicians in treating exactly similar cases of disturbance of the stomach or bowels often use diets which differ largely, but if the diet is well regulated and the amounts ordered are sufficiently small, it is usually found that the result of the dieting is good. The really essential point in ordering a diet is to think first of ordering foods which will be suited to the individual case, and of ordering quantities which are sufficiently small to avoid further overtaxing a stomach and intestine which are already more or less overtaxed. The same principle should be used in managing children much more frequently than is the case. His experience has been that the proteins and fats must be reduced in direct relation to the amount of reduction of general nutrition and strength. He has found frequent necessity for the entire withdrawal of milk for a time. Another fundamental principle

upon which he insisted was that it was wrong to keep a child for any considerable period upon a food consisting almost solely of carbohydrates, a mistake which is often made, as weak carbohydrate foods are likely to be borne well by the digestive tracts of children who have been upset by milk mixtures. The general nutritional disturbance resulting is often a more serious matter than the original disturbance itself.

DR. D. J. M. MILLER emphasized the importance of Dr. Holt's statement that artificial feeding is easy when one has the opportunity to control the baby's diet from the first. There is a general impression that young babies cannot properly digest cow's milk. This impression, in almost all cases, is entirely erroneous. If the baby is in good health, and if the feeding is begun at an early period, before there has been any opportunity for disturbing the child's digestion, artificial feeding is not at all difficult. There is also a general impression that breast milk is in some mysterious way the best food for infants, even if it seems to cause gastrointestinal disturbance. Dr. Holt has stated that this also is an erroneous impression, and that if a baby is not gaining in weight, and has continuous digestive disturbance, nursing should be stopped and artificial feeding undertaken. He would go further than this, and believes that even if there is a continued gain in weight, even six or eight ounces a week, as is often the case, nursing should be stopped if marked symptoms of indigestion continue in spite of proper regulations of the times of nursing and proper treatment of the digestive symptoms. One should always fear that obstinate disease of the gastrointestinal tract may be caused by breast-feeding in these cases when protracted over any considerable period, often rendering the feeding of such infants an extremely difficult matter after weaning has taken place. Dr. Miller also stated his agreement with Dr. Holt that milk mixtures are very often made too dilute, simply because the stools show a few curds or there is slight colic. Our aim should always be to give as strong a mixture as can be taken without disturbing the digestion too much.

DR. F. A. PACKARD stated that he was much relieved to notice Dr. Holt's omission of any statement that the bowels should be washed out repeatedly during attacks of acute indi-

gestion or acute inflammation of the digestive tract. He believed that this procedure had been used far too frequently, and was in most cases absolutely overdone in the individual case. Irrigation of the lower bowel several times every day he considered to be a factor which often had a very evil influence in acute cases, and the procedure is too commonly used in the more chronic cases.

DR. WESTCOTT emphasized the importance of a high percentage of fats in causing digestive disturbance. He considers it often quite as essential to use a low fat percentage in milk mixtures as it is to use a low proteid percentage. In some cases under his observation cream has been very badly borne, and in several instances it was noticed that a very small quantity of cream added to the mixture caused decided disturbance of digestion. He mentioned one case in which every time three or four drops of cream were added to a food mixture, pain and decided gastric disturbance were produced. A curious fact in this case was that while the percentage of fat could be raised by the gradual increase in the amount of whole milk, the addition of cream to the mixture could not be borne, even though the percentage of fat thus produced was really less than when whole milk was used. In all these cases the cream was perfectly fresh, being skimmed from fresh milk, so that no question of an increase in the bacterial content of the cream-mixture over that of the milk-mixture could be seriously entertained.

DR. HOLT in reply to Dr. Graham stated that cases of acute indigestion were not included among those discussed in his paper, and that he did not think it wise in most cases to continue the use of milk under such conditions. Dr. Packard's remarks concerning lavage of the bowel were wholly in accordance with his own experience. This procedure was often abused. He had only lately seen an infant that had been passing a moderate amount of mucus from the bowel, but with absolutely no other digestive disturbance, whose bowels had been washed twice a day for four months, first with a saline solution then tannic acid solution. The primary rule in the treatment of all disease in infants should be to do no harm, and to employ just as little active treatment as is reasonable in the individual case. The mistake usually made is too much treat-

ment not too little. Particularly is this true of many intestinal forms of disease. The value of rest is too little appreciated. Dr. Holt also stated that he was much interested in the remarks of Dr. Miller concerning the continuance of nursing when there were symptoms of indigestion, but notwithstanding these, still some gain in weight. If the gain in weight was slight and decided symptoms of indigestion continued, he felt convinced that the nursing should be stopped after reasonable trial of other measures had been useless. He was inclined also to believe with Dr. Miller that if there was a good gain in weight it might be very injurious to allow symptoms of indigestion to go on indefinitely. He was of the opinion that weaning was often delayed too long in these cases. A study of infant feeding can certainly not be best carried out in hospitals; after making prolonged and repeated trials in the treatment of chronic digestive disturbances in young infants in hospitals, Dr. Holt had come to believe that this is practically hopeless. The rule in the Babies' Hospital in New York with reference to such cases is to keep the infant only long enough to determine the best general method of feeding in the individual case; and then if possible to send it out at once, and to tell the mother to report regularly at the dispensary, where the feeding directions could be carried out under the supervision of the dispensary physician. In this way the child can be better fed and is saved the danger incident to a long residence in a hospital.

Empyema in Children.—Crandall (*International Medical Magazine*, October, 1900), states that aspiration and other temporizing methods of treatment are absolutely futile. Free incision with drainage is universally regarded as the only efficient treatment. Differences of opinion are confined chiefly to the extent of operation required. If performed early, simple incision has proved, in the experience of many competent operators, a perfectly efficient means of effecting a cure. If performed late, ribs should certainly be excised. The incision should be free; the drainage tube should be of good size; the cavity should not be irrigated; and every effort should be made to keep the wound in an aseptic condition.

Current Literature.

PATHOLOGY.

Koch, J. : The Histology of the Myotomic Hypertrophic Muscles in Thomsen's Disease (Myotomia Congenita). *Virchow's Archiv.* Vol. clxiii., No. 3.)

Microscopic studies were very carefully made with pieces of the right deltoid and vastus femoris muscles excised from a case of myotomia congenita occurring in a patient twenty-one years old. The symptoms had begun in childhood. The changes found in the voluntary muscles examined were more varied than those noted in any reported case. Thus, beside the very obvious hypertrophy of most of the primary muscle fibers, there were atrophic and degenerative changes in others. At the same time regenerative processes were going on, as evidenced by longitudinal division or splitting of many fibers and the formation of very numerous rows of nuclei.

This combination of destructive and regenerative changes in the striped muscles possibly explains the peculiar myotomic symptoms; for if hypertrophy were the only lesion, the activity of the muscles should be increased rather than diminished, which is not the case. While muscle fibers which are undergoing longitudinal division and into whose contractile substance capillaries are growing, are certainly not in a condition to contract as well as normal fibers.

MEDICINE.

Weil and Galavardin : Periosteal and Tendinous Rheumatic Nodules, with Histological Examination ; Sudden Death Due to Acute Interstitial Myocarditis. Chorea of Sydenham with Histological Examination of the Nerve Centers. (*Rev. Mens. des. Mal. de l'Enf.* Vol. xix., No. 4.)

The patient was a girl of seven years, who had never been ill until two months before observation when an attack of muscular rheumatism began in the extremities. Mild, general chorea developed, and a presystolic murmur was heard, loudest at the apex and transmitted to the back. A number of nodules were found along the tendons of the back of the hands and in the palms; also over the lower end of the tibia, where some were

periosteal and others tendinous. They were not painful. The fever never rose above 38° C. Attacks of suffocation occurred repeatedly for a month before death, which took place very suddenly in an attack of syncope. There had never been any pain in the joints.

At the autopsy a recent endocarditis was found on the mitral valve, causing insufficiency; no pericarditis. There was a nutmeg liver; the other organs were congested. The nodules were hard to find, and were due to a thickening of the tendon sheath or of the periosteum with a soft, transparent, viscid, gelatinous substance. Microscopically the periosteum was slightly infiltrated and covered with a fibrinous exudate; the tendinous models were more superficial, and there was no exudation of fibrin, only a diffuse infiltration of the tendon sheath with young cells. The heart muscle showed a marked interstitial myocarditis. No lesions were found in sections made from the brain and cord, stained by Nissl's method.

The nodules were probably from six weeks to two months old, while those developed in the tendons showed the classical structure of such masses, the periosteal ones showed the additional feature of a fibrinous exudate. This demonstrates the analogy between these nodules and the inflammation of the serous membranes about the heart.

In this case the rheumatic infection seemed to have ignored the articular and pericardial serous membranes and become localized in the connective tissue of the heart, striped muscles, periosteum and tendons.

Moragas, Luis: Serious Hemorrhage in a Little Girl Aged Twenty-four Days. (*La Medicina delos Niños.* Tomo ii., No. 14.)

This case of hemophilia, in which the hemorrhage took place from fissures in the child's lips, leads the author to the following conclusions:

Any child with congenital debility is predisposed to hemophilia, and slight traumatism during the first days of life may prove fatal. Malformation of the nurse's nipple, which was present in this case, is a serious impediment to the alimentation of a congenitally feeble child. Slight wounds of the lips or mouth are especially prone to bleed freely, and call for prompt intervention.

Adriance, V.: Premature Infants. (*The American Journal of the Medical Sciences.* Vol. cxxi., No. 4.)

The greatest task undertaken by the premature infant is the maintenance of its body heat. A high range of temperature indicates an unnecessary consumption of body fuel and a weakening of the constitution; a subnormal temperature means low vitality, and, possibly, impending death. An irregular temperature may be considered normal, and is due to the prematurity of the infant. Gastrointestinal disturbances may cause a sharp rise in temperature, and an overheated incubator may cause a miniature heat prostration. The poorly developed lungs and the ill-adapted chest wall cause ineffective respiratory gasps, and cyanotic attacks occur. These did not appear after the tenth day, and the period of prematurity seemed to increase the liability of the infant to them. They may cause death. The ductus arteriosus and foramen ovale were found to be closed in these fatal cases, and so played no part in the production of the cyanosis. Simple cardiac failure may also cause death.

Urine is often not passed at all for a day or more; uric acid is abundant. Edema is frequently present, due to the feeble heart, the balking kidneys, or the anemia. The waxy whiteness of the premature infant is due to an exaggeration of the loss of hemoglobin which occurs during the first three weeks of a full-term infant's life.

The average premature infant does not show the birth-weight regained until the thirty-first day. Of the 40 cases studied, 24 died; of these 11 lived until the period of full term had passed, and so did not die of prematurity *per se*. All the infants born in the twenty-eighth week died in a few hours or days.

The incubator is necessary for the treatment of premature infants. The temperature must be regulated for each case—90° F. being high enough ordinarily and 95° F. required exceptionally. The reduction must be gradual until it equals that of the open room, and the child becomes educated to exist outside the incubator. The infant should be disturbed for feeding and toilet changes only. Oxygen and whiskey are of value in the attacks of cyanosis; the closest attention should be given to the bowels and to the feeding. Gavage should not be used if simpler means

are adequate. As the breast-milk of prematurity persistently maintains a high per cent. of proteids, it should not be fed to the infant, but a wet-nurse secured. Her child must be full-term, healthy and at least two weeks of age (a month is better), in order to avoid the colostrum period. In the meantime the mother's breasts must be pumped and massaged to prevent drying up of the secretion, so that after the proper change of function they will offer the proper food. The change from wet-nurse to mother must be gradually and carefully managed.

[It is unfortunate that no cultures were made in the case of hemorrhage, as without such examination it is impossible to state accurately that no one of the cases studied died of sepsis.]

McNaughton, J. G.: Diabetes Mellitus in a Child, with Coma. (*The Lancet.* No. 4045.)

The patient was five years old, had been getting thin for about a month, and during this period had been seen to drink much water; there was also polyuria, but in general the child was quite well. All at once she began to manifest evidences of a profound systemic disorder. She vomited profusely, complained of great pain and dyspnea, became cyanotic and then comatose, dying from deepening of the coma. Her urine had contained not only sugar but much albumin. These terminal symptoms were present but two days altogether. No autopsy was permitted, and the cause of the affection remains obscure. Blood relatives of both parents had died of diabetes.

Guthrie, Leonard G.: Chronic Interstitial Nephritis in a Girl Aged Seven Years. (*The Lancet.* No. 4040.)

The patient was admitted to the hospital for severe headaches, amaurosis, vomiting and vertigo, which had occurred every few days for two months. She had never had scarlet fever or dropsy. There was hypertrophy of the left ventricle, with pulse of extremely high tension, and thickening of the radial and brachial arteries. Two or three pints of urine were passed daily, this was of low specific gravity, containing a considerable amount of albumin, with a few granular and hyaline casts. About ten days after admission she began to have convulsions, and not long afterwards coma set in, with fatal termination. Autopsy revealed the presence of intracranial

hemorrhage. The diagnosis of chronic interstitial nephritis and arteriosclerosis was readily confirmed by the autopsy.

This affection is notably rare in children and Guthrie could find reference to but eight similar cases in literature. The child might have had an acute nephritis in infancy, or perhaps inherited syphilis was responsible for the renal mischief. (This patient was a stunted child, with marked bronzing of the skin.)

In discussion, Sansom remarked that in every recorded case of interstitial nephritis in children, intracranial hemorrhage had resulted. He would base his diagnosis in these cases on the cardiovascular symptoms, to the disregard of renal phenomena.

Müller, W.: Cystic Liver. (*Virchow's Archiv.* Vol. clxiv., No. 2.)

The patient was a two year old girl of good family history whose abdomen began to enlarge at the age of ten months. It reached a circumference of 70 cm. There was no icterus, but the superficial veins were much enlarged, and there was some edema. The urine contained a trace of albumin. Death resulted from exhaustion. At the autopsy tubercles were found in the lungs, bronchial and mesenteric lymph nodes, spleen and peritoneum. The abdominal tumor was due to the large liver, which weighed 1500 grams, and was converted into a fluctuating mass covered with thickened peritoneum studded with tubercles. On section the right lobe of the liver was seen to contain about ten cysts, varying from $\frac{1}{2}$ to 5 cm. in diameter, containing clear, yellow, viscid fluid, and the whole surrounded by a shell of liver tissue. The gall bladder contained a small quantity of thick, light-colored bile. Microscopically the cysts were found to originate in newly formed bile ducts which had become dilated. On the other hand, many interlobular bile ducts had been obliterated. Connective tissue proliferation was very marked both in and around the acini, and had caused pressure atrophy of the liver cells in many places. The tumor tissue was separated from the remaining liver substance by a narrow, hemorrhagic zone.

Six other cases of true cystic liver were collected from medical literature, five occurring in adults and one in a seven months old child.

Bourneville and Crouzon: A Case of Spasmodic Infantile Diplegia and Idiocy in Two Brothers. Atrophy of the Cerebellum. (*Le Progrès Méd.* Vol. xiii., No. 17.)

The parents of the children were healthy, but there was a slight neurotic taint in the family history on both sides. The boys were apparently well at birth, the illness of the elder apparently dating from an attack of measles at the age of eighteen months. As for the younger, the mother fell from a carriage eight days before his birth. Both were completely idiotic, and did not speak at all. The reflexes were exaggerated and there was paralysis with contractures of all the extremities. Nystagmus and strabismus were present in both cases. The younger boy died quietly, without pain or convulsions, simply refusing to be fed. He was thirteen years old. At the autopsy the abdominal viscera were found normal; the left lung was congested, and both the cerebellum and the pons varolii were atrophied. The cerebellum was about one-fourth smaller than normal. In the cord the fibers in the pyramidal tracts were diminished, especially in the crossed fasciculus; there was no sclerosis.

Clinically the family nature of the affection is of interest, while anatomically the cerebellar atrophy is to be noted. There have been only 28 cases of bilateral atrophy of the cerebellum reported; of these 3 cases seem to resemble those described by the authors, dating from infancy.

Handwerck, C.: The Pathological Anatomy of Spinal Lesions Due to Dystocia. (*Virchow's Archiv.* Vol. clxiv., No. 2.)

A female baby was born after podalic version had been performed on account of transverse presentation. The legs were completely paralyzed and did not react to electrical stimulation, while the upper half of the body was normal in every way. Feces and urine were not passed spontaneously unless the child was raised from its horizontal position. Emaciation progressed, and became extreme. Owing to paralysis of the extensor muscles of the back, a kyphosis developed in the lumbar region. Enteritis and colicystitis caused death at the age of two and one-half months. At the autopsy suppurative cystitis and pyelonephritis were found. From the lower dorsal region

to the cauda equina the spinal cord was converted into a softened, yellowish mass, the softening being due to the action of the trauma directly on the nerve tissue, and not to hemorrhage. No lesion of the spinal column existed. In the upper dorsal region there were small areas of softening which were secondary and due to stasis in the blood and lymph vessels. In this region there was also some degree of hydromyelia with a dorsal diverticulum. The gray substance in the lumbar region was the seat of two cavities (syringomyelia) the one on the right side being larger than the one on the left. The lining cells of the central canal were markedly proliferated in this region.

Rey, J. G.: **The Pathogenesis of Night Terrors in Children.** (*Rev. Mens. des Mal. de l'Enf.* Vol. xix., No. 5.)

Night terrors are always due to some obstacle to respiration and hematosis; the obstruction may be direct or of reflex origin. The terrors are merely the result of a slow and prolonged carbonic acid intoxication, which explains all the accompanying symptoms. Since all night terrors are symptomatic, it is useless to classify them as idiopathic and symptomatic. If two varieties are absolutely desired, one may separate those due to a direct obstruction to respiration from those due to a reflex cause.

Valagussa, F.: **Etiology and Serum Therapy of Infantile Dysentery.** (*Centralb. f. Bakt. Parasitenk. and Infectiönsk.* Vol. xxix., No. 15.)

The study of a small epidemic of dysentery, which resembled that described by Escherich (1899) both clinically and etiologically, led to the following conclusions: There exists in infantile pathology, a disease which may be found at any time, but is most common during the summer and autumn months. Tenesmus and frequent stools containing blood, mucus and pus are characteristic. The cause of this disease is a bacterium belonging to the colon group, and found in the intestine of affected children in almost pure culture, or with very few other bacteria. The blood serum of children suffering from the disease has a specific agglutinating action on this bacterium, while the serum of healthy children, or of those ill with other diseases, has not this effect; nor has the serum of animals treated with

typhoid bacilli. The serum of animals containing the plasmo-protein substances of Celli's *bacterium coli dysentericum* has a curative effect upon this acute intestinal disease of childhood. This proves indirectly that Celli's bacterium is identical, or nearly so, with that isolated by the author. Celli's serum has no effect upon cases of sporadic enterocolitis or of other acute gastrointestinal affections. It has proven perfectly harmless, even in large doses, and acts as a neutralizing agent upon the circulating poisons produced by the bacterium coli. Hence the general improvement and the disappearance of blood from the stools.

Aldrich, Charles J.: A Case of "Head-Knocking" of Medicolegal Interest. (*Annals of Gynecology and Pediatrics*. Vol. xiv., No. 6.)

In London the phenomenon of "head-knocking" is said to be common in young rachitic subjects, but this statement cannot be true of American children. He has seen but two such cases in a number of years. One patient was aged thirteen months and cachectic. His face, neck and head were covered with contusions, due to its peculiar habit. Cruelty on the part of the parents had been suspected, but a watch set upon the child revealed the rationale of the injuries. An interesting medicolegal point is thereby raised in allegations of cruelty to children, especially when the latter are found dead. This patient had marked evidences of rickets. It appeared to enjoy its self-inflicted punishment, which took the form of striking its head upon the floor.

Manasses, Jacob L.: Two Cases of Acetanilid Poisoning in Children from Absorption from External Wounds. (*International Medical Magazine*. Vol. x., No. 5.)

The first baby, whose age was six weeks, had a dermatitis of the buttocks due to irritating passages, the skin being fissured and abraded. For this condition there was applied a dusting powder consisting of equal parts of acetanilid and subgallate of bismuth. Within the next twenty-four hours the child developed subnormal temperature, cyanotic discoloration and the other phenomena which usually accompany acetanilid poisoning. Recovery readily took place under hot baths and compresses with whiskey internally.

In the second case, which occurred in a child aged two and a half years, the same dusting powder was applied for a scald of the buttocks. This remedy was very successful in accomplishing the desired result locally, but on the second day the child complained of cold and exhibited a cyanotic hue at the lips, ears and finger-tips. A stimulant mixture of strychnia, ammonia and brandy caused a disappearance of the symptoms in two days.

Joukovsky, V. : Hydrocephalus and a Congenital Tumor of the Pineal Gland in a Newly Born Infant. (*Rev. Mens. des Mal. de l'Enf.* Vol. xix., No. 5.)

The child was apparently dead at birth, but soon revived. There was nothing abnormal about the infant's appearance, though she did not cry, slept for twenty-four hours, and showed but slight tendency to take the breast. The dimensions of the head and trunk were normal. Ptosis was complete, and the pupils were unequally dilated. The temperature fell from 33.2° C. on the second day to 30.2 C. on the sixth, and the pulse from 80 to 60. Although the child had to be fed with a spoon, she took food well and did not vomit; constipation was readily overcome. All the viscera seemed to be normal. There was no paralysis, but the child scarcely moved at all; contractures of the arms were present; the tendon reflexes and sensibility to pain were intact. Sleep deepened into coma, and death occurred very quietly on the sixth day. The fontanelles and sutures had become a little enlarged.

The autopsy showed all the thoracic and abdominal viscera to be normal; 280 c.c. of serous fluid escaped on opening the head. The cerebral hemispheres, corpus callosum and fornix cerebri were absent, only a thin membrane remaining closely adherent to the pia, and this, in turn, to the dura. Behind the sella turcica and in front of the median fissure of the cerebellum there was a cystic tumor as large as an almond, the walls being very thin in some places and thicker in others. It was the degenerated pineal gland and served to obliterate the orifice of the aqueduct of Sylvius, and to flatten the anterior corpora quadrigemina. The optic nerves were atrophied; the olfactory and all other cranial nerves were well developed. The cerebellum, pons, spinal cord, and the fourth ventricle were all nor-

mal, as was the pituitary body. Twenty cubic centimeters of fluid were contained in the tumor.

The fact is especially to be emphasized that there existed a congenital hydrocephalus marked enough to completely destroy the cerebrum, and that it could not be recognized during life. The lack of cranial enlargement is to be explained by the atrophy of the cerebral substance as the result of the pressure of the accumulated fluid after the choroid plexus had become atrophied from the pressure of the pineal tumor. This destruction of the choroid plexus served to diminish both the quantity of fluid secreted in the ventricles and the nutrition of the ventricular walls.

Only ten other cases of tumor of the pineal gland have been reported in medical literature, and these affected subjects from thirteen to fifty years of age. This is the first case occurring in an infant.

PATHOLOGY.

Lewkowicz, X.: **The Enterococcus as the Cause of Dysentery.** (*Centralb. für Bakt., Parasitenk. und Infectiönsk.* Vol. xxix., No. 15.)

The enterococcus is an encapsulated streptococcus, appearing in the stools in pairs or in chains of four to eight elements, sometimes enclosed in phagocytes. On solid media the coccus may be single, in pairs, in tetrads or in short chains composed of pairs. Occasionally the diplococci show a slightly oval form, but this never reaches the decided lance shape of the pneumococcus. Some elements possess a delicate, but very broad capsule. In fluid media chains as long as sixty elements are formed, and the capsules are well developed. The coccus stains with Gram's method, and is short lived—one to three days, rarely five. The growth differs from that of the pneumococcus in that the colonies are larger, moister, more transparent and more profuse, showing a tendency to run together. The organism is pathogenic for white mice, rabbits and guinea-pigs, and seems to cause local inflammation rather than general toxemia or septicemia. This accords well with the clinical picture of dysentery.

The author found the enterococcus in the stools both of a thirteen months' old baby and of its mother, who died of dys-

entery; and, in pure culture, in the cerebrospinal fluid from a case of meningitis complicating dysentery. He considers the coccus to be the true cause of epidemic dysentery, possibly also of the tropical form.

Roussel, Albert E. : Report of Three Cases of Malignant Endocarditis: One Following Measles, Another Typhoid Fever, . . . and Another Terminating in Recovery. (*Medical Record.* No. 1589.)

The second of the patients referred to in the preceding title was a nine year old boy who was just recovering from a typical attack of typhoid fever. After six days of seeming convalescence he was taken suddenly with chills and abdominal pain, occurring in exacerbations, in the interval of which the abdomen was tender and tympanitic. The heart appeared to be healthy, while the spleen, which had undergone involution after the original attack of typhoid, now seemed to be swelling anew. One week later a tumultuous action of the heart was noted, with murmurs. The axillary and inguinal glands became enlarged. Typhoid and cardiac symptoms became progressively worse, and death took place six weeks after the relapse was first apparent. An autopsy, made in great haste, revealed the presence of large masses of vegetations in the mitral orifice; the spleen and liver contained infarcts.

From the blood-count, which was taken on several occasions, a diagnosis of splenic lymphatic leucemia would have been justifiable. As it was, the author prefers to regard the case as one of pyemia with incidental endocarditis.

Bourneville and Oberthur : Microcephalic Idiocy; Pseudo-cystic Cerebrum. (*Arch. de Neurologie.* Vol. xi., No. 4.)

A boy two and a half years old had a tuberculous family history on the father's side and a neurotic one on the maternal side, the mother herself being hysterical. The child developed general convulsions most marked on the right side on the fifteenth day, and eight days later diplegia with contractures was noted. The convulsions were repeated twice a day until the baby was six months old. At three months the fontanelles were closed; the sutures remained open. The child was completely idiotic, and died rather quickly of meningitis. The autopsy showed a marked pachmeningitis, atrophy of the falx cerebri, meningo-

encephalitis, microcephaly with cystic degeneration of the cerebral hemispheres, more marked on the right side than on the left. What remained of the cerebral substance was sclerotic, and there was hydrocephalus as well.

Microscopically the nerve cells were found to be in a state of extreme atrophy, and the cerebral softening (cyst formation) seemed to be the result of an inflammatory process, a meningo-encephalitis. The case was one of congenital idiocy.

Von Bókay, J.: Cicatricial Stenosis and Atresia of the Larynx. (*Arch. de Méd. des Enf.* Vol. iv., No. 4.)

Three cases of cicatricial stenosis and five of atresia were observed. All the children were between two and five years of age. Of the stenoses one died of pneumonia and two recovered completely. Secondary tracheotomy had been done four days after intubation in the fatal case, and after eighteen days and 302 hours respectively in the other two. Two atresia cases recovered, two died of pneumonia and one was still under treatment. Tracheotomy was done from 135 to 400 hours after intubation.

Impermeable stenosis and cicatricial atresia ought not to appear, and they can be prevented by suitable precautions. Thus tracheotomy cases should be intubated at short intervals, merely to test the permeability of the larynx. This procedure must be begun one week after the operation. In 1200 cases but one atresia developed, and in that case the sounding precautions had been neglected.

As for the treatment of cicatricial occlusion of the larynx, preliminary laryngotomy and section of the cicatrix are necessary. Then dilatation by means of methodical intubation gives excellent results. Should this method fail, transplantation or resection may be resorted to.

Rochester, Delancey: Some Unusual Cases of Infectious Diseases. A Clinical Report. (*The Medical News.* No. 1465.)

Two cases are first related which illustrate the value of making cultures in all cases of sore throat. The author was enabled to make his diagnosis of diphtheria and administer antitoxin before the appearance of the membrane which promptly formed. In the second case pneumonia complicated

the throat affection and examination of the sputum showed that it was due to the pneumococcus, thereby making it quite unnecessary to push the antitoxin to the utmost, which would probably have been done in the absence of a sputum diagnosis.

He also reports three cases of scarlatina without eruption. Patient No. 1, a boy aged eight, was seized with vomiting and headache, with considerable fever. It was stated that there was no scarlatina in the neighborhood. The boy's throat was not sore, and the sickness appeared to be due to a marked bronchitis, extending slightly into the parenchyma of the lungs. This affection was treated by revulsives and calomel, and the boy had quite recovered in about a week. A few days later, the patient's two little sisters had a mild attack of some eruptive disorder. There was no suspicion of scarlet fever at the time, but the boy was now noticed to be desquamating, and the possibility of mild scarlet fever was made a certainty a few days later when another boy in the family came down with a typical case.

A case is also related of a second attack of scarlatina immediately following the first, the patient having been exposed, while convalescent, to a virulent case. The interval was but three days between desquamation and reinfection. In each attack experts concurred in the diagnosis.

Still, George F.: Mongolian Imbecility. (*King's College Hospital Reports*, Vol. vi.)

He gives a very interesting report of his observations on a series of eighteen cases.

The points of distinction from cretinism are: (1) the facies; the obliquity of the palpebral fissures, the high-colored cheeks, the round squat face; all these distinguish the Mongol from the cretin, whose puffy eyelids, sallow, earthy complexion, thick lips, large mouth, and splayed out nostrils are so characteristic; (2) the skull in the Mongol is brachycephalic and usually small, in the cretin dolichocephalic and often large; (3) the hair and skin; in the cretin the dry, harsh skin, and the scanty, coarse, and often sandy-colored hair often contrast with the skin of the Mongol, which in the earlier years of childhood is normally soft, while the hair is abundant; (4) the hands; the short stumpy hands are common to both, but in the Mongol there is also a

disproportionate shortness of little finger and thumb, with curving of the former towards the ring finger, and the tapering tips of the fingers contrast with the square ends of the cretin's finger; (5) first appearance of symptoms. Dr. John Thomson has drawn attention to the fact that while the Mongol shows the characteristic appearances from birth, there is usually nothing to attract notice in cretinism until some months after birth.

It is confounded with syphilis on account of the presence of snuffles and the depressed bridge of the nose. The prognosis as to life is bad, some intercurrent pulmonary disease being the usual cause of death during the first few years of life. Drug treatment as the administration of thyroid has been of no avail in the writer's experience.

Thompson, William H.: A Case of Glioma of the Pons: Hemorrhage and Death. (*British Medical Journal*, No. 2093.)

The patient was a girl aged eight years, who had always been healthy. The chief features of the case were the sudden and acute onset of the initial symptoms, intense headache. This perhaps was explicable by the hemorrhage found at the autopsy. After vomiting repeatedly, she began to improve slowly, and for several days was relatively well, although vomiting at long intervals. In about a week after the first onset there was a sudden turn for the worse, due probably to a second hemorrhage; headache reappeared and was followed by coma. There was rigidity of the left arm and leg. The coma terminated in death on the day after its supervention. Autopsy revealed the presence of blood in the fourth ventricle, and a tumor at the posterior end of the pons of the size of a walnut. Microscopically it was a glioma.

English, W. T.: Infantilism. (*Medical News*. No. 1464.)

The author styles his patient a plain case of infantilism or myxedematous retardation. She developed normally until somewhere in her second year, when a sudden arrest became evident.

The child, who had reached the age of seven years when the author assumed charge of the case, responded almost magically to the thyroid medication, and the persistent fontanelles were soon closed. She lost weight at first, because of the

absorption of the myxedematous infiltration, but this decrease was soon made good by healthy growth. She has been under treatment for eight months, and while still a little in arrears, bids fair to become a normal subject by another year.

Old, Herbert: Malarial Fever with Special Reference to the Value of Blood Examinations. Report of Cases. (*Medical News.* No. 1468.)

Among his cases were two nurslings and one child aged four years. One nursling suffered principally from diarrhea with nocturnal fever. The father had just recovered from an attack of malaria. Examination of the infant's blood showed large-sized tertian parasites. The recovery was rapid under quinia. The other nursling had lobar pneumonia clinically, but the blood contained hyaline bodies, and the temperature curve suggested a malarial element, while quinia seemed to cause the disappearance of postcritical temperature. The older child had fever and enlarged spleen, the blood containing small-sized tertian parasites. As in the other cases the specific action of quinia was notable upon this patient.

Groves, Ernest W. Hey: Case of Extreme Stenosis of Small Intestine in an Infant. (*British Medical Journal.* No. 2099.)

The case was one of congenital constriction of the ileum. The clinical picture was that of extreme emaciation. The intestines were much distended. The movements were small and soft. The autopsy showed a stricture three-quarter inches long with the caliber the size of a probe. The gut above the stricture was dark red and very much distended.

Moncorvo: Polyarthritis Deformans in Infancy: Apropos of a New Case Observed in a Boy of Five and a Half Months. (*Interstate Medical Journal.* Vol. viii., No. 2.)

The child's mother had an arthritis of the fingers of the left hand before her marriage. During her second pregnancy she had a similar affection of the right hand. This affection was a febrile and there was no local inflammatory reaction. The husband was syphilitic and alcoholic, and the child with which she was pregnant bore the stigmata of syphilis and had besides

a peculiar deformity of several fingers of both hands, said to have been first noticed at the age of two months. The lesions consisted of nodes of the metacarpophalangeal articulations, without heat or redness but extremely sensitive to touch. A radiogram shows that these nodes are not continuous with the epiphyses. There were no corresponding lesions of the toes. A diagnosis of arthritis deformans could be made without hesitancy, and there appeared to be no doubt that the disease in this case was inherited. This case appears to have been unique in the author's experience. He has been able to collect notes of forty-nine other children with similar lesions.

SURGERY.

Bennett, M. L.: **Empyema with Recovery in a Boy Two and a Half Years.** (*Buffalo Medical Journal*, March, 1901.)

The only rational treatment consists in getting rid of the pus. If aspiration fails after one or two trials, we should open and drain. This was the course pursued in the author's case. The child had not obtained any permanent benefit from tapping, while its health was beginning to fail. After cocaineization of the skin, the chest was opened in the posterior axillary line, between the eighth and ninth ribs. The pleural cavity was irrigated and a permanent drain inserted. Only two irrigations were necessary, about a fortnight apart. After flushing with hydrogen peroxid 25 per cent., and (on the second occasion) bichlorid 1-4000, normal salt solution was also introduced and some of it allowed to remain in the pleural cavity. The case is interesting as showing that recovery is possible without resecting a rib.

Halle, M. J.: **Perinephritic Abscess Due to the Staphylococcus Pyogenes Aureus.** (*Arch. de Méd. des Enf.* Vol. iv., No. 4.)

A girl eight years of age, with a good family history, developed pain in the right side and back, and fever within a month after receiving a blow on the back. The pain prevented her from walking, and emaciation began. A swelling was apparent in the right renal region, and was slightly tender. As the swelling increased in size, it was punctured and pus with-

drawn. Pure cultures of staphylococcus pyogenes aureus were found. At the operation the abscess proved to be retro-renal, and had no connection with the vertebral column or other bones. Recovery was complete.

Moschcowitz, Alexis V. : Strangulated Hernia in Infants; Description of a Hitherto Unrecognized Cause and Seat of Strangulation. (*Medical Record.* No. 1589.)

He has recently operated for strangulated hernia upon two infants aged respectively three and four months. The "hitherto unrecognized cause of strangulation" is believed to have obtained in both the author's cases. In the course of development the processus vaginalis may begin the shutting off of the normal tunica vaginalis, but the process may stop before it is entirely completed. The result will be a sac of the usual congenital variety but with this important difference that it will be constricted at its lower portion. In other words the sac may not improperly be compared to an hour-glass open at its top; the size of the two halves varying, dependent upon the different theories which have been proposed as regards the exact mode of development.

Elder, J. M. : Acute Appendicitis Complicating Hernia in a Very Young Infant. (*Montreal Medical Journal.* Vol. xxx., No. 3.)

The patient was but seven weeks old and had a right scrotal hernia. Two days before consultation he began to vomit, which symptom, with constipation, had persisted during the forty-eight hours. The hernia had apparently become strangulated.

Under chloroform narcosis the taxis was applied and failed. The hernia was then laid open and the escape of pus led to the belief that gangrene and perforation of the gut had occurred. The incision was prolonged, revealing strangulation of the cecum and appendix with gangrene and perforation of the latter. The appendix was ligated off and the strangulated cecum released and disinfected. The abdominal ring was now incised and the intestine found to be everywhere intact. After the viscera had all been replaced, the ring was restored and the funicular process sutured with buried catgut. The convales-

cence was uneventful. It was impossible to determine whether the appendix had become inflamed and gangrenous before or after the strangulation.

Nicoll, J. H. : Two Cases of Cranial Depression in Infants Treated by Operation. (*Glasgow Medical Journal.* Vol. lv., No. 2.)

The first child was seen when two weeks old. The depression was congenital, the labor having been characterized by dystocia due to contracted pelvis, terminated by a difficult forceps extraction. At the time of the application of the (axis-traction) forceps, the head was firmly impacted at the pelvic brim, with the left frontal region indented by the sacral promontory. The form of trauma produced was the so-called spoon-shaped depression. As these lesions often disappear spontaneously, the case was treated expectantly for about two months. No improvement having resulted by that time (child now ten weeks old) the depressed bone was elevated, but could not be kept in place and was thereupon extirpated. The wound healed by first intention, and a large gap remained in the skull through which cerebral pulsation could be felt. The trephine-opening appeared to be closing slowly through the formation of spicules of bone at its margin.

The second case of depression occurred in a young baby, but was not an example of birth-traumatism, having been due to a fall. The course and treatment were identical with the preceding case, although the trephine-opening closed rapidly by bone-reproduction.

Gluck, H. : Acute Osteomyelitis in Childhood. (*Die med. Woche.* No. 14, 1901.)

The author reports his observations on 67 cases of acute osteomyelitis in children. The localization was as follows: Femur, 22; tibia, 18; humerus, 10; superior maxilla, 4; inferior maxilla, 3; osilei, 2; radius, 2; ossa tarsi, 2; fibula, 1; phalanges, 1; clavicle, 1; vertebral column, 1. The frequency of occurrence bears a direct relation to the coefficient of growth of the bones affected. Boys are more frequently attacked than girls. Osteomyelitis is just as rare after fifteen years of age as it is common before this period. The mortality under five years was 57 per cent., over five, 16.3 per cent.

HYGIENE AND THERAPEUTICS.

Petrone, Giuseppe Antonio: Principal Questions in Regard to Artificial Lactation. (*La Pediatria.* Anno ix., No. 3.)

The author concludes his study by stating that we have not as yet succeeded in devising a substitute for mother's milk. All products intended to replace the latter are digested slowly and with difficulty by infants in the first months of life, and remain for a long period in the alimentary canal, in which locality they are exposed to putrefaction and may give rise to an intoxication of the organism. The nutritive disturbances from which hand-fed nurslings suffer are due, in his opinion, to intoxication of this character. Sterilization probably destroys the nutritive ferments in animal milk—at least, many authorities so believe, although the demonstration is still wanting.

Crandall, Floyd M.: Practical Food Prescribing. (*The Medical News.* No. 1478.)

He emphasizes the following facts: There is no standard for breast-milk, but there is, of course, an average of percentages, viz.: Fat, 4; sugar, 7; proteid, 1.5. All infant foods are defective in some essential element, and most of them lack fat; they are derived from vegetable, not animal sources. Prolonged use of dilute condensed milk, which is deficient in both fats and proteids, always produces rickets. If we concentrate condensed milk, the child gets too much sugar, and its stomach is upset. There is nothing as good as cow's milk; and a good measure of its cleanliness, bacteriologically speaking, is its reaction. The less acidity, the better the milk. The so-called Ideal Milk Tester (Farrington's Alkaline Tablets), used by dairymen and physicians, enables us to estimate, rapidly and accurately, the degree of acidity of the milk.

Milk should be immediately bottled and cooled after milking as a precautionary measure against contamination. Under these circumstances the cream will rise within four hours. Sterilization is rarely necessary; but all milk suspected of uncleanness and all milk which cannot be cooled below 60°, should be pasteurized.

The theory of modification of cow's milk is extremely simple. We must reduce the proteid by diluting the milk; but

since the fat and sugar are likewise reduced by dilution, which is not desirable, they must be made good by addition.

Modification of milk for a given individual is always an experiment. We must begin with a weak mixture and increase the strength up to the point of tolerance. Many practitioners proceed in the opposite manner. The infant, however, should not be kept on a weak mixture, simply because it agrees. Few children under six months of age can take cow's milk of breast-milk strength.

Heubner, A.: The Treatment of Tuberculosis in Childhood. (*Die med. Woche.* No. 13.)

The author makes the following statements with reference to tuberculosis of children:

Tuberculosis of children is most successfully fought when it is glandular; with greater difficulty when the lungs are involved, and hopelessly combated with general infection. There is no specific remedy for children; neither tuberculin nor hetol are to be considered such. Tonic remedies improving the general health are alone of avail. There should be separate hospitals for tuberculous children. There should be convalescent homes for children that have just overcome some infectious disease, *e.g., scarlet fever, measles, etc., as during this period children are most susceptible to tuberculosis. These homes should be outside of the cities but connected with the various clinics.

Palm: Vaccination During Pregnancy—the Puerperium and of the New-born. (*Die med Woche.* No. 13. 1901.)

The author reports the results of vaccination in 92 cases of pregnant and recently delivered women and 70 new-born infants. No influence was observed on the course of pregnancy, the puerperium or the infants. With regard to the question as to whether successful vaccination of a mother during the last few weeks of pregnancy gave immunity to the child the following results were obtained: Of 43 children whose mothers had been vaccinated 115 to 6 days before delivery—37 were successfully vaccinated at the first trial, 5 at the second, and 1 at the fourth. A certain amount of diminution in the size of the pustule and some tardiness in its development was observed.

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Original Communications.

A STUDY OF 555 CASES OF SUMMER DIARRHEA AMONG THE OUT-PATIENT POOR.*

BY CHARLES GILMORE KERLEY, M.D.,

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The 555 cases of summer diarrhea were treated at the out-patient department of the Babies' Hospital during the months of June, July, August and September. They were all from one class of society, the tenement poor.

AGE OF PATIENTS.—75 were under three months of age; 87 between three and six months; 150 between six and twelve months; 187 between one and two years; 51 were over two years of age.

PREVIOUS DIET.—Of those under six months of age, 24, or 14½ per cent., were breast-fed; 15 between six and twelve months, or 10 per cent., were breast-fed.

The mother's statement that the child was nourished entirely at the breast without other feeding must be taken with some allowance, as there are very few tenement breast-fed infants who are not given milk, soups, tea, etc.

But 20 were fed the proprietary foods, which means that the expense of the proprietary foods fortunately prevents their use among the tenement population; 59 were fed on condensed milk; 1 was fed on goat's milk; 472 were fed on a cow's milk diet entire or in part. These figures again remind us of the necessity of placing good milk within the reach of the poor.

Six per cent. only of all the patients were nursed.

THE DURATION OF ILLNESS WHEN FIRST SEEN.—In 157 the illness was of twenty-four hours' duration when the case was first seen; 197 had been ill from two to five days; 76 had been

*Read before the American Pediatric Society, Niagara Falls, N. Y., May 27, 28, 29, 1901.

ill from five to ten days, 111 had had diarrhea for over ten days, 11 of which had been ill for two weeks.

SEVERITY OF ILLNESS.—All were brought for treatment because of diarrhea and they showed all the degrees of severity that this number and class of patients might be expected to present during the summer months. With some at the first visit there was simple so-called dyspeptic diarrhea, from six to ten passages daily, with moderate fever and slight prostration, others had been ill for several days with high fever, prostration and emaciation and were in a critical condition.

DURATION OF ILLNESS UNDER TREATMENT.—80 cases recovered in three days; 168 in from four to seven days; 79 in from seven to twelve days; 62 in from twelve to seventeen days; 11 recovered during the third week; 58 during the fourth and fifth week; 11 during the sixth and seventh week; 6 from the eighth to the tenth week; 15 from the third to the fifth month.

In 56 the treatment was not continued; some failed to return and could not be traced. In a few further treatment was refused because of the failure of the mother to comply with directions.

499 were treated to a conclusion of the illness; of these, 10 died, the death-rate being a little over 2 per cent.

Among the fatal cases 1 had been ill twenty-four hours when first seen; 1, forty-eight hours; 3, one week; 2, two weeks; 3, three weeks.

In Greater New York several thousand infants die every year from summer diarrhea. Our work, as carried on at the out-patient department of the Babies' Hospital, among the class in whom this large mortality occurs, proves that it is preventable and suggests a way for its relief.

In our management of summer diarrhea we have one invariable rule of treatment; *regardless* of the severity or duration of the illness, *regardless* of the diet, whether breast-fed or bottle-fed, whether the stools are frequent and watery, or infrequent and foul, we stop the milk at once. This is based upon the belief that in every case of summer diarrhea, no matter how mild, we have an infected gut, or soon will have it, and we wish to make the intestinal contents as poor a culture field as possible.

To the great mass of physicians it will always be impossible to differentiate bacteriologically the nature of the infection. Clini-

cally no one can differentiate with any degree of certainty. This has been impressed upon me by a considerable autopsy experience. At another institution I personally conducted 218 autopsies on children who died with summer diarrheas, and I have had the advantage of observing a great many other cases under treatment and later at the autopsy work of other physicians. Where we expected gross lesions we very often found them slight. In other cases which showed but little mucus during life and no blood, there were extensive ulcerations of the colon extending to the peritoneal coat. In a case which died last summer there was very high fever and intense prostration. A few yellow, well-digested, practically normal stools were passed twenty-four hours before death. Autopsy showed an extensive membranous colitis.

In the very acute cases in which death took place a few hours after the onset of the illness there was a pale, washed-out gut with perhaps slight enlargement of the lymph follicles. In spite of the uncertainties in diagnosis, we have profited by our experience. We have learned that every case of summer diarrhea must be looked upon as dangerous and treated vigorously whether the initial symptoms are mild or severe. *This we must teach.* A case of so-called dyspeptic diarrhea with milk feeding continued will soon become a virulent infection. I question if in the great majority of cases the streptococcus and colon bacillus play a very important part at the commencement of the illness. The average case is of gradual onset; we meet a few cases, however, in which the onset is sudden and severe.

We not only advise that the milk be discontinued, we command it, and if the order is not complied with further treatment is refused. To those of intelligence, among whom the American-born mother predominates, we explain why the milk should be discontinued for a few days. Our directions are almost always followed. The very ignorant, among whom the Italians, Russians, etc., figure largely, are given medicine and told that if the medicine and milk or any food except that which we advise, are given together they may kill the baby; the mothers give the medicine and feed the child according to our oral instructions which are supplemented by printed directions. No milk is allowed until the stools approximate the normal, which may mean an abstinence from forty-eight hours to five months; this was the longest time a child was kept on a non-milk diet. In three it could not be given for several

months. Fifty-seven suffered relapse upon resuming the milk diet.

If milk is discontinued a substitute must be offered. The milk substitute which we found most useful was a cereal water. As a rule barley water was used. When this did not answer rice water was given. Our directions were for Robinson's baked barley flour, two tablespoonfuls, water one pint. This is boiled for twenty minutes, strained and water added so that there is one pint when the cooking is completed.

Rice water is prepared by boiling two tablespoonfuls of rice in one pint of water for three hours, water being added as in preparing the barley, so that there will be one pint when the three hours' cooking is completed. With very few exceptions barley was the substitute selected. Additions in the form of liquid non-milk nourishment were added to change the taste and give the child a variation in the diet. A favorite mixture with us is four or five ounces of barley water and one or two ounces of broth—beef, mutton or chicken. Two teaspoonfuls of beef juice added to the cereal water often makes a suitable change. The taste of the substitute must vary or the child will soon tire of it. Broths must not be added in too large amount as in some a decidedly laxative effect will result. I usually order two or three substitute preparations and alternate them.

Brandy and whiskey, so frequently added to substitutes, should not be given to a child with summer diarrhea. The dangers of stomach involvement and nephritis are great without our provoking them by the use of alcohol. The white of egg mixture I have used rather extensively and discarded for the reason that many children fail to digest it and passing unchanged into the intestine it can form as good a putrefactive culture medium as milk. I look upon the brandy and egg water mixture, so popular with many, as an atrocious milk substitute. The cereal decoctions plain and dextrinized answer my purposes very satisfactorily. In the use of the carbohydrates the nature of the intestinal contents is changed from one of putrefaction to fermentation which does not furnish a favorable soil for the growth of dangerous pathogenic organisms.

Dextrinized gruels have a useful field in the diets for summer diarrhea. It is impossible to give a stronger barley water than two even tablespoonfuls to a pint of water for any length of time; twice this amount may be taken if the cereal is dex-

trinized. Four even tablespoonfuls of barley flour to a pint of water give a food strength of approximately .14 fat, .6 proteid, and 4. soluble carbohydrates. Dextrinizing is of value in that a more concentrated nourishment may be given the patient.

Care must be observed that the cereal water is not at a higher temperature than 100° F. when the digestive agent is added; if such is the case the dextrinized gruel will have a taste not unlike that of malt, to which the child will object. The substitute diet is allowed to be given at two hour intervals if the child will take and retain it in quantity that he was accustomed to take of milk in health. Boiled water is given at any time.

The mother is told to keep the patient in the largest room in the apartment. If there is fever she is instructed to give cold water spongings for fifteen minutes several times a day.

How is the milk diet to be resumed? It must be given gradually at the onset. I begin by using from one to four drachms with each feeding of the barley water, making a slight increase every day or every other day if the condition of the stools allow. The cereal gruel used as a diluent *does not* permit of a larger amount of milk being given at the commencement of the milk feeding, neither does its use permit of a more rapid increase in the milk strength than if plain water is used. I have demonstrated this in a great many cases.

DRUGS.—Various drugs have been tried from time to time. The newer tannin preparations were used in about 50 cases. Eudoxin in 20. These drugs were used in selected cases after the initial dose of castor oil and while under diet, and were continued until our medical conscience would not allow a continuation of the treatment.

During my term of four years' residence service at the New York Infant Asylum, salol, resorcin and almost every known drug that seemed to warrant a trial was given under Dr. Holt's directions to a series of cases. The year that followed I had the privilege of attendance upon the Clinics of Ranke and Zeitz in Munich and of Monti and Wiedehoefer in Vienna, where many cases of diarrhea were treated daily. During the eight years that have intervened in private practice, at the New York Polyclinic and at the Babies' Hospital, many hundreds of cases of summer diarrhea have been conscientiously watched and followed day by day. I have learned that there are just

four drugs that may be relied upon to serve us in summer diarrhea. These are calomel, castor oil, bismuth and opium. Either calomel or castor oil were given in every case. In 26 they were the only medication.

Calomel is preferred in a case in which there is vomiting or a tendency thereto and when the case is not particularly urgent, 1-20 to 1-10 of a grain is usually prescribed at hour intervals.

Castor oil is given in the acute septic cases with infrequent stools and without stomach involvement, in which a prompt washing out of the small intestine is desired.

Bismuth subnitrate was given in 432 of the cases treated. It was never given in less than ten grains every one or two of the waking hours, regardless of the age of the patient. When given persistently in this large amount it is a remedy of immense value. In order to be of service, however, it must produce black stools. In other words if some of it is not converted into the sulphid of bismuth in the intestine it is without value. If it passes through the bowel unchanged no influence whatever will be exerted upon the intestinal contents. This happens in a small percentage of cases and is explained in the absence of sulphureted hydrogen in the intestine, which condition is due doubtless to the absence of pancreatic digestion. In such cases the sulphur is supplied in the use of precipitated sulphur, a one grain powder being given with each dose of the bismuth, the bismuth is continued in the large doses until the child is ready for milk and then the dosage is diminished one-half and continued until full milk feeding is possible.

OPIMUM.—The indications for the use of opium are pain, tenesmus and frequent stools. In a severe or even in an average case in which there is systemic poisoning evidenced by fever and considerable prostration, four or five passages a day are desirable. I look upon this number of stools as maintaining drainage. It was found necessary to use opium in connection with the bismuth in 200 of the cases. When the case is one of intestinal infection with infrequent foul stools or no stools at all, active laxatives comprise the only medication. Many children are brought to an untimely end because of the idea that the number of the discharges, that is, the diarrhea, must be stopped. The physician's efforts are directed to this end with little or no attention to the diet and the nature of the intestinal contents, the cause of all the trouble.

IRRIGATION OF THE COLON.—As is the case with all good measures, irrigation of the colon has been overdone. Because a baby has diarrhea, it does not follow that he must be irrigated. A child who is having from ten to twenty loose, watery discharges in twenty-four hours is quite effectively washed out and does not require more. Time and again I have irrigated these cases and removed nothing whatever. The cases which are benefited by the washing are those who have a moderate number of green mucus stools with or without blood; in short, the cases to be washed out are those which have something to be removed. I never wash the colon oftener than once in eight hours, rarely as often as this; once in twelve hours accomplishes considerable and does no harm. Too frequent irrigation causes straining, distension of the lower bowel, fissures of the rectum, and, if not very carefully done, injury to the mucous membrane of the descending colon. Various solutions have been used for the irrigation. One is as good as the other if water enough is used, for it is the cleansing of the bowel which benefits the patient. I usually employ a normal salt solution. In case there is blood, a 1 per cent. solution of tannic acid is used. I question, however, if it is of any more value than normal salt solution. The solution selected is used lukewarm. If there is high fever I use it as cold as 60° or 70° F.; in the very weak, with subnormal temperature, with marked prostration, the solution is used at 110° F. Irrigation is carried on as follows: A soft-rubber catheter, no. 14 English, is attached to a fountain syringe, the bag of which should be held three or four feet above the patient's body. The child must lie on the back or left side, with legs well drawn up. The tip of the well-oiled catheter is passed into the rectum. When an introduction of two inches has been effected, allow the water to pass in slowly. The water will distend the parts and facilitate the further introduction of the tube. Press the folds of the buttocks together until the colon is filled. This in a child eighteen months of age will require twenty-four to thirty ounces of water. When this or a lesser amount, at least one pint, has passed in, allow the solution to run in and out at the same time.

The medical management of these cases of summer diarrhea among the tenement poor is important; but what is equally important, and to which in a great measure our success is due, rests in the education of the mother. What these mothers

fail in chiefly is cleanliness, and they are careless in caring for the food. They have no sense of appreciation of careful detail. It is manifestly desirable that the best milk within their means be given the child, and they are told where to obtain it; but an absolutely pure milk if kept uncooked, exposed in an open vessel in a very indifferent and dirty ice box at a temperature of 60° F. or over, would become contaminated at once.

In order to prevent diarrheal disease in summer the child should be fed properly all the year round. The death rate from this cause in June and early July is almost as large as in August; this is because the susceptible, the badly fed, those with chronic digestive disorders fall easy victims at the commencement of the heated term. The poor mothers are very much interested in their children, and when they make mistakes they are errors of ignorance, not of intent. If cow's milk is used they are told to boil it as soon as received, dilute it with a cereal water and keep it on ice.

They are also instructed in the care of the bottle and nipple. In case a special article of diet is to be given they are told how to prepare it; written directions are given covering these points. Nothing is left to the memory. The mother is told further that she must wash her hands with soap and hot water before touching the baby's food for any purpose, and that there must be a vessel half full of water into which the soiled napkins are placed until washed. With the first sign of intestinal derangement, whether in winter or summer, they are taught to stop milk at once, give a cereal water, a dose of castor oil, *and they do it.*

At the out-patient service we have many evidences of the benefits of teaching the mother. Many of them have been coming to us for years with the babies as they appear. Not infrequently the mother brings the child with a story of a sharp attack of diarrhea, a dose of castor oil, milk discontinued, barley water given, and the child on the road to recovery. Observing the good results of the suggestions, she goes about doing missionary work and tells her neighbors.

Our work, while covering a comparatively small field, shows that the large mortality of summer diarrheas in our large cities is preventable. The prevention rests with the people—the municipal government. If one-hundredth part of the expense and energy exerted by the rival political parties in New York City

in a single campaign were devoted to the interests of the sick infant poor, how different would be my story. These infants cannot be moved to the country except in a ridiculously small number; they must live or die in their tenement homes. Hospitals cannot care for them, and but little advantage could be gained if this were possible. In summer diarrhea there must be isolation, not aggregation. I can treat with infinitely better success one hundred cases of summer diarrhea in the average tenement with the average well-meaning tenement mother than in the best equipped hospital with expert nursing and feeding. In the home the dangers of reinfection are slight. In the hospital, with the nurse going from patient to patient, she carries the infection from the virulent case to the susceptible, mild case and reinfects the convalescent.

The large summer mortality from intestinal disorders is not due to the tenement or directly to the hot weather, but to the absence of a little knowledge and the complete inadequacy of facilities which exists there during the hot months. In short there is a total inability to meet the changed conditions brought about by the hot weather. Dispensaries do excellent work in this respect, considering their inadequate appointments, cramped in space and a complete absence of trained paid assistants. If the recently graduated dispensary assistant were paid a small salary much better work could be commanded and obtained.

The municipality should establish milk laboratories and stations, one for a certain number of the poor population, where sterilized milk and cereal gruels and animal broths could be furnished free every month of the year to those who could not pay, and at a small cost to others. There should be at least one salaried physician and visiting nurse who could advise and teach mothers in the infant's care and feeding and furnish literature bearing upon the matter in the native language of the mother. An ice station should be connected with every laboratory and ice supplied free or at a small cost. If good food were provided for the well, and the mothers instructed what to do when the first sign of gastrointestinal disorders appear, the deaths from summer diarrhea would be reduced to a comparatively small number.

The above proposition at this time may sound utopian, but in the future when man in the process of evolution is still further removed from his aboriginal ancestor who held life

very cheap, his estimate of the value of this human life will have changed and there will be free milk laboratories and free ice stations, properly conducted by an unselfish municipal government supported by a human people.

I am indebted to Dr. W. B. Hoag and Dr. John F. Connors for their valuable aid in carrying on the work at the out-patient department of the Babies' Hospital.

113 WEST EIGHTY-THIRD STREET.

DISCUSSION.

DR. CROZER GRIFFITH.—I have very few criticisms to make on this valuable paper, which expresses nearly my own views; and I have had an experience of thirteen or fourteen years of treating these diarrheal diseases in the out-patient department of the Children's Hospital, of Philadelphia. I remember a number of years ago making a series of experiments by treating these cases with different drugs and diets, selecting cases as nearly similar as possible, and giving one bismuth, another a tannic acid preparation, another opiates, and another only starvation for twenty-four hours. It was interesting to see that nothing was accomplished in any group unless the children were taken off of milk diet. It was also seen that it was absolutely necessary to use opiates in some cases. The feeling against opiates existing a few years ago was a mistaken one, and I believe we all recognize now that there are cases where the active peristalsis is the threatening factor, and that this must be stopped promptly. This does not, of course, for a moment mean that opium should be used in the majority of cases, for it is capable of doing great harm. So, too, in regard to irrigation, it is often over-done; and oftentimes I have seen a diarrhea cease after irrigation was stopped. I have entirely abandoned all astringent irrigating fluids, and now use nothing but salt solution or starch water.

I cannot agree, however, with the author in his condemnation of alcohol and of egg water. Each of these I regard as of the greatest service, and I would not like to be without them.

DR. KOPLIK.—I agree in the main with what the author of the paper has said, but I am surprised that he should abandon albumen water which I have found one of the most useful adjuncts during the first few days. I do not find that it is not digested. The principal trouble seems to me to be that the mother does not consider it nourishing enough. Last summer I made an attempt to use dextrinized gruels and found that they were not indicated until after vomiting had ceased. As to opium, it is perhaps strange, but I very rarely use it, but by this I do not mean to infer that it should never be given.

The important point in regard to irrigation is that it should not be done too often and in the very severe cases I have rarely found it necessary to irrigate more than twice in the twenty-four hours. The point was made by the author that in the simple green movements irrigation was most useful and that in the severer cases he did not succeed in washing away very much. My object in resorting to irrigation is to cleanse the lower part of the bowel, of course, and also by using hot salt solution to stimulate the baby. In collapse irrigation is indicated. As for the public laboratories, we have them in New York, but they are not under proper control. In my dispensary we have the ideal system outlined by the author. The doctor sees the baby first, treats the acute illness and then sends the baby to another room at the proper time for the food according to its needs. Milk laboratories are a source of harm when not under the control of the physician.

DR. BUCKINGHAM.—There are a certain number of things in this paper that I should not agree with but I do not want to inflict my ideas of infant feeding on this Society. In irrigation the only good you are going to accomplish is the mechanical cleansing except where you desire absorption of salt solution as referred to by the previous speaker. It seems to me that as I have seen irrigation done a number of times it has been made unnecessarily rough by the use of a long tube, and I believe the results will be just as good if you use the ordinary syringe tip about an inch and a half long.

I do not think that milk laboratories should be under municipal control.

I cannot agree with the reader that brandy should never be given to infants with summer diarrhea and I would like to ask his reasons for that broad statement.

DR. HOLT.—There is just one other point that should have a little more stress upon it than has been given and that is that these children need rest, and I think it is a very important point that we should not order too many things to be done for them. I had a striking illustration a few weeks ago of how much harm can be done by persistent irrigation. I saw a baby in consultation, where two irrigations a day had been used for nearly seven months, first using salt solution and later tannic acid. This was done because of the persistent discharge of mucus from the colon. The pathological condition seemed clearly due to the treatment employed. The younger men have been taught that the presence of mucus in the colon in large quantities is an indication for irrigation and when the discharge continues they naturally think they have not done the washing with sufficient thoroughness. I believe thoroughly in irrigation, but the time that it does most good is at the outset, when the intestine is filled with decomposing food and mucus.

After thoroughly cleansing, irrigation should only be done to meet special indications.

I would like to add one more drug to the author's four and that is magnesia. Last year we treated in the Foundling Hospital a large series of cases with sulphate of magnesia as the initial cathartic, and in many cases it has certainly advantages over either calomel or castor oil. We gave ten or fifteen grains every half hour until clear watery stools appeared; generally it was necessary to give about two drachms.

DR. NORTHRUP.—If I had the chance to check off the many good points made by the author in his excellent paper I should check off the calomel followed by castor oil, for I have come to think that we should follow the calomel with castor oil, and I do not know of anything that cures so many patients for me as castor oil. I begin to think that if you should label it with some long name ending in "in" it would cure almost anything. Calomel plus castor oil, gum arabic water, starvation diet, rest and plenty of water are the points I would specially emphasize.

DR. CHAPIN.—I want to speak of one point in the technique of irrigation. I believe one trouble is found in the careless passing of the rectal tube. I have repeatedly seen the tube passed so that it simply bent on itself and a certain amount of water inserted which simply ballooned out the rectum and never passed the sigmoid flexure at all. In many cases I believe the best results may be secured by using a small tube, raising the child's buttocks and simply letting the water flow in slowly. Those who are not expert in the manipulation may do more harm than good in the attempt to introduce a tube into the child's bowel.

DR. FREEMAN.—I think there is one limit to be remembered in these cases as to the use of gruel. The weight of the children should be carefully watched and if they are losing rapidly and the discharges simply stain the diapers slightly, some more nourishing food should be given.

As to the administration of bismuth, a distinction should be made between its use in hospital and private practice, for it appears to do more good in private than in hospital patients. In the New York Foundling Hospital it has been used but apparently without doing any good. In private practice it is undoubtedly a very valuable drug.

DR. WINTERS.—I think we have had presented one of the most important and valuable papers that has been brought before this Society for many years. The discontinuance of milk at once should be recognized as of the greatest importance in these cases. As to the long discontinuance of milk and the substitution of cereals I am in some doubt. Some gentleman has said that if cereals are not good for well babies how can

they be good for sick ones. I went through this period of the use of various cereal preparations at the dispensary with the entire exclusion of everything else. I am not prepared to say that the results with cereals are entirely satisfactory either alone or in combination for any long continued service. I believe the milk should be stopped for at least twenty-four hours.

The drug treatment as laid down in this paper is perfect. I believe too that alcohol should never be used in these cases, if you must have a stimulant, very hot water is the best you can get. I give it so hot that it has to be used in drop doses and it should be given every fifteen minutes or so until these babies have taken as much as they can assimilate. I believe in the clearing out with calomel and oil. In some cases I give one first and in some the other. In regard to opium I find it a necessary adjunct in a limited number of cases. Irrigation has its place although it has been used to excess and a great deal of harm done thereby.

After having reached a period where you have quieted the local disturbance it seems to me that a weak milk solution, 1 or 2 per cent. of fat and .25 of proteids with 7 per cent. of sugar will do more good than cereals. Gradually it may be strengthened.

DR. ADAMS.—Unless the dispensaries are differently conducted in the large cities from what they are in the smaller ones the deductions must be different. I have been in the dispensary and hospital service, in Washington, for many years, and I have not been able to draw any such favorable deductions in diarrheal diseases from my service. It seems singular to me that in a city with a large foreign population where prejudice and superstitions are much greater than in the more American population of the smaller cities, that you can have your directions carried out so much better in the former than in the latter. I have very little confidence in the average dispensary patient carrying out directions after she passes from the observation of the physician. These people are so influenced by friends and environments that though their intentions be good you do not know what is being done after they pass from your supervision.

One of the greatest features of this paper is the effort to impress upon the general physician the importance of not putting anything into the gastroenteric tract that cannot be digested. Now that is a difficult proposition. The average man will not believe that you can keep a child alive without milk. He will ask, "What is it going to live on if you do not give it milk, that is its natural food and it must have it."

Dr. Holt struck the keynote about irrigation. Many children are benefited by it, but more are harmed, and I frequently see cases in which harm has resulted. I indorse the method referred to by Dr. Chapin. The President saw a baby

with me this year who was practically kept alive for ten days by normal salt solution administered in this way.

As far as bismuth is concerned I have used it a great deal in past years, and at autopsies I have seen the intestinal tract coated from the pyloric orifice to the anus, and yet the diarrheal process had kept up. I have almost ceased to use it and now depend upon stopping the milk promptly and letting the case alone to rest for a while. I do believe in the cereals and often get good results with them. As soon as we see that the stomach is able to digest albumen we should begin the administration of diluted milk.

DR. COTTON.—It seems to me that we ought to make the matter quite clear when we refer to rectal irrigation. Many physicians will read this discussion with some doubt as to its meaning. One authority recommends it in his text book and then expresses doubt as to its being used too freely. It seems to me it should be stated that rectal irrigation will serve different purposes under different conditions and that its use or discontinuance should depend upon certain cardinal indications. I do not believe there is any doubt in the mind of any member of this Society as to what he uses it for. It may be given at first to cleanse the colon and again to stimulate peristalsis of the small intestine to bring down into the colon the decomposing material and when that is accomplished we have done all that we can with rectal irrigation for a time. There is another rectal irrigation that means something entirely different. The moribund child with a weak heart needs irrigation in order to fill the vessels with fluid, and normal salt solution injected into the colon will stimulate such a heart. I believe of all these the most valuable is the first washing out of the large intestine.

As to feeding, I want to ask, what is the matter with egg? Is there anything about it that is contra-indicated except the bad odor of the stools?

DR. MORSE.—I agree in almost every particular with the author's most admirable paper. I cannot agree with him as regards egg-albumen, however, as I have found it a very valuable substitute for milk in the first few days. As to the use of stimulants, I do not believe in them as a part of the direct treatment of summer diarrheas, but I do believe in them for the treatment of sick children. I feel certain that children sick with diarrhea often get into a condition where stimulation is necessary, regardless of the cause of the weakness. I also feel sure that it does no harm in these cases but much good.

DR. DORNING.—I would like to emphasize a point to which casual allusion has been made, namely the value of fresh air in the management of these cases of summer diarrhea. Before we knew very much about intestinal antisepsis we used to send

these cases to the seashore or to the mountains and many of them recovered without very much medication. I have myself repeatedly observed a marked improvement in the child's condition before it had gone more than twenty miles from the city on a river steamer.

Rest is an important factor in the treatment of these cases and that implies judicious, but not too frequent, irrigation of the bowel and not too much medication. Some caution should be observed in the use of beef juice. I have seen several cases suffer a severe relapse after the administration of beef juice. It is well to remember that tainted meat may give rise to severe ptomain poisoning. To avoid such a complication, when ordering meat juice, I have the outside portion of the meat cut away and use only the inner part in obtaining the juice.

Two cases have come under my observation in which symptoms of arsenical poisoning developed during the administration of large doses of bismuth subnitrate. The possibility of such an accident would suggest the advisability of endeavoring to obtain this drug pure when prescribing large doses.

DR. ROTCH.—Will the author of the paper please tell us why he objects so strongly to the use of alcohol in these cases?

DR. KERLEY.—I do not use alcohol because of its tendency to produce or increase vomiting and because it is apt to be given in much larger quantities than was intended when prescribed. In many of these cases nephritis exists as a complication or sequela and I have thought that the tendency to nephritis was greater in the cases where alcohol had been used.

DR. ROTCH.—May I inquire why Dr. Kerley gives barley water in the first few days?

DR. KERLEY.—Because the patients keep it down and live on it.

DR. ROTCH.—There are many questions which ought to be settled before entering upon the discussion of summer diarrhea, and in the first place we should definitely agree as to what we mean by the term. In different parts of the country the term is used for different forms of intestinal disturbances, and I thought we had decided some years ago to drop the term when we adopted the new nomenclature and spoke definitely of cholera infantum, fermental diarrhea and ileocolitis. Whether those who use the term summer diarrhea mean it to describe an ileocolitis or something else, it is impossible to say, and hence when they speak of treatment it is difficult to say whether or not they are right. What I suppose they mean to discuss are the fermental diarrheas, since this class forms a large majority of the cases occurring in summer and presenting no organic lesion. If, on the contrary, it is ileocolitis they mean, then we are dealing with an organic disease which requires a differ-

ent form of treatment. Unless we say exactly what we mean by the term it is impossible to discuss the subject fairly.

There is no question but that in the out-patient department of the hospitals you cannot judge by numbers but by the thorough way in which the cases are examined. In an out-patient clinic you can only get through with a certain number of cases in a morning, and whether the deductions be made from one city or another makes no difference, we should judge from the individual cases. It is impossible to make proper deductions from the out-patient clinics as they are carried on at present with the feeding left in the hands of the mother at home. Until the feeding of the children can be placed on the same plane as the prescribing of drugs through the medium of the apothecary you cannot arrive at fair conclusions. This continually saying that you must make your deductions from your poor patients is a fallacy. You should start at the other end and finding out what is the best thing to do for a certain form of disease, carry it out as far as possible among the poor. To say that the mother will not give a drug and that therefore you do not order it does not make a profitable, general deduction. We have laboratories established in Boston and a fund for conducting them is placed in the hands of one man who supervises the conduct of all the dispensaries, and this fund is used for treating the diarrheal cases. In this way there is uniformity in the treatment and several hundred babies are under treatment at one time. We should thus try to treat the poor just exactly as we treat the rich and then we can make our deductions from the entire class.

Now it so happens that with this exact and systematized treatment my deductions are decidedly different from those made by some of the observers who have just spoken. In the first place, the author tells us to give barley water in these fermental diarrheas. Why? Because it is kept down better than anything else and is nourishing. It contains starch, and if you give much of that it will not be kept down. If the amount of starch given is small, the amount suggested, such as 1 per cent., it cannot be given with the idea of nourishment. Instead of giving starch in the form of barley water, why give anything at all. In the first twenty-four hours the digestive tract is not in a condition to absorb anything and the tissues, unless the case is one of cholera infantum, are not crying out for fluid at this time; they ought to be let alone. Simple, sterilized, distilled water in the first twenty-four hours is all that is necessary to allay the craving the infant has during the early hours of the disease. Why alcohol should not be given I cannot understand. These infants have nothing the matter with their kidneys during the first twenty-four hours of a diarrheal attack, and that is the time when a stimulant is often needed and it is also the time when you wish to tide the baby over this brief period until something can be absorbed in the way of nourishment. It may cause vomiting in

some cases, it does not in the majority. If the baby is in a state of collapse I should give it brandy even if it had something the matter with its kidneys.

I think this paper is a most admirable one for the purpose for which it was written. It covers the ground thoroughly and it is well to lay down just such rules as the author has done, but I do not believe his is the best way to treat fermental diarrheas.

In regard to the precision that can be obtained I think there are very few men who really appreciate how much can be done by knowing what are the constituents of the foods they are using. For instance, albumen water may do good but as a rule it is given in entirely too high a percentage. This difficulty can be obviated by ordering at the milk laboratories exactly the percentages of milk proteids which you require, for by some recently made observations at the Boston Laboratory it is now possible to have a fat free, a sugar free or a proteid free milk either alone or a combination of any one or two of these elements. Surely it is better to thus use milk put up in a clean, scientific and practical way with just the constituents we desire, than to continue to give albumen in the form of white of egg even though it may be, as is thought by some to be, a better form of albumen than that obtained from the proteids of cow's milk.

The giving of drugs, as a rule, is I think a great mistake. There is entirely too much calomel given in these diarrheal cases, and at times it is far from effective and often has to be supplemented by a saline. The treatment by irrigation is valuable in the beginning and at times during the course of the disease. Dr. Chapin's remark about the way to irrigate is very important and I think that the physician should at first do the irrigating himself and not leave it to the nurse.

DR. WINTERS.—I would like to ask the reader of the paper if he did not find it perfectly feasible to have his instructions to these mothers carried out absolutely.

DR. KERLEY.—Yes, I did.

DR. WINTERS.—That has been my experience. I have worked with these tenement house babies for many years and in my experience the mothers do absolutely as they are told and the instructions are carried out as accurately as they could be in the hospital. The results of the treatment of summer diarrhea, and I think it is a good term, at our dispensary are far more satisfactory than in the hospital. These babies cannot be congregated in any hospital without danger because summer diarrhea is a contagious disease. I believe that Dr. Rotch is right in regard to the nutritive value of barley water, but I do believe he is wrong in his description and nomenclature of summer diarrhea.

DR. ROTCH.—I would like to ask Dr. Winters his definition of the term summer diarrhea—what is the pathology of it?

DR. WINTERS.—I don't know that I exactly understand it, but I fail to comprehend the nomenclature that was recommended by this Society some years ago.

DR. ROTCH.—The nomenclature, instead of using the indefinite term summer diarrhea, mentions three distinct and well-known diseases: cholera infantum, fermental diarrhea and ileocolitis. Each has its own pathology, and each should be treated according to that pathology. It seems most extraordinary to me that the poor tenement people in New York can be so absolutely trusted to modify milk when they cannot anywhere else. They cannot be trusted to follow directions in Boston, Philadelphia or Chicago. I visited these people in one of New York's large out-patient clinics. I was much impressed with the belief that they could not be trusted to do fine work in modifying, and certainly not clean work. Nowhere in the world can ignorance and filth compete with intelligence and cleanliness, and yet this is what is upheld when you compare the work of the tenement house mothers with that of the milk laboratories.

DR. WINTERS.—These cases begin often as a digestive disturbance, and it is far better to describe them so than to refer to them as functional disturbances. There is no satisfactory classification at present to apply to them.

DR. ROTCH.—Do you mean that there is or is not a lesion?

DR. WINTERS.—In many cases I do not think you can determine at the time, and I do not believe the study of the pathologic lesion would aid us very much either in classification or treatment.

DR. ROTCH.—On the contrary it is this very study which we should continue as we would the pathological conditions in any disease. We must recognize that the summer diarrheas include a number of diseases differing pathologically and in their symptoms also, that this being the case the treatment differs decidedly. Even if we cannot always distinguish clinically one disease from another that is no reason why we should not acknowledge that this is due to our own ignorance and does not in any way prove that we should treat them all alike. In most cases cholera infantum can be distinguished from ileocolitis, and again either of these diseases from the fermental diarrheas; each of these diseases has its own definite treatment.

DR. WENTWORTH.—I should like to call attention to the lack of correlation of the symptoms to the pathological lesions in cases of diarrhea in infants. Dr. Booker's work has shown that in cases of summer diarrhea lesions are always present in

the intestines, although in many cases the intestines may appear to be normal macroscopically. Oftentimes very marked lesions are found in the intestines at autopsy in cases in which the clinical symptoms were scarcely noticeable. On the other hand very severe diarrheas may be associated with slight lesions in the intestines. The practical application of this is that a nomenclature applied to lesions in various parts of the intestinal tract in cases of summer diarrhea can only have a pathological interest because the diagnosis cannot be made clinically.

DR. SAUNDERS.—This exceedingly valuable paper speaks of what can be done in a large out-patient clinic. The classification will not be a guide to us either in private practice nor in the dispensary. As to the use of alcohol, the theoretical objection that it might produce or increase a nephritis should not deter us from using it. I have always used brandy or wine and I find the latter very useful and often accepted better than the former. I was surprised to hear distilled water recommended for I thought sterilized water was better for the system, because distilled water is a stranger to the tissues of the human body. The English writers mention the use of tea very frequently and I have found that it is an excellent stimulant and that the children become very fond of it. I would like to ask the author if he uses sugar in his cereal mixtures.

DR. KERLEY.—I do.

DR. SAUNDERS.—I have seen babies fed on cereals without sugar have a continuous subnormal temperature and I think the importance of giving sugar should be emphasized. The French writers are in favor of abstaining from any food whatever for the first twenty-four or thirty-six hours and I believe that in most cases that is the best treatment. As to the use of white of egg, I think we must consider the age of the patient, as babies under two or three months will not digest it. Two remedies that I consider important have not been mentioned, one is atropin which may be used to check the secretions in choleraic attacks and the other is chloral which is extremely valuable in securing rest for the patient.

DR. WILLIAMS.—There is one point which should be brought out in this connection concerning the difference in milk supplies. In Boston the milk is handled in such a manner that it is very old before it reaches the poorer people. I understand that is not the case in New York and it may explain some of the differences between the New York and Boston men.

DR. TOWNSEND.—I want to speak a word for the poor women of Boston. I have had excellent results in my work among them and have been able to get them to carry out my instructions.

DR. ROTCH.—Dr. Townsend will have still better results when he avails these poor women of the advantage of having

good fresh milk prepared at the laboratory through the summer milk fund. In regard to the objection to distilled water I think we have still a great deal to learn about it and why so many have spoken against its use in the past I do not know. I think I have been misunderstood. I should say that my experience has not only been in the hospital wards but with the poor people in their own homes, and that our summer milk fund especially provides for this class of diarrheas which having now for some years been treated by milk modifications from the milk laboratory enables us to judge regarding our results in the best and most exact way. On the other hand the deductions of those physicians who have treated their tenement house diarrheal cases with city milk modified by the mother's have no exact knowledge as to the percentages and the amount of dirt and bacteria which are influencing their results.

DR. KERLEY.—My article refers entirely to the 555 cases among the out-patient poor. If the patients had been differently situated perhaps we might have treated them differently, but we could not have had better results.

I do not give alcohol to these cases because it makes the child vomit or increases the tendency thereto; a great many develop nephritis, which is to my mind a marked contraindication to alcohol. Further, I look upon it as unwise to prescribe alcohol unless there is positive indication for it and then only when we cannot find a substitute which will do as well. Indiscriminate alcohol giving to children is widely practiced already and should not be encouraged by us. Nitroglycerin, strophanthus and other well known drugs answer as well when a heart stimulant is necessary.

In regard to the long continued use of cereal water, this is not done without making attempts at milk giving. The particular child referred to as not having taken milk for five months it was because milk did not agree and not because it was not tried repeatedly. This child was given scraped beef in connection with the cereal water, five or six teaspoonfuls a day. I have discontinued the use of the egg water chiefly because I find that I can get along better without it. The stomach in many of these cases is incapacitated for digesting it and it passes unchanged into the intestine and furnishes as favorable a putrefactive culture medium as milk. It is not the question of odor. Children fed on egg water require a longer time to get well, run a higher fever and altogether have a more serious illness than those in whom it is not used. Occasionally when a child tires of the cereal water a weak egg mixture may be given once or twice a day and may be taken care of.

Why give any food at all early in the attack? If I were to tell one of the out-patient mothers to go home and give the child no food, she may obey for a few hours and then she will

give milk or anything that she pleases; the child must be given something which the mother will look upon as nourishment. At first I begin with a very weak barley water mixture, one teaspoonful to the pint; this is increased as conditions allow. I agree with Dr. Dorning that beef juices and the broths have to be given cautiously. In some babies these substitutes have a decided laxative effect, which I referred to in the paper. They always should be given in small amount, one or two teaspoonfuls of beef juice to five or six ounces of barley water; one-half to one ounce of broth to five or six ounces of barley water. They serve to change the taste and add to the nutrition of the substitute. A few children will not tolerate the smallest quantity of broth or beef juice.

The term "summer diarrhea," I use advisedly, as I know of no better for the condition. Surprises at the autopsy on infants dying from summer diarrhea never cease, and those who have done even a moderate amount of this work will agree with me most heartily in this statement. No man can look upon a clinical picture of a case of this illness and state the nature and extent of the lesion in the gut. It is just as impossible to do this as it is for us to state the sex of an unborn child. What Dr. Rotch refers to is a pathological classification, and can only be made at the autopsy.

One of the speakers has not had particularly good success in handling the dispensary mother. With us the case is different. By careful attention to the case, by careful questioning and recording the child's condition, by weighing and examining the child thoroughly we make it plain to the mother that we are interested in the child and thus gain her confidence and then she will follow our directions most implicitly. At too many out-patient services proper attention is not given to patients. They are treated in a careless and indifferent manner and we have indifferent and poor results. We do not allow the mothers to pass from under observation. If the child is too ill to be brought to the institution, some one of the staff of the out-patient service sees the child at its home and we teach the mother what to do and how to do it.

Bismuth has been given very severe tests and has not been found wanting. Not every case was treated with bismuth from the onset. Some were dieted and given no drugs at all; others were dieted and given calomel and castor oil for a time, and then various drugs, which have been advocated as useful, were brought into use. Among the large number of preparations used Squibb's subnitrate of bismuth, with or without the assistance of opium, was the only one that gave us satisfactory results.

The point that I particularly wished to emphasize in the paper was the necessity of cutting off milk with the first signs of illness, no matter how mild, and not resuming it until

the stools were fairly normal. The practitioner may select his own substitute, but should not give milk.

DR. ADAMS.—Do you mean to say that you supplement your dispensary work by following these patients to their homes?

DR. KERLEY.—Yes; in every severe case I either go myself or send an assistant.

The Toxicity of the Cerebrospinal Fluid in Epileptics.—

Romano Pellegrini (*Riforma Medica*, June 3 and 4, 1901) reports a study of 7 cases of epilepsy in which lumbar puncture according to Quincke was performed, showing that: (1) The cerebrospinal fluid of epileptics was endowed with very marked toxic properties; (2) if injected into the guinea pigs this fluid produced grave convulsive phenomena, bringing about ultimately the so-called epileptic state; it had, therefore, a convulsive action; (3) the cerebrospinal fluid which was removed from epileptics soon or immediately after an attack had far greater toxic and convulsive effect than that removed from the same patients between the attacks; (4) the administration of the so-called antiepileptic or anticonvulsive (antispasmodic) remedies had no influence upon the toxicity or the convulsive action of this fluid; (5) tubes of gelatin broth, inoculated with cephalohachidian fluid from epileptics, remained sterile upon cultivation. The lumbar puncture did not produce any clinical alteration in the course of the disease, and had, therefore, no curative value in epilepsy.—*New York Medical Journal*, July 13, 1901.

CASE OF ARTERIOSCLEROSIS.*

BY ALLEN BAINES, M.D., C.M.,

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The rarity of this condition in early life causes me to bring this case before the Society and to report it as fully as I possibly can get data. I can find only the cases published by Holt, which are but seven in number, and the report of Brill and Libman † which makes me feel that the addition of this one with specimens and slides will be of interest to the fellows.

In none of the cases which I have read, can I find that the sclerotic condition existed so generally as in this, it being found that only certain vessels had undergone change whilst in my case, with the exception of the cerebral vessels, everywhere in the body the change was found to have taken place. During life in tracing the various superficial arteries, all gave the pipe stem touch and resistance which one generally associates with the calcareous condition of vessels frequently found in old age, and this will be seen to be verified from the specimens.

The etiology of the subject I do not purpose touching on, it is fairly well known and agreed upon, syphilis being probably the most frequent cause of its production amongst the young. Heredity, nephritis, scarlet fever, diphtheria, rheumatism, gout, alcoholic and lead poisoning being the chief factors other than syphilis.

Willie F., aged ten years and six months, born in Toronto, admitted to the Sick Children's Hospital, December 10, 1900.

FAMILY HISTORY.—Father living, healthy mechanic, always strong and healthy, says was never ill, absolutely denies ever having had any specific disease.

Mother, living and healthy; no illness beyond child bearing; no miscarriages, nor any manifestation of syphilis. Brothers, three, living and healthy. Sisters, two, living and healthy. No signs of vessel change in any of them, or any sign of hereditary syphilis or struma.

PAST HISTORY.—Had measles at seven years of age. For past two years had suffered from chorea, on and off; attacks

*Read before the American Pediatric Society, Niagara Falls, N. Y., May 27, 28, 29, 1901.

† *Journal of Experimental Medicine*, Vol. iv., Nos. 5 and 6.

lasting from two weeks to ten weeks. For several months he has suffered from nocturnal enuresis, always wetting his bed unless he got up to pass urine during the night. Drank water in large quantities, and if he should awake, would get up to take a couple of glasses of water. No history of scarlet fever nor diphtheria. Always been strong and healthy, capable of out-doing most boys of his age at running and games requiring physical activity and endurance. Could get no history of snuffles or rash, his mother reporting him, with the exception of the chorea, as particularly healthy, never having had a suspicion of rheumatism.

PRESENT ILLNESS.—On the evening of December 3, 1900, he complained of severe headache. During the night had eight convulsions and vomited three or four times a watery fluid. The lymph nodes on the right side of neck became swollen. The family physician being sent for, ordered him to bed. On December 5th his mouth became filled with dark blood clots; an antiseptic mouth wash was ordered and stiptics, the bleeding being profuse, and not lessening, the doctor ordered his removal to the Sick Children's Hospital on December 10th.

EXAMINATION ON ADMISSION.—Patient pale and anemic, lips bluish-white, expression dull, languid and sleepy, fairly well nourished, body and head found in a filthy condition, necessitating several hot baths before being satisfactorily cleansed. Does not look intelligent, face and manner indicating low social status, eyelids puffy, breath extremely offensive, pervading the atmosphere of the whole ward. Teeth discolored and much decayed. Right second upper molar sharp and projecting horizontally into the cheek. The mouth full of blood clots which formed every hour or so; this blood appeared to proceed from a cavity in last lower molar and from ulcers on the cheek—four in number. Three of these were of the size of a ten-cent bit, one as large or larger than a twenty-five-cent piece. The edges were red, hard and raised, irregular in shape, covered with a yellow slough, which when touched bled freely. The gums blue-red, swollen and averted from the teeth, with a dirty yellow pus oozing between teeth and gum. Tongue tender and covered with a black hard coat. The filthy condition of the patient, the stench from the mouth and the large unhealthy ulcer suggested cancrum oris, but the rapid way in which the patient improved under the administration of pot chlor manifested the fact that the condition was stomatitis ulcerosa.

December 11th.—Mouth has been kept clean with anti-septic washes, but hemorrhage still continues. I ordered the bleeding points to be touched with solid perchlorid of iron and a small piece placed in the tooth cavity, which was bleeding freely. This application acted very well, the bleeding ceasing during the afternoon.

December 12th.—Condition of mouth much improved; no bleeding; tongue cleaning at tip; patient very drowsy; temperature, 100°; pulse, 110; vessels noticed to be generally hard and resistant to touch.

December 14th.—Marked improvement; urinalysis shows albumin 8 per cent., specific gravity 1009; microscopically nil; pain on deep pressure over right side of abdomen and back and over kidney; no edema; skin dry and harsh; gums still bleed on slight pressure. A small opening like a tiny white ring was seen on the gum, which probably was the open mouth of an artery, and from which most of the hemorrhage proceeded.

December 20th.—Had a severe epistaxis from right nostril, lasting for two hours, controlled finally by a saturated extract suprarenal capsule plug; ulcers rapidly healing; tongue clean and fetor of breath much improved.

December 25th.—Another severe attack of epistaxis, left nostril; application of suprarenal capsule extract, soon subdued.

December 27th.—Only one ulcer left on cheek.

December 28th.—A third attack of epistaxis. Careful examination of all palpable arteries revealed sclerotic condition; the blood current being cut off by pressure, left them as hard, resistant cords, the walls being evidently sclerosed and the stream needing firm pressure to be cut off; heart enlarged, left border being to left of left nipple line. This condition of vessel wall readily explained difficulty of controlling the hemorrhages which had occurred from mouth and nose.

January 3d.—Epistaxis occurred; vessel could be plainly seen spurting from right septum.

Urinalysis shows albumin 3 per cent., specific gravity 1008; microscopic examination negative. Patient has been quiet and drowsy for the past three days; amount of urine passed in twenty-four hours, 29½ ounces.

January 7th.—Has great dyspnea; respiration rapid and labored. Precordial distress—hard cough with pain, especially over liver region; pulse 130, strong and regular; liver extends

three inches below costal margin, very tender on pressure; heart, apex displaced, downward and outward; impulse diffused but strong; a strong, rough, systolic mitral murmur; veins in neck prominent; *alæ nasi*, dilating.

January 8th.—Easier to-day; abdomen has become tympanitic; pulse, 125.

January 9th.—Bowels have not moved since January 6th, resisting all purgatives and enemas; abdomen still more tympanitic; pulse, 90; temperature, 95°; heart sounds weak.

January 10th.—Gradually weakened during the night; respirations very slow, intervals of five to twenty seconds; died at 10 A.M.

Treatment consisted of antiseptic mouth washes: soda sulphocarbolate solution every hour or two with local applications of solid perchlorid of iron and internally potassium chlorate and muriated tincture of iron for dyspnea, morphia and strychnia were given, and towards the end glonoin and nitrite of amyl.

Prof. Anderson submits following microscopic report:

Kidneys both showed practically the same condition. The capsule showed marked fibroid thickening and beneath the capsule is an area in which there is great increase of the interstitial tissue so as almost to replace the parenchyma of the organ this area also an infiltration with large numbers of small round cells, mostly proliferated connective tissue corpuscles, but some polymorphonuclear leucocytes. Throughout the sections there is a well marked fibrosis, in some places almost replacing the tubules. Many of the glomeruli show extreme fibroid, hyaline fibroid or hyaline change. The vessels of the kidneys show all degrees of sclerosis, with narrowing of their lumina, some of the smaller ones being practically obliterated. Their walls in places present hyaline or hyaline fibroid changes. There is considerable polymorphonuclear infiltration of the interstitial tissue and glomeruli in all parts of the sections. The epithelium of the convoluted tubules especially is swollen, opaque and granular and often desquamating so as to fill up the tubules. Many of the tubules contain casts, hyaline, granular, or at times, partly hyaline and partly epithelial. In fact the specimens show the contents of the tubules in various stages of transition from the fairly definite epithelium to partly and completely hyaline material, giving a beautiful illustration of this

method of cast formation. The vessels throughout show well marked congestion.

Many of the tubules also show polymorphonuclear leucocytes in them. The histological examination would indicate an advanced degree of interstitial nephritis with arterial sclerosis and an acute inflammatory condition grafted on top of the chronic process.

The femoral arteries were the only ones submitted for examination. They show well marked sclerosis involving all the coats to some extent, and narrowing the lumina. There is fairly well marked thickening in some places internal to the subethelial elastic layer. The vasa vasorum in the media and adventitia also show sclerosis in places almost obliterating them. Around many of the vasa vasorum is a proliferation of connective tissue cells. The inner parts of the tunica adventitia and the tunica media present a more or less hyaline appearance in places, a degeneration possibly resulting from the interference to their nutrition from the morbid changes described in the vasa vasorum.

Report of post-mortem examination on the body of W. T., aged twelve years, autopsy January 10, 1901, six hours after death. Rigor mortis well marked. The usual post-mortem staining is present. Veins over upper part of the thorax are prominent. Slight pitting about the ankles from edema. The arteries at the wrist, elbow, in the axilla, neck, thigh, popliteal space, and at the ankle are readily felt and can be rolled beneath the fingers.

THORAX.—Pericardium contains 2½ ounces of slightly turbid fluid; no pericardial adhesions.

The heart weighs 8½ ounces. On anterior surface of right ventricle is a rough, reddish, granular patch the size of a twenty-five cent piece, and some similar patches at the base of the great vessels. The coronary arteries show well marked general fibrosis with some patchy area of atheromatous deposit. The heart muscle is hard and presents extensive areas of fibrosis. The endocardium, especially in the right ventricle, is whitened and thickened. The walls of the left ventricle are markedly thickened from hypertrophy, those of the right ventricle are hypertrophied to a lesser extent. Both auricles appear somewhat enlarged. The valves and orifices present nothing worthy of mention except slight thickening of the margins of

the mitral cusps. The ascending and transverse portions of the aortic arch show nothing abnormal; the descending portion shows some scattered, irregular, yellowish patches of atheroma. These patches of atheroma become more numerous and extensive lower down, and in the abdominal aorta are particularly well marked. All the branches of the abdominal aorta stand open on section and show very definite fibrosis; the smaller the vessel the more marked the condition.

Left pleural cavity contains $2\frac{1}{2}$ ounces of straw-colored fluid. No pleural adhesions. Right pleural cavity adhesions of lower lobe to diaphragm, readily broken down. Both lungs crepitant throughout; some hypostatic congestion.

ABDOMEN.—Liver four fingers' breadth below costal margin. Weight 31 ounces; cuts with resistance; slight nutmeg appearance.

SPLEEN.—Enlarged, soft and friable.

KIDNEYS.—Right, somewhat lobulated; surface granular; capsule strips off with difficulty; cortex much narrowed; on section the organ is pale and mottled.

Left, extremely small and lobulated, capsule adherent, surface granular, cortex extremely narrowed, almost imperceptible in places, a number of small ecchymoses in the pelvis. Ureter and pelvis on left side dilated, not so on the right side.

The other abdominal organs presented nothing calling for special mention.

BRAIN.—Vessels at base and elsewhere are soft and show no sclerosis.

Fibrous tissue throughout the body appears to be increased.

Urine removed post-mortem shows on analysis the following:

Specific gravity 1007, reaction acid, albumin present in large amount.

Microscopic examination shows the presence of numerous hyaline and granular casts; also many epithelial cells and debris. The epithelial cells show granular degeneration.

Syphilis Hemorrhagica Neonatorum.—W. Loewenberg (*St. Petersburg Med. Woch.*) reports three observations of hemorrhagic diathesis in the new-born with severe inherited syphilis. Bacteriologic tests in each case revealed the presence of streptococci or staphylococci in the blood and conclusively demonstrated a septic infection. The writer also reviews the cases on record and concludes that there are no grounds for assuming the existence of a specific hemorrhagic syphilis in the new-born.—*Journal of the American Medical Association.*

THE TREATMENT OF THE NASOPHARYNX IN SCARLATINA.*

BY A. SEIBERT, M.D.,
New York.

One of the gravest dangers of scarlet fever patients consists in the invasion of the mucosa of the nasopharynx by those bacteria usually causing scarlatinous sore throat, namely by streptococci and their associates.

The infected tonsils may be washed over by an antiseptic solution if swallowed frequently (say every hour) in reclining posture, and thus a superficial disinfection of the visible pharynx may be accomplished. I have found the following mixture to be the most serviceable for this purpose:

℞ Tr. Iodi., 2, 0; Potass. Iodi., 1, 0; Aq. destill., 120, 0;
Acid. Carbolic, gtts. x. *M. Sig.*—A teaspoonful every hour.

This may safely be given (by night and by day) for four or five days successively to children of one year of age as well as to adults. An experience of twenty years has failed to produce a single carbolic intoxication with this mixture. Now and then patients will complain of gastralgic pains after taking this solution for a day or two, due no doubt to artificial hyperacidity induced by the contact of this fluid with the stomach. Mild iodism manifest by a slight watery discharge from the nose is not infrequently noticed, but usually disappears after a few days. As most patients with streptococcus-pharyngitis suffer from anorexia due to the suppression of the gastric functions and particularly the absence of hydrochloric acid in the stomach, it must seem but rational to induce the secretion of the gastric juice by well-known stomach disinfectants and astringents.

To clean and to disinfect the infiltrated mucosa in scarlatinous nasopharyngitis I have used irrigations with 1 to 5 per cent. warm solutions of ichthyol, repeated every six hours. A half pint is allowed to flow through the nares and the nasopharynx from a fountain syringe suspended about three feet above the patient.

*Read by title before the American Pediatric Society, Niagara Falls, N. Y., May 27, 28, 29, 1901.

These irrigations have given me excellent results during the last five years in all cases where the swelling of the parts permitted the fluid to flow into the nose and out of the mouth. But where the infiltration of the nasopharynx has so far advanced as to obstruct the passage-way between nose and throat, irrigations will be found insufficient, for the fluid then returns through the other nostril without coming in contact with the surface of this cavity. This obstruction usually begins to manifest itself about the fifth or sixth day of illness, and is most likely to develop there where insufficient or no local disinfection has been attempted.

To disinfect means to destroy the life of bacteria, to kill them. The authors of our modern American text-books do not advise effective disinfection of the scarlatinous sore throat. Holt (p. 1007, 1897) speaks of using "bland solutions for syringing" and considers "forcible swabbing a very doubtful expedient." Rotch (p. 557, 1895) states that "in young children it is often impossible to treat the throat locally" and relates the case of a two and a half year old child, "in which both sides of the neck were much swollen, but where the child refused to have any applications made to its nose or throat."

Bland solutions cannot destroy streptococci and staphylococci in the mucosa of the nasopharynx, at best they will flush away loose secretions. Leaving young children to their fate and to good nourishment in such an emergency because they refuse permission for energetic action, is a rather lame excuse for advocating comfortable well-fed nihilism in handling such cases.

As before the introduction of Behring's serum therapy I had been an advocate of energetic local treatment of bacillary diphtheria, so I wish to state emphatically to-day that it appears to me imperative to locally destroy bacterial life in the scarlatinous sore throat whenever and wherever we can reach it. As soon as we have an effective serum therapy for scarlatina and its complications, we can discard local measures, but not a day sooner. The farther advanced the cases of scarlatinous nasopharyngitis are that we are called upon to treat, the more intense the swelling and the obstruction to deglutition and respiration, the more marked the involvement of the cervical lymph-nodes—the more energetic should be the attempts at local disinfection.

During the last year I have treated 6 cases of scarlatinous nasopharyngitis in which irrigations were insufficient in a man-

ner which readily overcame the obstruction. This consists in local applications with a 50 per cent. resorcin solution in alcohol. A report of the youngest case will best illustrate their value:

Female infant, nine months of age, breast-fed, strong, well-nourished baby. Had been ill for five days when I was called by the family to give antitoxin for diphtheria, in which their physician did not believe. I found a scarlatinous eruption (overlooked by the non-believer in antitoxin) over the whole body, a marked swelling of the cervical lymph nodes, a fetid, seropurulent discharge running from the nostrils, the head of the infant drawn far back to facilitate the difficult and audible respiration, and a grayish edematous infiltration of the pharynx, including the soft palate. The temperature in the rectum was 103.5° F.; stupor. The baby had not nursed for twenty-four hours. As an attempted irrigation did not bring the ichthyol solution into the nasopharynx, as the baby was septic and was evidently suffering from a streptococcus infection and not from bacillary diphtheria (proved later on by culture), I concluded that only energetic local measures could possibly save the infant's life. The patient was, therefore, placed upright on the mother's lap, while the father stood behind and held the baby's head, as in intubation. A cotton plug wound around the curved end of a wire was dipped into the resorcin-alcohol solution, gently pressed against the neck of the bottle to get rid of superfluous fluid (which might run into the larynx) and then introduced over the handle of a dessertspoon into one side of the nasopharynx. The soft palate instantly contracted and pressed the solution out of the cotton, thus spreading it over the inner surface of the nasopharynx in the course of a few seconds. The cotton was then withdrawn. Another fresh cotton plug was then introduced on the other side of the uvula and withdrawn instantly. *No force and no swabbing were employed.* One hour after these applications, which took but little more time to make than an ordinary throat inspection, and hardly gave more discomfort to the patient, the baby took the breast again, simply because the passage between the larynx and the nose had been opened up again. There was no hemorrhage. The next day I found the baby decidedly improved, for the swelling of the lymph nodes had subsided considerably, the temperature was lower and the baby could take the breast.

These applications were repeated once daily for five successive days. On the sixth day of treatment the throat was clean and the lymph nodular swelling had disappeared. Every application improved the condition of the patient visibly.

The other children treated in this manner were two and a half, three, four and a half, five and seven years of age. All recovered promptly from their nasopharyngitis; not one of them developed otitis. The second youngest (a boy two and a half years old) later on developed scarlatinal rheumatism, nephritis and empyema successively.

These resorcin-alcohol applications I have employed during the last eight years in the treatment of post-nasal catarrh in infants and children. My youngest patient was four months old. Contrary to Rotch's opinion, I have found it so that the younger the patient the easier it is to apply this treatment and the less opposition is made.

In closing I may be permitted to repeat what I said when advising inunctions of ichthyol-lanolin ointment for scarlatinous dermatitis and the irrigation of the upper air passages in scarlatinous sore throat by warm ichthyol solutions (ARCHIVES OF PEDIATRICS, 1895, and *Jahrbuch für Kinderheilkunde*, 1900), namely, that I consider it rational and imperative to attempt to destroy the pathogenic bacteria in scarlatina wherever they come within our reach (in the skin and in the throat) and to make these attempts as promptly and energetically as possible without injury to the patient.

These resorcin-alcohol applications have proved themselves to be perfectly harmless, and to my mind are indicated in scarlatina as soon as the nasopharynx becomes involved.

114 EAST FIFTY-SEVENTH STREET.

Clinical Notes on Tannigen.—E. Sieger (*Wiener Med. Blätter*, No. 46, 1900) treated 12 children with summer diarrhea by the use of tannigen. He gave two grain doses to infants, and administered the drug in milk. For older children he gave the tannigen in the powder form, giving it always after meals. He noted good results two hours after the first dose. It was also satisfactory in the more chronic catarrhs of the intestine.

A CASE OF APPENDICITIS IN AN INFANT SEVEN WEEKS OLD.

BY GEORGE BLUMER, M.D.,
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Appendicitis during the first two years of life occurs with rarity. According to the statistics of Fitz¹ but 1 case in 257 analyzed occurred under two years, and this was in a child of twenty months. Bamberger² in his statistics covering 73 cases observed 2 under two years. Matterstock³ in his 72 cases also found 2 under two years. The youngest of these was twenty months old. Deaver⁴ in his "Treatise on Appendicitis," states that the youngest case he has seen was not two years of age.

The youngest case on record* in which any details regarding the course of the disease are to be found is that of Demme⁵. This case occurred in a female child, aged seven weeks, who had been fed, after the seventh day of birth, upon porridge. In the beginning of the seventh week fever, abdominal tympanites and tenderness in the cecal region were noticed, which was followed by general peritonitis and death. The autopsy showed a diffuse peritonitis, most pronounced in the cecal region. The appendix was dilated and filled with adherent, firm, solid, concrete-like fecal masses. On microscopic examination these were shown to be made up of undigested porridge.

One other case occurs in the literature in which appendicitis came on in a boy of twenty-two months, which was diagnosed and was operated upon successfully. This case is reported by Summers.⁶ The patient was seen by Summers on the fourth day of the disease. He had been suffering from colic with a rapid pulse, and at the onset of the disease had a temperature of 104°. There was abdominal distress, vomiting and constipation. He was seen on the second day by a con-

*Since the above was written J. M. Elder has reported a case of acute appendicitis complicating hernia in an infant seven weeks old. (*Montreal Medical Journal*, Vol. xxx., No. 3.) The infant was operated upon for strangulated hernia when the condition of the appendix was discovered. The appendix was removed and the hernia relieved. The operation was successful and the child made a good recovery.

sultant who diagnosed intestinal obstruction. At this time the temperature was about 100° F., but the pulse was still rapid. At this time a small tumor was to be made out in the right iliac region. The bowels were moved only by enema. The patient was seen by Summers on fourth day. At this time the pulse was 140 and the temperature 101° F. The abdomen was distended and painful, although there was no special point of tenderness. The child appeared very ill. A diagnosis of appendicitis was made, and at the operation, the appendix was found to be enlarged, gangrenous and perforated in three places. It was situated in an abscess which contained several drachms of pus. No foreign body was present. Recovery after the operation was uneventful.

The history of the case which we wish to report is as follows:

John R., an illegitimate infant, born November 23, 1900, was brought to the Albany County Almshouse, December 10, 1900, with its mother who was in a destitute condition. The mother was in good physical health and there was no evidences of syphilis. The child had a severe gonorrhoeal ophthalmia and the mouth and tongue were thickly coated with thrush. The child had been the victim of several kinds of prepared infant foods, as the mother had been unable to nurse her offspring. At the Almshouse the baby seemed to thrive best on malted milk. Early in January he had an ischio-rectal abscess which had both an internal and external opening.

The infant was brought to St. Margaret's House on the evening of January 17, 1901, in a comatose condition. There was general anasarca. Edema of face and extremities was first observed a week before admission and no further history could be obtained. The child slept continuously and would sometimes utter a feeble moan when turned on the side.

EXAMINATION January 18th.—Small undersized infant weighing six pounds six ounces. Head small, circumference 12 inches, receding forehead. Anterior fontanelle almost closed. Talipes calcaneus. Skin extremely pale. Child has an offensive odor. Intertrigo in creases about groin and buttocks and a few bruises on legs. Mucous membranes anemic. General anasarca most marked in dependent parts. Eyes closed and lids swollen and edematous. Heart and lungs normal. Temperature 100.20°; respiration 34. Abdomen prominent. Liver not

enlarged and spleen not palpable. Abdominal walls very thin and peristaltic movements of intestines plainly visible. No pain on abdominal manipulation and palpation. A small amount of urine was collected which was light yellow, neutral and contained no albumin or sugar. The hemoglobin was 25 per cent. and the red cells numbered 1,290,000. The white cells were not counted but there was no marked leucocytosis, judging from smears.

The child was put in hot baths every hour and this lessened the edema. He had only one fecal movement while in St. Margaret's and this contained blood, pus, mucus and undigested food. The child did not have strength enough to draw food through the nipple and a mixture of barley water and milk was given every hour with a spoon. The child grew gradually weaker and continued in a stuporous condition until it died on January 19th.

THE AUTOPSY was made forty-eight hours after death in cool weather. The following notes were abstracted from the autopsy protocol:

The anatomical diagnosis was acute gangrenous appendicitis with the formation of a localized abscess between the appendix and the sigmoid flexure; cloudy swelling of the liver and kidneys; congestion of the lungs; general anemia; edema of the brain and the subcutaneous tissues.

The body is 47 cm. in length, moderately strongly built and emaciated. The feet and legs are markedly edematous, the thighs and arms less so. The surface generally is pale. The skull is small. The fontanelles are almost closed. The subcutaneous fat is absent.

The peritoneal cavity contains about 50 c.c. of clear fluid.

THE HEART is normal in appearance except that the heart muscle is pale and somewhat cloudy.

THE LUNGS show a few superficial hemorrhages, and the posterior portions of the lower lobes on each side are congested and slightly edematous.

THE SPLEEN is normal in appearance.

THE LIVER is somewhat softer in consistency than normal. It is cloudy in appearance and shows one or two superficial yellowish areas of localized fatty degeneration.

THE KIDNEYS present no abnormality except pallor.

THE BLADDER shows a number of submucous hemorrhages, some of them discrete, others diffuse.

THE ADRENALS, URETERS, PANCREAS, ESOPHAGUS and STOMACH are normal.

THE BRAIN.—The cerebral sinuses are free from clot, and the *brain* substance, except for edema, is normal in appearance.

THE INTESTINE.—There are adhesions between the head of the cecum and of the upper part of the sigmoid flexure. On breaking up these adhesions there is found between the head of the cecum and the sigmoid flexure an abscess cavity containing about 10 c.c. of brownish pus. The appendix is found to project into this cavity. It is $2\frac{1}{2}$ cm. long. The proximal 1 cm. is normal in appearance, while the distal portion is completely necrotic. The lumen of the appendix leads directly into the abscess cavity. The mucous membrane of the small and large intestine is pale but otherwise normal.

Microscopic examination of the different organs shows the conditions observed with the naked eye, and besides this in the liver a diffuse fatty infiltration. The section of the appendix shows that the organ is in a condition of acute inflammation. The mucous membrane is for the most part necrotic, though patches of it are left here and there. The lumen of the appendix is lined by the submucosa, which is thickly infiltrated with polymorphonuclear leucocytes. In the deeper parts of the submucosa there are signs of regeneration in the form of newly formed capillaries and fibroblasts. The muscular coats of the organ and the mesentery are also infiltrated with polymorphonuclears and occasional small round cells. Sections of the appendix stained for bacteria show a fair number of short, thick bacilli, and a few cocci, generally in pairs. The bacilli do not stain by Gram's method.

Cover slips were made from the pus from the peri-appendicular abscess. They show many polymorphonuclear leucocytes and enormous numbers of microorganisms. Most of these were rather small bacilli, varying in length, which did not take Gram's stain, but a few cocci generally in pairs were also present. From the cultures from the pus the only organism isolated was a bacillus with the growth characteristics of the *bacillus coli communis*.

Cultures from the lung show the presence of the streptococcus pyogenes and the staphylococcus pyogenes aureus.

There is very little to be said regarding the case just reported. The impossibility of diagnosis during life is, of

course, apparent. There were practically no symptoms which pointed to any special abdominal disturbance.

In connection with the cultures from the appendix it is necessary to state that although the colon bacillus was isolated it is doubtful whether this was really the prime cause of the condition. The autopsy unfortunately could not be procured until forty-eight hours after death, during which time there was abundant chance for the colon bacillus to overgrow other organisms, and as a matter of fact a few cocci were present in the cover slips from the pus.

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Gubler's Syndrome, with Aphasia of Traumatic Origin.—

Silvio Genta (*Riforma Medica*, May 25, 27, 1901) reports the case of a boy, aged three years, who had fallen, while playing with a wooden stick which was sharpened at one end, in such a manner that the sharp end entered his mouth and penetrated through the soft palate. Attempts at extracting this piece of wood, which were finally successful, showed that it had penetrated for some distance "into the bone," as the child's parents stated. A profuse hemorrhage followed, but this ceased after a while, and the child, after speaking and moving in a normal fashion, fell asleep. When he awoke, his face was distorted and he could neither speak nor move his feet. A physician who was called found that the boy had a right hemiplegia with a complete paralysis of the facial of the left side. On exploring the wound it was found that the wooden splinter must have penetrated the cranial base between the yet incompletely ossified portion of the occipital and sphenoid bones. The paralysis came on late and was probably due to a hemorrhage within the cranium. The lesion was probably located in the posterior-inferior portion of the pons varolii on its left side, and the paralysis was probably due to hemorrhage from some artery branching off from the basilar which supplies the pons. Under electrical treatment the child gradually and slowly recovered both speech and motion, thus showing that the hemorrhage had become absorbed.—*The New York Medical Journal.*

NODDING AND ROTATORY SPASM OF THE HEAD WITH NYSTAGMUS IN RACHITIC CHILDREN.*

BY AUGUSTUS A. ESHNER, M.D.,

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A considerable number of cases of nodding and rotatory spasm of the head associated with nystagmus in rachitic infants have been exhibited before the Society and reference has been made in the discussion to numerous others, so that the disorder cannot be looked upon as entirely rare. The affection is observed especially during the first year of life and exclusively in children, breast-fed as well as bottle-fed, white as well as colored, suffering from rickets or some other disorder of nutrition or metabolism, and recovery is the invariable rule under ordinary conditions. Sometimes the movement is rotatory, at other times nodding in character, and both forms may be present in the same patient at different times.

In 11 of 12 cases reported by W. B. Hadden (*Lancet*, June 14, 21, 1890) the movement in 1 was purely nodding, in 4 was lateral, in 1 was lateral and rotatory, in 3 was nodding and shaking and lateral, and in 2 was sometimes nodding and sometimes lateral.

Often there is also associated nystagmus, sometimes lateral, at other times vertical and at still other times rotatory.

In Hadden's cases the movement of the eyes varied from four to six per second. It was often continuous, though aggravated by attention, by efforts at fixation and by forcible restraint of the movements of the head. Occasionally it made its appearance when the head was held, though previously absent. Sometimes a relation existed between the nystagmus and the position of the eyes or the evident ocular state. In one case it was exaggerated on extreme conjugate deviation to the left and least marked on deviation to the right. In another it was especially evident when the eyes were directed upward. In a third no relation was noticed between the position of the eyes and the occurrence of nystagmus. In a case in which the

* Read before the Philadelphia Pediatric Society, May 14, 1901.

nystagmus was vertical and limited to the left eye, the movements disappeared momentarily on assuming a new position of fixation with the right eye; and after a sudden start, as after the ringing of a bell, the left eye remained stationary for some time.

The nystagmus was usually present in both eyes, though often one was more affected than the other. In three cases the movements were strictly uniocular. In one, with lateral and rotatory movements of the head, there were rapid lateral nystagmic movements of the right eye only, especially marked when the head was steadied. In this case there were also slow movements of the eyeball in a direction opposite to that in which the head was turned and these were clearly compensatory. In one there were rhythmic lateral movements of the head, with horizontal nystagmus in the left eye.

The nystagmus was not always in the same direction as the movement of the head. In the one case of pure nodding the nystagmus was vertical and rapid. Of the four cases of lateral movement of the head the nystagmus in two was occasionally lateral and in one of these uniocular. In another the nystagmus was vertical and confined to one eye, and in the fourth the movements were different in direction in the two eyes, being vertical and fine in the right and more violent and nearly horizontal in the left. Of the three cases of combined nodding and lateral movement of the head, the nystagmus was horizontal and mainly on the left in one, lateral and rotatory and mainly on the left in one and sometimes vertical, at other times horizontal, and at still other times rotatory and mainly on the left in one. Of the two cases in which the head-movement was at times nodding and at other times lateral the nystagmus was lateral and rapid in one, while in the other there was no nystagmus, although the head-movements were preceded by lateral deviation of the eyes. In the one case in which the movement of the head was lateral and rotatory there was rapid lateral nystagmus in the right eye with some rotation. In one case there was vertical nystagmus of the eyelids as well as of the eyeballs.

Concerning the movement of the eyes, Dr. John Thomson (*British Medical Journal*, March 30, 1901, p. 763) has to say that while ordinary horizontal nystagmus is conjugate in character, that is, the anteroposterior axes of the eyes remain parallel,

in cases of nodding spasm the eyes move alternately toward and from each other. He considers rickets, deficient daylight, and general impairment of health as the important factors in the causation of the disorder, which he looks upon essentially as a coordination-neurosis. He points out that nodding spasm develops at a time when the infant is slowly learning to coordinate the movements of its eyes with those of its head, and it effects the muscles concerned in these movements. When the nystagmus is rotatory, the movement of the eyeballs, instead of taking place about the anteroposterior axes of the globes is rather circumductory, the central point of the cornea not remaining practically unaltered in position, but passing through an ellipse or some other more or less irregularly rounded figure. The nystagmus of nodding or rotatory spasm is said to differ further from ordinary nystagmus in being often unilateral and often vertical or rotatory. The direction of the movement is occasionally different in the two eyes, as, for instance, vertical or rotatory in one and horizontal in the other. The nystagmus disappears with the other symptoms in the course of a few months.

In a communication to the *British Medical Journal* (May 4, 1901, p. 1120), Dr. W. T. H. Spicer states that of 20 cases of nodding spasm seen from 1889 to 1899, the nystagmus was horizontal in 6, vertical in 3, rotatory in 2, horizontal and rotatory in 3, vertical, horizontal and rotatory in 2, circumductory in 1, horizontal and convergent in 2, and not noted in 1.

He adds that the excursions of the eyes were for the most part rapid and small and conjugate when the movement was horizontal; they were, however, not always equal in the two eyes. In the cases of mixed nystagmus the character of the movement appeared to vary with the direction in which the eyes were looking; in one case the movement on looking upward was rotatory and on looking from side to side or downward was horizontal.

With the kind permission of Dr. Wharton Sinkler I beg to report two cases that have recently come under observation at the Orthopedic Hospital and Infirmary for Nervous Diseases.

The first occurred in a male colored child eleven months old that presented itself on March 25, 1901, with nodding of the head that had been noticed since a cold two months previously. The movements were at times nodding and at other

times rotatory. When the head was at rest the eyes oscillated, sometimes in a vertical and at other times in a lateral direction, apparently in conformity with the movement of the head. The anterior fontanelle was not entirely closed; some of the ribs exhibited beading, and the tibiæ were bowed outward. There was increased sweating about the head, but there had been no convulsion and no carpopedal spasm. The child was well nourished and provided with a generous layer of fat beneath the skin. It was well-behaved and quiet and it slept well and did not cry much. The knee jerks were preserved and irritation of the soles induced dorsal extension of the toes. There was no palpable enlargement of the spleen or of the liver. The action of the heart was rhythmic and it sounds clear. The appetite was good and the bowels constipated, the stools at times containing mucus. The patient was the second child, the first having been born four years previously at eight months and living but five weeks, after having been weak and sickly. The patient was born at term after a normal pregnancy and labor. It was healthy at birth and breast-fed exclusively for seven months. It was then given tea, bread, crackers and potato besides. It was nursed at the breast at least every hour and was kept applied almost constantly. The mother thought she had sufficient milk. The first tooth appeared at seven months and there were present the four central incisors and one of the upper lateral incisors. There had been no difficulty in dentition. The father was a coachman twenty-seven years old, the mother was a housekeeper, thirty years old, and both were well.

The second patient was a female white child, eight months old, born at term after a normal pregnancy and labor, and breast-fed. For five months the mother had noticed a nodding of the head, usually to and fro, but occasionally rotatory, aggravated by fatigue or sudden noise, but ceasing during sleep. The child presented a bright, alert appearance, but was quiet. It had six teeth. The posterior fontanelle was closed, while the anterior was still slightly membranous. Some of the ribs were somewhat beaded and the radial epiphyses were enlarged. The general nutrition was excellent. The heart presented no abnormality. The thymus gland could not be found to be enlarged. The child was easily aroused from sleep. Its mother was of a nervous temperament and the habits of the father were good.

The condition described is to be distinguished from, although it is not wholly free from analogy with, spasmodic

torticollis. The latter disorder, however, is observed almost exclusively in adults,* and of course, bears no relation to rickets; and, in addition to the clonic spasm, there is almost certain to be a certain amount of tonic spasm, so that the head is more or less constantly deflected toward one side. Its etiology is obscure, although it appears at times to be of hysterical origin, and in general it develops upon a neurotic basis. It may likewise be the expression of a spasmodic tic. Disease of the spinal accessory nerve, especially, is also thought to be a cause. In this connection I may report briefly a case that I saw several years ago in the service of Dr. Lewis Brinton at Howard Hospital.

An unmarried woman, thirty-six years old, presented herself on account of a constantly rotatory movement of the head, which had been present for twelve years, although it had grown a good deal worse following an attack of influenza five years before coming under observation. The movement had begun while the patient was a clothes mender in a woolen mill and it had increased progressively. It was aggravated by sewing, worry, excitement and periodically without obvious cause; it was sometimes worse at the menstrual period and also when the general vigor of the patient was impaired from any cause. At times the violence of the movement was so great as to cause shaking also of the body and the extremities. The movement was a source of anxiety and it was in turn thereby aggravated. It sometimes diminished spontaneously for a time, and the patient thought that occasionally it ceased entirely for brief periods. It was absent during sleep, but was observed immediately upon awaking. Remote voluntary effort had little influence upon the movement of the head, although it may have exerted some slight inhibitory effect. The patient thought the movement was less in winter than at other times. There was present also a slight tendency to deflection of the head toward the right. On palpation contractions could apparently be felt in the sternomastoid muscle. There was no spinal tenderness and no acute pain, although the patient spoke of a "numb pain" referred to the interval between the spines of the sixth and seventh cervical vertebræ. The movement also was referred subjectively to the joint at this level. Station was steady and

* Nevertheless, at the February meeting of this Society Jopson (ARCHIVES OF PEDIATRICS, April, 1901, p. 285) reported a case of head-nodding associated with spasmodic torticollis in a doubtfully rachitic child, eleven months old, the symptoms appearing shortly after a fall.

the knee jerks were preserved. The grasp of the hands was good. The pupils were equal, regular and reactive to light. The patient was rather pallid. She was not conscious of flushing or of a sense of undue heat. The action of the heart was rhythmic and the sounds were clear. There was nothing noteworthy in the family history. The patient had at the age of seven or eight years had an attack of what was designated bilious remittent fever. This was attended with a good deal of headache and the head was drawn back from the intensity of the pain. There was no paralysis and the symptoms were relieved by the application of a fly blister after an illness of six weeks. The patient took tea and coffee only in moderation.

The symptoms attending the attack of so-called remittent fever suggest the possibility of meningitis, of which the condition described in detail might be thought to be a sequel, but it will be noted that a period of sixteen or seventeen years intervened between the two sets of phenomena. The disorder conforms to the clinical picture of spasmodic torticollis for which there was apparently no organic basis.

Bromid of Camphor in the Treatment of Epilepsy.—Louis Hasle (*Thèse*, 1899; *La Presse Médicale*, December 5 1900) says that the bromid of camphor possesses a certain sedative action on the circulation, respiration, and particularly on the nervous system. It is especially valuable in diminishing the attacks of epilepsy, and undoubtedly diminishes the vertigo which accompanies this condition. It is a hypnotic, and diminishes reflex excitability. Its prolonged use causes a loss of weight, digestive disturbance and the loss of pharyngeal reflexes. It is prescribed in the form of pills or capsules containing from ten to twenty centigrammes, and in this way is best borne by the stomach. The daily dose should be from four to five grammes, and in severe cases, where large doses are being administered, the temperature of the patient should be regularly taken. Where the temperature falls below normal, the remedy should be immediately withdrawn. It will be found most useful in cases accompanied by vertigo, palpitations and disturbances of sleep.—*Medicine*, March, 1901.

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THE BACTERIOLOGY OF GASTROENTERITIS.

While writers of one hundred years ago attributed an infectious origin to cholera infantum, and compared it to the remitting fevers caused by marsh miasm, the impulse to the bacteriological investigation of summer diarrhea was not given until Escherich, in 1886, published his work on the intestinal bacteria of infants and their relation to the physiology of digestion. The first bacteriological examination of stools during an epidemic of diarrhea was made by Lesage and Hayem in 1888. Baginsky's work followed, but the most important and exhaustive studies were made by Booker from 1886 to 1897. As the

result of these he called attention to three principal forms of summer diarrhea, based upon a correspondence of their clinical, anatomical and bacteriological features: (1) dyspeptic or non-inflammatory diarrhea, in which the obligatory milk-feces bacteria are found, chiefly the bacillus coli communis, the bacillus lactis aerogenes appearing in smaller numbers; (2) streptococcus gastroenteritis, in which there is a general infection and ulceration of the intestine, with streptococci as the predominating forms, some bacilli being present as well; (3) bacillary gastroenteritis, characterized by a general toxic condition with less intestinal inflammation, and the presence in the stools of several varieties of bacilli, the proteus vulgaris being the most common. Escherich studied the streptococcus cases more closely (1897-1899) and found the cocci numerous and in almost pure culture in the stools in acute, severe cases, while it was possible to isolate them from the urine and the blood during life and from the viscera after death. The cocci occur in pairs or very short chains and resemble the pneumococcus or the meningococcus more closely than they do the ordinary streptococcus. Clinically the symptoms vary much in the mild and in the severe cases; the stools may be watery or contain much pus and blood. Staphylococci have also been found in diarrheal stools, but much less frequently than streptococci.

Later (1899) Escherich described cases of dysentery (with croupous inflammation of the colon) due to a virulent colon bacillus, and designated the affection coli-colitis or colitis contagiosa. Valagussa (1900) studied an epidemic of dysentery among children in which he found a bacillus belonging to the colon group and identical with that isolated by Celli and Fiocca from cases in Italy and Egypt. It was present in the stools in almost pure culture and gave a specific agglutinating reaction with the blood of patients ill with the disease. In 1898 Shiga, in Japan, described the bacillus dysenterix, an organism more nearly related to the typhoid than to the colon group; and Flexner found the same bacillus in one form of acute dysentery

studied in Manila. Both Celli and Escherich tried to identify the bacillus they described with that of Shiga. The bacillus pyocyaneus has also been found in the stools of cases of epidemic infantile dysentery.

It is evident, then, that no specific bacterium of gastroenteritis has been found; that there is one form in which the streptococcus is the predominating organism; and that the bacillus dysenterix may possibly be proven to be the cause of epidemic dysentery both in children and in adults.

Testevin's Sign of Infection in Children.—Testevin, of Grenoble, believes that during the incubation of acute and chronic infectious diseases a peculiar reaction of the urine may be elicited which is characteristic of infection and is the more pronounced if the infection is severe. Any albumin that may be present in the urine is to be removed. The urine is then acidulated, a third of its volume of ether is added, and the mixture is agitated briskly. In a short time a collodion-like pellicle of varying thickness, consistence and adhesiveness forms on its surface.

Modena, of Pavia (*Gazzetta Medica di Torino*, 1900, Nos. 41-43; *Centralblatt für innere Medicin*, June 29th), has observed this condition of the urine invariably in twenty-one cases of infectious diseases, and has never found it in the urine of healthy children. Nevertheless, he does not regard it as of any diagnostic or prognostic value.—*New York Medical Journal*.

Bibliography.

Favorite Prescriptions of Distinguished Practitioners with Notes on Treatment. Compiled from the Published Writings or Unpublished Records of Drs. Barker, Bartholow, Gross, Flint, Loomis, etc., etc. Edited by B. W. Palmer, A.M., M.D. Seventh Edition. New York: E. B. Treat & Co. 1901. Pp. 248. Price \$2.00.

The practitioners who are on the lookout for new prescriptions and also for those combinations that have stood the test of time and experience, this book will supply enough of ready made formulæ to meet almost every case. In this new edition the prescriptions have been revised and brought up to date. The section on diseases of children is edited by Dr. Crandall, whose name ensures accuracy of dosage and utility of the drugs he has collated from authorities on pediatrics.

La Alimentacion de los Ninos. Conferencia Pronunciada en la Escuela de Enfermeras del Hospital Mercedes. Par el **Joaquin L. Duenas, M.D.** Habana: Imprenta Militar, Ricla nũm. 40. 1900. Pp. 68.

The nucleus of this pamphlet on the feeding of infants, which is reprinted from *La Cronica Médico-Quirurgica de la Habana*, was a lecture given to the nurses of the Mercedes Hospital Training School. The matter is not original, having been selected from the writings of Cheadle, Marfan, Rotch, Holt and numerous other pediatricists; but the arrangement and general treatment of the subject are excellent.

Rinsing Out the Stomach in Children.—I. Steinhardt (*Muench. Med. Woch.*, April 9, 1901) urges the general practitioner to make more frequent use of lavage of the stomach in the gastrointestinal disorders of infancy. The technique is simple; it can do the child no harm and is indicated in all cases of acute digestive disturbances in small children rebellious to the ordinary measures. In nearly every case more or less marked improvement is the prompt result.—*Journal of the American Medical Association.*

Society Reports.

MINUTES OF THE THIRTEENTH ANNUAL MEETING OF THE AMERICAN PEDIATRIC SOCIETY.

Held at Niagara Falls, N. Y., May 27, 28 and 29, 1901.

The meeting was called to order by the President, Dr. Wm. D. Booker, of Baltimore. The minutes of the twelfth annual meeting were approved as published in ARCHIVES OF PEDIATRICS.

The following members were present: G. N. Acker, M.D., Washington; S. S. Adams, M.D., Washington; A. Baines, M.D., Toronto; W. D. Booker, M.D., Baltimore; E. M. Buckingham, M.D., Boston; W. L. Carr, M.D., New York; H. D. Chapin, M.D., New York; W. S. Christopher, M.D., Chicago; F. S. Churchill, M.D., Chicago; A. C. Cotton, M.D., Chicago; J. Dorning, M.D., New York; R. G. Freeman, M.D., New York; E. E. Graham, M.D., Philadelphia; J. P. C. Griffith, M.D., Philadelphia; S. McC. Hamill, M.D., Philadelphia; L. E. Holt, M.D., New York; C. G. Kerley, M.D., New York; H. Koplik, M.D., New York; J. L. Morse, M.D., Boston; W. P. Northrup, M.D., New York; F. A. Packard, M.D., Philadelphia; C. P. Putnam, M.D., Boston; B. K. Rachford, M.D., Cincinnati; T. M. Rotch, M.D., Boston; E. W. Saunders, M.D., St. Louis; I. M. Snow, M.D., Buffalo; C. W. Townsend, M.D., Boston; A. H. Wentworth, M.D., Boston; J. P. West, M.D., Bellaire; H. Williams, M.D., Boston; J. C. Wilson, M.D., Philadelphia; J. E. Winters, M.D., New York.

Upon motion by Dr. Snow, members of the profession from Canada and the State of New York were invited to attend the meetings and take part in the discussion.

FIRST SESSION.—MAY 27.

The annual address of the President, entitled "The Early History of the Summer Diarrheas of Infants," was read by Dr. Wm. D. Booker, of Baltimore.

Dr. Allen Baines, of Toronto, reported a case of "General Arteriosclerosis in a Boy Aged Ten Years," and showed microscopic specimens.

Dr. T. M. Rotch, of Boston, read a paper entitled "Pernicious Anemia in Infancy (Preliminary Report of a Case)," by himself and Dr. M. Ladd.

Discussion by Drs. Wentworth, Koplik, Morse, Northrup, Churchill, Kerley, Townsend, Winters and Rotch.

Dr. F. S. Churchill, of Chicago, read a paper entitled "So-called Cyclical Albuminuria with Preliminary Report of a Case."

Discussion by Drs. Dorning, Packard, Winters, Koplik and Churchill.

Dr. R. G. Freeman read a paper entitled "An Account of a Mild Epidemic Due to Some Unrecognized Infection."

Discussion by Drs. Packard, Kerley, Buckingham, Wentworth, Adams and Freeman.

SECOND SESSION.—MAY 27.

Dr. J. P. C. Griffith, of Philadelphia, read papers entitled (a) "Report of a Case of Appendicitis in a Child of Three Months." (b) "Report of a Case of Long Continued Laryngeal Stenosis of Uncertain Nature."

Discussion of the first paper by Dr. Shaw (guest).

Discussion of the second paper by Drs. Rachford, Rotch, Buckingham, Koplik and Griffith.

Dr. A. C. Cotton, of Chicago, read a paper entitled "Amaurotic Family Idiocy" and gave a report on "A Monster" with exhibition of specimen and photographs.

Discussion by Dr. Morse.

Dr. J. Park West, of Bellaire, read a paper entitled "A Note on the Little Finger of the Mongolian Imbecile and Normal Children" and showed photographs.

Discussion by Drs. Rotch and Koplik.

Dr. B. K. Rachford, of Cincinnati, read two papers entitled (a) "Maternal Impressions, Report of Cases," and (b) "Hare-Lip."

Discussion of the first paper by Drs. Rotch, Wentworth and Rachford.

THIRD SESSION.—MAY 27.

Drs. F. A. Packard and Alfred Hand, Jr., of Philadelphia, presented a paper on "The Pathological Anatomy of Cretinism," which was read by Dr. Packard.

Drs. Henry Koplik and I. Lichtenstein, of New York, presented a paper, entitled "A Contribution to the Symptomatology of Cretinism," which was read by Dr. Koplik.

Discussion of both papers by Drs. Cotton, Northrup, Christopher, West, Booker, Freeman, Adams, Packard and Koplik.

Dr. W. P. Northrup, of New York, read a paper entitled "Glass Sun Rooms on City Roofs, or Winter Play Houses," with illustrations.

Discussion by Drs. Putnam, Adams, Winters, Rotch, Griffith and Northrup.

FIRST SESSION.—MAY 28.

Dr. Charles G. Kerley, of New York, read a paper entitled "A Study of 555 Cases of Summer Diarrhea."

Discussion by Drs. Griffith, Koplik, Buckingham, Holt, Northrup, Chapin, Freeman, Winters, Adams, Cotton, Morse, Dorning, Rotch, Wentworth, Saunders, Williams, Townsend and Kerley.

Dr. C. W. Townsend, of Boston, read a paper entitled "The Feeding of an Incubator Baby."

Dr. H. D. Chapin, of New York, read a paper on "The Place of Cereals in Infant Feeding."

Discussion on both papers was postponed until the afternoon session.

SECOND SESSION.—MAY 28.

The Vice-President, Dr. Packard, occupied the chair.

Discussion of Dr. Townsend's paper by Drs. Chapin, Morse, Rotch and Townsend.

Discussion of Dr. Chapin's paper by Drs. Rotch, Koplik, Griffith, Holt, Winters, Saunders and Chapin.

Dr. E. W. Saunders, of St. Louis, showed "A Specimen of Congenital Hypertrophic Pyloric Stenosis," and gave a report of the case.

Discussion by Drs. Holt and Saunders.

The following papers were read by title:

Dr. D. J. M. Miller, of Philadelphia, "A Case of Hemorrhagic Nephritis Complicating Influenza in a Thirteen Months' Old Baby."

Dr. Wm. Osler, of Baltimore, "Congenital Absence of the Abdominal Muscles with Distended and Hypertrophied Urinary Bladder in a Child of Six Years."

Dr. A. Jacobi, of New York, "Milk Sugar."

Dr. A. Seibert, of New York, "The Treatment of the Nasopharynx in Scarlatina."

Dr. F. Huber, of New York, "Etiology of Rectal Polypi in Children."

Dr. Wm. Osler, of Baltimore, "The Visceral Lesions of the Erythema Group of Skin Diseases in Young Children."

Dr. F. Forchheimer, of Cincinnati, "The Use of the Term Enanthem."

Dr. John L. Morse, of Boston, "An Analysis of 32 Cases of Congenital Heart Disease."

Dr. F. Huber, of New York, (a) "Photographs of a Case of Infantile Scurvy and Marasmus." (b) "History of a Case of Gangrene of the Lung."

Dr. Walter Lester Carr, of New York, "A Case of Pulmonary Gangrene in a Baby."

Dr. George N. Acker, of Washington, "Multiple Arthritis in a Child Two Years Old Suffering from Gonorrheal Vaginitis."

Dr. I. M. Snow, of Buffalo, "Bulbar Symptoms in the Newly-Born."

Dr. B. K. Rachford, of Cincinnati, "The Treatment of Tuberculosis."

Dr. C. P. Putnam, of Boston, "A Case of Pneumococcus Infection."

FIRST SESSION.—MAY 29.

Dr. J. Lovett Morse, of Boston, read a report of "A Case of Arsenical Poisoning in an Infant of Six Months."

Dr. S. S. Adams, of Washington, read a paper entitled "Great Fluctuations in Temperature in the Terminal Stage of Pulmonary Tuberculosis."

Discussion by Drs. Griffith, Wentworth, Adams and Holt.

Dr. L. E. Holt, of New York, read two papers entitled (a) "Note on the Treatment of Hemorrhage in the New-Born by Suprarenal Extract," and (b) "Prolonged Temperature from an Unusual Cause."

Discussion of the first paper by Drs. Morse, Rotch, Carr, Wilson, Chapin and Holt.

Discussion of the second paper by Drs. Morse, Chapin and Wilson.

Dr. Harold Wilson, of Boston, read a paper entitled "Measles Complicated by Appendicitis."

Dr. W. S. Christopher, of Chicago, read a paper entitled "Physical Measurements in Puberty, their Significance, Variation and Applications."

Discussion by Drs. Holt and Booker.

EXECUTIVE SESSION.—MAY 29.

The report of the Council was presented by its Chairman, Dr. Rachford. Upon motion of Dr. Adams, it was adopted as read. On nomination of the Council the following officers were elected for the ensuing year:

President, - - - W. S. CHRISTOPHER, M.D., Chicago.
First Vice-President, C. W. TOWNSEND, M.D., Boston.
Second Vice-President, JOHN DORNING, M.D., New York.
Secretary, - - - SAMUEL S. ADAMS, M.D., Washington.
Treasurer, - - - J. PARK WEST, M.D., Bellaire, Ohio.
Recorder and Editor, WALTER LESTER CARR, M.D., New York.
Member of the Council, T. M. ROTCH, M.D., Boston.

Delegate to Congress of American Physicians and Surgeons, A. Jacobi, M.D.; Alternate, J. P. C. Griffith, M.D.

Member of Committee of Arrangements, S. S. Adams, M.D.

Elected to Membership, David L. Edsall, M.D., of Philadelphia.

Place and Time of Meeting, *Boston*, May 26, 27, 28, 1902.

Assessment for Ensuing Year—*Five Dollars*.

The offer of ARCHIVES OF PEDIATRICS to print the Transactions as in previous years, was accepted.

The President appointed Drs. Griffith, Holt and Freeman a committee for the purpose of indexing the volumes of the Transactions.

Members of the Society having extra volumes of the Transactions were requested to notify the Secretary.

The following resolutions on the death of Dr. Fruitnight were presented by Dr. Adams and adopted:

RESOLUTIONS.

WHEREAS this Society learns with deep regret of the death of Dr. J. Henry Fruitnight, of New York, one of the founders of this body, therefore,

Be it Resolved, That this Society expresses its loss in the death of such a useful member and earnest worker for the good of children; and it is hereby

Resolved, That we extend our sincere sympathy to the relatives of Dr. Fruitnight, that these resolutions be spread upon the minutes and published in the Transactions, and that a copy be sent to the family of the deceased.

WALTER LESTER CARR, M.D.,

Recorder.

THE NEW YORK ACADEMY OF MEDICINE—SECTION
ON PEDIATRICS.

Stated Meeting, May 9, 1901.

WILLIAM L. STOWELL, M.D., CHAIRMAN.

CASE OF DOUBLE BIRTH PALSY.

DR. J. F. TERRIBERRY presented this case. He said that Duchenne had been the first to call attention to this form of palsy, giving it the name, obstetrical paralysis. It was most commonly the result of difficult delivery of the shoulders of the child, necessitating the use of the finger of the accoucheur or the hook in the axilla, though according to some authors it sometimes results from compression of the brachial plexus by the umbilical cord. In the Duchenne type the arm falls by the side in complete extension, there is almost no disturbance of sensation, and the fingers move well. Birth palsy may be distinguished from cerebral palsy resulting from hemorrhage on the surface of the brain, by the presence of convulsions, spasticity of the limbs, exaggeration of the reflexes and absence of sensory symptoms. In the experience of the speaker most of these cases show marked improvement, but he had never seen such a case in which there had been a complete cure. If a reaction to the faradic current were obtained by the end of the third week it might be safely assumed that the child would get almost perfect use of the affected arm. The part should be kept absolutely at rest for upwards of four weeks, and this was best done by wrapping the arm up in cotton and so supporting it that it would not drag upon the brachial plexus. The daily application of the galvanic current and the use of massage at home would materially aid the treatment.

Dr. Terriberry exhibited an infant having the Duchenne type of birth palsy in both arms; also a child of seven years to show the results of treatment for some time; and finally a child who, while presenting an almost complete picture of this palsy, was found on more minute examination to have a clubhand and not birth palsy.

A CASE OF SPASTIC PARESIS.

DR. SARA WELT-KAKELS presented this case, which was probably of congenital origin. The child was three months

and a half old, a twin born after an easy labor at the seventh month. Soon after its birth it was noticed that the limbs remained crossed, the legs and thighs being flexed and the ankles extended. In walking, the same crossed position is maintained.

REPORT OF TWO CASES OF HYPERTROPHIC PYLORIC STENOSIS.

DR. J. H. LARKIN made this report. The first case was that of a child born at term of healthy parents and under normal conditions. When two weeks old, vomiting had set in and had been persistent until death at seven weeks. The only diagnosis made was marasmus. At the autopsy the stomach had been found slightly dilated and the pylorus markedly thickened. The other organs were perfectly healthy. The pyloric thickening was shown by the microscope to be the result of an increase in the circular muscular fibers and the replacement of the tubular glands of the mucous membrane by new connective tissue. This connective tissue substitution, the speaker said, had not been noted in all other reported cases with two exceptions. The theory of disturbed innervation of the stomach obviously did not explain the connective tissue proliferation. Meltzer had suggested that congenital pyloric stenosis is the result of an embryonal defect, and this view seemed plausible. These cases were not to be confused with cases of gastric spasm. By way of contrast, Dr. Larkin also presented a specimen of pyloric hypertrophy taken from a man, forty-six years of age who had given a history of vomiting and pain in the stomach in infancy and of long years of dyspepsia. He had finally sought relief in a gastroenterostomy, and while he had recovered from this operation he had died seven weeks later of an acute lobar pneumonia. In this pylorus a large quantity of cicatricial fibrous tissue had been found.

A CASE OF CANCRUM ORIS.

DR. W. S. BAINBRIDGE reported this case. (See page 433.)

TWO CASES OF CRETINISM.

DR. D. BOVAIRD presented two cretins, one of four years and the other two years old, in order to contrast them. The older child had been under typhoid treatment since last October, and had done well until attacked with pertussis. The other child exhibited improvement, though it had only been under treatment for three weeks.

AN INVESTIGATION OF ADENOIDS, ESPECIALLY WITH REFERENCE TO TUBERCULOSIS.

DRS. M. NICOLL, JR., and A. J. LARTIGAU were the authors of this paper, which was read by Dr. Lartigau. An effort had been made by them to determine whether the pharyngeal adenoids were subject to invasion by other microorganisms than the tubercle bacilli. To this end tube and plate cultures had been made from 11 adenoids. Five had remained sterile, and in the remainder the organisms were few, chiefly streptococci. Where the organisms present had been tested for virulence they had been found non-virulent. The next step in the investigation had been to take 75 adenoids, removed from children who appeared to be otherwise healthy, cut the specimens in half, and use one-half for inoculation experiments and the other half for microscopical study. These adenoids had been tested for tuberculosis. In 10 per cent. of the cases there had been present not only tubercle bacilli, but the histological lesions of tuberculosis; in 5.3 per cent. the tubercle bacilli had been present without other evidence of tuberculosis. At least ten sections were examined from each adenoid. Of the 46 specimens examined, 13 had shown a normal thickness of the epithelium and 29 no noteworthy increase in the fibrous tissue. Of the 12 specimens containing tubercle bacilli only, 8 also had giant cells, caseation and epithelioid cells. In every instance the bacilli were few and quite close to the surface. The authors, therefore, concluded that the infection of adenoids takes place from the surface, apparently without any break in the epithelium.

DR. M. NICOLL, JR., said that it seemed very significant that in 10 per cent. of their cases there should have been tuberculous foci in the respiratory tract, and he firmly believed that future study would demonstrate that tuberculous adenoids have a more important role than had hitherto been ascribed to them.

A CASE OF GENERAL SUBCUTANEOUS EMPHYSEMA.

DRS. SAMUEL PIERSON and WALTER LESTER CARR reported this case, the report being read by Dr. Pierson. (To be published in full in ARCHIVES OF PEDIATRICS.)

A REPORT OF TWELVE OPERATIONS IN INFANTS AND YOUNG CHILDREN DURING SPINAL ANALGESIA.

DR. W. S. BAINBRIDGE was the author of this paper. (See page 510.)

DR. J. LEONARD CORNING said that he had been deeply interested in the paper because of the success achieved in children. The extent of the analgesia mentioned in two of the cases—all over the body—was certainly remarkable, of great interest and most encouraging. It should relieve our minds of certain dread regarding the effect on the respiratory and other great centers. He had himself on one occasion uttered a warning against endeavoring to extend the area of analgesia. This method was not one of those which was likely to be dropped by the surgeons, and hence the field should be carefully investigated. He was disposed to think that there might be an evolution in the method now employed. On one occasion, thinking to rather localize the anesthetic, he had injected it with 1 per cent. of gelatin, and had found that the supervention of the analgesia had been enormously retarded. This was interesting as showing what should not be done. It had then occurred to him that by using a very volatile fluid and by varying the specific gravity, the anesthesia could be extended. He had made some attempts to induce analgesia without puncturing the membranes by invoking the action of electric cataphoresis. Here again the induction of anesthesia had been very long delayed. The speaker then exhibited the instruments that he had used in these experiments. Puncturing of the membrane was not at all dangerous. There had been about 2000 cases published, and it was denied by Tuffier that there was as yet any mortality associated with the procedure.

DR. CHARLES M. FORD said that having witnessed ten of Dr. Bainbridge's operations under this form of analgesia, he was in a position to testify to the success of the method. He remembered particularly an exceedingly nervous boy of eight years who, within ten minutes after the injection of the cocain, had become perfectly quiet and submitted without any trouble to a hernia operation.

DR. W. E. YOUNG, formerly house surgeon of Randall's Island Hospitals, said that he had had over forty cases of sub-arachnoid injection, during Dr. Bainbridge's time of service, under his immediate observation for seven months. In only one case had there been any severe after-effects. These, however, soon disappeared. Ethyl chlorid used locally in connection with the injection prevented pain. The injection had been made in various positions, but with no great variation in the results. Analgesia had been induced in from a half to fifteen

minutes. Most of the cases had been able to retain food within a few hours, and had slept well the first night. There had been no case of infection.

DR. J. H. LARKIN said that he had been called upon to make the autopsy on a woman who had died in the hospital unexpectedly six hours after the removal of the tubes and ovaries under intraspinal cocainization. The respiratory apparatus and all the viscera had been found practically normal, and the examination of the brain was negative. The only abnormal condition evident was a minute punctate hemorrhage in the substance of the spinal cord, involving the membrane and the periphery of the cord, which corresponded to the site of the injection.

DR. BAINBRIDGE, in closing, said that he had examined the literature of 1080 cases and had been unable to find an authenticated death which was due to cocain analgesia. The case as reported by Dr. Larkin is inadequate in many of the essential details, without which no one could be certain as to what, if any, relation existed between the spinal puncture and the death of this patient. Six hours interum between the operation and the death of the patient extended well beyond the longest period of analgesia so far recorded. He criticised the site of the introduction of the needle in this case where it could enter the substance of the cord. If the puncture is made low down in the lumbar region, even in children, the cord proper cannot be injured. In conclusion he said he does not look forward to more than its general application in selected cases, and that the future must determine the place spinal injection is to occupy in surgery.

An Inexplicable Auscultatory Phenomenon in an Infant.—

Konrad Gregor (*Berliner Klinisch Woch.*, March 4, 1901) describes the case of a child of three weeks presenting a loud blowing systolic murmur over the whole of the right side of the thorax, anteriorly and posteriorly. The heart sounds were clear, and at autopsy a cheesy bronchopneumonia of the left lower lobe, with beginning degeneration, was found, together with miliary tuberculous infiltration of the rest of the lung, liver and spleen. The heart was normal, and no cause for the murmur could be demonstrated.—*Medical Record.*

Current Literature.

PATHOLOGY.

Hunter, W.. and Nuthall, A. W.: **The Bacteriology of Sporadic Cerebrospinal Meningitis.** (*The Lancet.* No. 4057. 1901.)

Nine cases of meningitis occurring in children from one month to seven years of age were studied, lumbar puncture having been performed during life in eight of them. A diplococcus was isolated in every case, morphologically and biologically identical with Weichselbaum's diplococcus intracellularis meningitidis. In three cases the diplococcus was present in pure culture. The influenza bacillus was associated with it three times, the tubercle bacillus once, and staphylococci twice. The clinical and pathological picture in these cases was that of posterior basal meningitis, which is probably a sporadic manifestation of cerebrospinal meningitis and is produced by the same microorganism, namely, the diplococcus intracellularis meningitidis.

Culturally the two varieties of the coccus described by Pfaundler, one of which stains with Gram's method and grows more luxuriantly than the other, were distinguished. These groups probably represent one and the same microorganism.

MEDICINE.

Fedele, Nicola: **Epidemic of the "Glandular Fever of Pfeiffer" in Children.** (*La Pediatria.* Anno ix., No. 4.)

Ten cases of so-called glandular fever are reported. To cite two cases at random we select nos. 2 and 10 from the series. Case 2 was a six-year-old boy of sound parentage and in the enjoyment of robust health. On going to bed one evening he complained of pain in connection with movements of the neck and deglutition, and accompanied by cough and headache. Seen two days later he was found to have a temperature of 105° F, with tumefaction of all the lymph nodes of the neck on the left side, beneath the occiput and near the margin of the sternocleidomastoid. The pharynx was very red. A few days later the swelling of the nodes underwent resolution,

while those on the opposite side began to swell in turn. Complete recovery by the eighth day. Two other children in this family contracted the disease. (Cases 3 and 4.)

Case 10 was a girl aged three years. She had, during two days, vomiting in the morning, with evening rise of temperature. When first seen her temperature was 105° F. She had pain upon moving the head and upon deglutition, and there was marked swelling of the suboccipital lymph nodes on the left side, near the margin of the sternocleidomastoid. There were also present cough, coryza and albuminuria. In the course of a week the disease underwent resolution.

This affection is known to pass through the members of a family, and from one family to another. Its favorite season of the year is the springtime, when coughs, sore throats and influenza also flourish. Doubtless "glandular fever" begins in the throat, at which point the microbe of the disease enters the body. This affection is distinguished from diphtheria and other forms of angina by the fact that the tumefaction of the lymph nodes is seated in the suboccipital region. It is believed that the bronchial and mesenteric lymph nodes are also affected. The exciting cause is still unknown; various familiar bacteria, such as the streptococci, have been accused.

Relapses are frequent, as seen in Case 2 of the author. The course of the disease is strictly benign and no instance of supuration of the nodes has as yet been recorded.

As far as the swelling of the lymph nodes is concerned, the disease might often pass for the mumps, and the fever and epidemic character would favor such a mistake in diagnosis.

The following treatment is recommended: Calomel two or three times daily, and if the child is old enough to gargle, a solution of salicylic acid may be used for this purpose. Ichthyol ointment, 10 per cent. to 15 per cent. should be used for the tumefaction, with quinin for the fever.

Tunncliffe, F. W., and Rosenheim, Otto: Dermatitis from Arsenic in Stockings. (*The Lancet.* No. 4052.)

One of the cases was in a boy nine years old, whose first symptom was a pain in the right leg. An inflammatory nodule was in the act of forming on the back of the leg, at the junction of the upper and middle thirds. This was taken at first for a furuncle. Within twenty-four hours both calves exhibited a

number of lesions of the same sort, none of which were seated above the margin of the stockings. This peculiarity drew the attention to the latter garments, which had been put on new a few hours before the eruption was first noted. There was some slight, indefinite constitutional disturbance but the boy was completely well five days later. The stockings were again put on after having been washed and caused a repetition of the dermatitis. The stockings were subjected to analysis. They had been colored by chromi black, and they also contained arsenic, as revealed by Marsh's and Reinsch's tests. Some of the arsenic was evidently in a soluble form.

Cappuccio, Domenico: Riga's (or Fede's) Disease. (*La Pediatria.* Anno ix., No. 4.)

Within a short time this disease, once so little understood, appears to have become tolerably well-known. The malady consists of a new formation beneath the tongue in nurslings, which partakes of the nature of both a fibroma and an infectious process. The author's resumé of his study is as follows:

The microorganism responsible for this disease lives in the mother's milk, the mother herself being immune to its attacks. This germ attacking the frenulum of the nursling's tongue, may possess sufficient virulence to produce a fatal cachexia.

A girl exposed in a family epidemic, marries later on, and her own infant contracts the disease from the breast milk.

Sometimes the initial lesion on the frenulum of the tongue is absent, and the germ passing into the blood, settles in the mammary glands where it may remain inert for a prolonged period, retaining its virulence throughout. Nurslings are usually attacked in the fourth or fifth month of life. This delay can be explained only by the supposition that the infectious germ does not become virulent until midway during lactation.

The fact that the frenulum is the point of attack, must be explained by its position during the act of nursing.

There are a few cases on record in which the disease has been transmitted directly from one child to another.

The infectious germ appears to cause the formation of a granuloma, the superjacent tissue sometimes presenting a diphtheroid exudate. Histologically the tumors show a preponderance of fibrous tissue.

Hoge, M. W. : Hysterical Astasia-Abasia in a Child Aged Two Years and Four Months. (*St. Louis Courier of Medicine.* Vol. xxiv., No. 4.)

The patient had a neurotic family history on the maternal side, but had walked and talked as well as is usual with children of her age. An acute attack of bronchitis was followed by considerable reduction in flesh and strength, and she asserted an inability to walk. The legs were moved freely while the child was sitting down; the muscular resistance to passive motion was normal; there was no pain, anesthesia nor atrophy, and no sign of bone or joint disease; the reflexes were normal. When placed in a standing position she became agitated, cried out that she could not walk, stiffened the legs and stood upon the toes, maintained this position for a minute or more, and if supported walked with ataxic movements of the legs. If asked to grasp something with the hands, during the examination, she protested an inability to do so, but ordinarily used the hands well.

The difficulty in walking disappeared in about a month, as her physical condition improved. She has continued well. The case is interesting because of the early age at which this hysterical manifestation appeared.

Little, E. Graham : Vaccinal Lupus. (*The British Journal of Dermatology.* No. 150.)

The author gives what is practically a monograph on the subject. He reports in great detail a case of his own. A girl was vaccinated when five months old. Calf lymph prepared by a trustworthy house was used. The calf had been killed, but no autopsy had been made. The virus had been treated with glycerin, and was not over forty-eight hours old when used. The patient was a Jewess and her parents had no known tuberculous taint. A little brother of the child, who was eighteen months older than his sister, developed pulmonary tuberculosis and died at the age of three years. Another child died of an unknown otic or intracranial infection (no satisfactory diagnosis during life and no autopsy). Four other children were healthy. The child was vaccinated in four places, and after a period of three weeks the two upper scabs fell off in the natural manner. The two lower lesions did not heal, but became transformed into unhealthy red, fungating lesions which

discharged pus and bled freely. This state of affairs persisted for years, in spite of all treatment.

The site of the vaccinations was then occupied by a typical patch of lupus vulgaris measuring $2\frac{1}{8} \times 1\frac{1}{2}$ inches. The upper scars of the vaccination were not involved in the process. The axillary lymph nodes were somewhat enlarged, hard and shot-like. The general condition presented no evidence of tuberculosis. The lupus was at once excised and the resulting defect made good by skin-grafting. There had been no recurrence to date. Various tests, including the animal experiment, left no doubt of the bacillary and tuberculous nature of the lesion.

In regard to the rationale of the production of this lesion, a comparison with similar material is the first step in its determination. Hutchinson's case was very like that of the author, and but few data could be obtained in regard to it. Vaccination had been from arm to arm. Besnier reported a similar case which he held to have been caused by inoculation with contaminated vaccine lymph. A third case was brought to light by the Royal Vaccination Commission in 1896. The history of the case corresponded to that of the other recorded examples, but the absence of definite data was notable. Kayser reported a case of lupus of the arm said to have developed immediately after vaccination. In this as in Tennander's, and in fact in several cases, the number of years which had elapsed since vaccination made it difficult to obtain trustworthy data. Payne once reported a doubtful case, while Colcott Fox has seen no less than three. The author's case is therefore the tenth to be recorded, and when we consider that not one report has demonstrated even a strong probability of transmission from vaccine lymph, it cannot be held that so-called vaccinal lupus is a stigma upon vaccination.

Kissel: A Rare Case of Congenital Heart Disease. (*Die med. Woche.* No. 16.)

The child is six years of age, but appears about four. Skin and mucous membranes markedly cyanotic, subcutaneous fat fairly abundant, gums swollen, loose and bleed easily. Thorax normal. Lungs negative and area of cardiac dulness normal. At the apex and over the pulmonary valve (*arteria pulmonalis*) there can be heard a blowing systolic murmur, varying some-

what in intensity. A faint sound is to be heard simultaneously. Second sound heard everywhere and seems slightly accentuated in the second left interspace. Clubbed toes and fingers are present. The child is comfortable in bed, but any attempt to walk is immediately associated with dizziness and dyspnea. This is also observed with any nervous excitement. Kissel assumes stenosis of the pulmonary artery and a large fenestrum in the septum ventriculosum to be present.

Speranski : A Case of Ulcerative Angina with Vincent's Bacilli. (*Die med. Woche.* No. 16. 1901.)

The patient was a child five years of age brought to the hospital with a diagnosis of diphtheria. On the left tonsil and anterior pillar there was a dirty gray membrane, thick and apparently superficial. Microscopic examination of the membrane showed pus corpuscles, Vincent's bacilli and sporilli with few other bacteria. The membrane was easily removed on the second day with a platinum loop; the difficulty in swallowing disappeared and the child was discharged well.

Taylor, F. W. : Pathology of the New-born as Illustrated in the Practice of the Writer. (*Boston Medical and Surgical Journal.* Vol. cxliv., No. 15.)

Of 654 infants, 64 (nearly 10 per cent.) were abnormal at birth or during the first few days of life; 23 were still-born, and 22 died within a few days. Of these 8 were premature and died of lack of vitality; 3 had been delivered with forceps, 5 were born of uremic mothers, 2 of a phthisical mother; 1 developed purulent inflammation of the navel and died when five days old; 1 died of hemorrhage from the umbilicus, no history of hemophilia being present; one had an esophageal malformation, the upper end of the esophagus being a blind pouch, the lower communicating at its upper end with the trachea by means of an opening about a line in diameter; a pediculated encephalocele caused death in another. Ten infants showed delayed respiration, but recovered; 6 of these were forceps cases, 2 were delivered by podalic version and 2 had the cord around the neck. There was 1 case of hare lip, 1 of cleft palate, and 1 capillary nevus of the left side of the face. Three infants had mild ophthalmia, and 2 recovered from melena. One child was born with a depression in the left frontal bone, $1 \times 1\frac{1}{2}$ inches in diameter and $\frac{1}{2}$ inch deep, due to pressure of the for-

ceps. Within four weeks the bone had nearly returned to its normal contour. Another forceps case had left facial paralysis, lasting eleven days.

Funck, M.: A Preliminary Note on the Etiological Agent in Vaccinia and Variola. (*British Medical Journal.* No. 2045. 1901.)

His experiments led him to conclude that the etiological agent of vaccinia and of variola is identical, and that the former is nothing more than an attenuated form of the latter. Consequently the immunity to small-pox which vaccination confers does not form an exception to the general laws of specific immunity. The etiological agent of vaccinia is not a microbe, but a protozoon, the inoculation of which in a sterile emulsion, reproduces in susceptible animals all the classical symptoms of vaccinia. This inoculation renders the animals refractory to subsequent inoculation with vaccine. The variolous pustule contains a protozoon morphologically similar to that in the vaccine.

Further details of the work are to be published soon.

McCulloch, E.: A Case of Concurrent Erythema Multi-forme and Erythema Nodosum. (*The Lancet.* No. 4051. 1901.)

The patient was a boy fifteen years old, with a markedly rheumatic family history on the mother's side only. Following an exposure to rain a typical eruption of erythema nodosum appeared on both shins, the nodes being about the size of a walnut and tender on pressure. At the same time a few small groups of reddish papules appeared on the face, some coalescing to form small raised patches, situated on the infraorbital regions and just external to both outer canthi. The temperature was 100.5° F. and there was but little general discomfort. The facial papules were moderately hard to the touch and paled on pressure. They continued to extend for a few days; then opalescence appeared in some and vesication in others. A certain degree of general swelling was present for a day or two, but rapidly subsided. Papules also appeared on the backs of the hands and fingers, and fresh nodules on the shins from day to day for a week, all gradually passing through the usual succession of chromatic changes. The temperature did not rise above 99.8° F. after the eighth day. The eruption gradually faded from the face and legs, leaving slight pigmentation which was visible for about three weeks.

The symmetrical arrangement, distribution and local ap-

pearances were all characteristic of erythema multiforme, while the condition of the shins was absolutely characteristic of erythema nodosum. The case is a very definite demonstration of the identity of these two conditions.

Abt, I. A.: Floating Kidneys in Children. (*The Journal of the American Medical Association.* Vol. xxxvi., No. 17.)

Five cases are reported, aged respectively five, nine, ten, twelve and fourteen years. Three were girls and two boys. In four the right kidney was affected, and in one the left. Pain may be paroxysmal, dependent probably on a twisting of the pedicle, it may also be colicky in character, and accompanied with a chill, fever, vomiting and perspiration. The kidney is usually sensitive, but not acutely painful, to pressure. Gastro-intestinal symptoms are not uncommon.

In the older children a congenital predisposition must be assumed. The exciting cause may be an acute or chronic trauma. Two of the reported cases had marked chronic bronchitis and emphysema.

Ausset, E. and Vincent: A Case of Acute Articular Rheumatism with Endopericarditis, Pleurisy, Pulmonary Congestion, Cerebral Rheumatism and Hemichorea in a Child Eleven Years Old. (*L'Echo Méd. du Nord.* Vol. v., No. 14.)

During a second attack of rheumatism, involving the shoulders and the left elbow, wrist and knee, the boy developed a pericarditis, then a double pleurisy with effusion, choreic movements of the left side only, the right remaining perfectly quiet, and some cerebral symptoms. The child made a good recovery, but retained a murmur of mitral insufficiency.

Cerebral rheumatism proper is not common in childhood, but those cases in which it is intimately associated with chorea are frequently seen. The symptoms are: delirium, hallucinations, high temperature and, in a day or two, incoordinate movements of the face and extremities. While cure often results, a certain amount of intellectual febleness may remain.

Fischer, C.: Two Cases of Scurvy Rickets. (*The British Medical Journal.* No. 2101. 1901.)

Both patients, girls aged nine and twelve months respectively, had fairly well marked rickets. The younger had been fed on Nestlé's milk and a patent food, the other on milk and

barley water. The right thigh became swollen and tender in the one, the left thigh in the other. The gums were bluish but not spongy. Anemia was extreme. The older child had bloody stools and a blood-stained discharge from the nose. The temperature became subnormal after the acute stage had subsided.

Improvement was rapid as soon as treatment was begun with orange juice, raw meat juice and cow's milk.

Bullard, W. N., and Townsend, C. W.: **Convulsions in Children.** (*The Boston Medical and Surgical Journal.* Vol. cxliv., No. 10.)

The out-patient records of the Boston Children's Hospital for eleven years show that 1 per cent. of the applicants came for convulsions. Of children between five and twelve years of age 10 per cent. gave a history of convulsions. Cases that appear to be due to some manifest reflex cause may turn out to be epilepsy. Other cases, where the attacks occur frequently and without apparent cause, may suddenly recover, at least, for a considerable period. Children who have had convulsions may be strong and free from nervous tendencies in later life, although the proportion who have nervous tendencies seems to be greater than in those who have not had convulsions.

Tricas, Claudio, Buxó y Font, Juan, and Puig, Pedro Barrufet: **Cases of Interest Treated at the Pediatric Clinic of the University of Barcelona, 1900-1901.** (*La Medicina de los Niños.* Tomo ii., No. 15.)

Tricas describes a case of hypertoxic typhoid fever in a girl aged twelve years. The disease was of the ataxic type with cyanosis, demanding sinapisms over the feet and precordium, and stimulation with caffeine, ether and brandy. Intestinal irrigation was practiced, and injections of a special form of saline infusion (chlorid, phosphate and benzoate of soda with caffeine). After making a good recovery the patient was attacked during convalescence by confluent small-pox, to which she quickly succumbed.

Buxó y Font relates a case of typhoid fever which underwent a relapse during which periostitis developed over the great trochanter, with resulting abscess and fistula. The case is of interest, because the patient was not seen until the fistula

had become established, and the condition was strongly suggestive of a tuberculous coxitis.

Puig reports a case of pernicious infantile atrophy with resulting softening of the brain in a three-year-old girl. The weight of the patient corresponded to that of a six-months-old infant. There was a high degree of emaciation, with tympanites and an edematous state of the lower limbs, points of gangrene being visible on the outer aspect of the dorsum of both feet. Treatment was of no avail. Autopsy revealed adhesions between the meninges and skull. The encephalon was congested with phlebectasis of the meninges. There was an area of softening in the brain.

Zahorsky, John: Influenza in Infants. (*St. Louis Courier of Medicine.* No. 140.)

Infants are now known to be very commonly attacked by influenza, but the nature of the malady is often overlooked. We need a criterion for deciding upon what is and what is not influenza. The prevalence of an epidemic, while valuable as evidence, is of course not infallible. Some of the epidemics of respiratory diseases in infant asylums are not due to the germ of influenza, but to some other microorganism, as for example, the pneumococcus.

In theory, our resources for the recognition of influenza are made up as follows: Evidence of contagion, a typical fever-curve, a typical appearance of the fauces, catarrh of the upper air-passages, and the presence of Pfeiffer's bacillus.

Influenza in infants may be afebrile, but in the vast majority of cases fever having a characteristic curve is present. The onset is sudden, the rise rapid, the temperature remains high for a day or two and then rapidly declines. Inverse temperature (highest in the morning) is common. Reinfection is common in ill-ventilated rooms; the immunity is only local, for a patient may recover from influenza-coryza only to come down with a focus of the same disease in some other part, the lung, for example.

The influenza-throat presents a characteristic picture: a horseshoe-shaped area of congestion involving the soft palate and anterior pillar of the fauces, with a sharp line of demarcation between the healthy and diseased mucosa.

Some cases of influenza are unaccompanied by phenomena of catarrh. The rule is, however, for the inflammation to

extend from the fauces to the continuous mucosæ, or the latter may be primarily involved. Zahorsky believes that most cases of spasmodic croup are caused by the influenza bacillus. Localization in the bronchioles or lungs is not common in healthy infants, save in crowded asylums; and when it does occur, it represents a secondary infection by the pneumo- or streptococcus.

Gastritis of influenza is of short duration, with symptoms that are severe while they last.

In regard to influenza-pertussis which so closely resembles whooping-cough, the author regards it as an accidental complication which cannot propagate itself *per se*, like true pertussis.

Treatment may be summarized as follows: Rest and fresh air, careful attention to diet, prevention of secondary infection, and supervision and control of bodily functions.

Lees, D. B.: An Address on Acute Dilatation of the Heart in Diphtheria, Influenza and Rheumatic Fever. (*British Medical Journal.* No. 2088.)

After narrating seven cases of sudden death during or after diphtheria, the author seeks an explanation of this phenomenon. In regard to the part played by neuritis of the vagus, he states that we have no positive evidence as to the pernicious character of this complication. It would be more rational to implicate the myocardium in these cases. Several observers have found that the cardiac muscle is often much disintegrated in fatal diphtheria.

Theoretically, we should find in cases of cardiac failure in diphtheria, a feebleness in the pulse-wave, in the cardiac impulse, and in the first sound at the apex. And as a matter of fact, this is exactly what we do find in many cases of diphtheria.

The author warns against dependence upon the presence or absence of murmurs. Much may be learned from the relative intensity of the first and second sounds of the heart. Palpation and percussion are much neglected as resources. Percussion is also of the greatest value in estimating the possible presence of cardiac dilatation. If the line of dulness extends two finger-breadths to the left of the nipple line, the child is in imminent danger, and should not be allowed to sit up in bed.

After an attack of cardiac dilatation has apparently passed off in safety, the patient is still in great danger. A good rule is to keep the patient under observation for a period of two months.

Cattaneo, Cesare: Herpes Zoster in Children. (*La Pediatria.* May, 1901.)

He speaks of the extreme rarity of this affection in children, which infrequency had led him to report two personal cases.

The first case was an example of intercostal zoster in a girl aged four years which occupied an area corresponding to the eighth and ninth ribs of the left side. The evolution of the eruption was accompanied by moderate pyrexia. The disease ran a benign course throughout. Cultures from the blood were sterile, and a few streptococci were cultivated from the vesicles of the eruption.

The second patient was a girl aged twelve years. The site of the eruption was the region of the eleventh rib and intercostal space of the left side. There was likewise some pyrexia in this case, which accords with the statement of authors that infantile zoster is always attended by a febrile reaction.

Fabris, Pietro: Etiology of Infantile Paralysis. (*La Pediatria.* May, 1901.)

During the years 1897 and 1898 he made an exhaustive study of 22 cases of infantile paralysis from the special standpoint of etiology. These cases are carefully tabulated, and an attempt is made to trace some association between the disease and habitation of the patient. The subject of possible inheritance of a neuropathic or other tendency and the question of an infectious origin are also carefully considered.

It cannot be said that the environment exerts much influence upon its production, because facts show that a large number of the children were living upon elevated ground. Nevertheless the author concedes that a rheumatic element may play some slight part in predisposing to the disease. On the other hand, there can be little doubt that the spinal disease which produces the paralysis occurs readily in a neuropathic soil, although in over half the cases the history of heredity was negative. Cases regarded as positive include the presence in the ascendants of the following neurological affections: cerebral apoplexy, alcoholism, bulbar paralysis, epilepsy, infantile paralysis, cretinism, mania, and hysteria.

As the exciting cause the necessity of a toxin is presupposed. This is of bacillary origin and the bacillus acts at a distance through its toxin. The point at which the latter is first

generated does not appear to be known and doubtless varies as to locality. In some cases it may be produced in the joints (rheumatic type), in others in the serous sacs, etc. The toxin, wherever produced, readily attacks the spinal marrow of the predisposed infant.

Spiller, W. G.: **A Case with the Symptoms of Cerebrospinal Meningitis, with Intense and General Alteration of the Nerve Cell Bodies, but with Little Evidence of Inflammation.** (*The Journal of Nervous and Mental Diseases.* Vol. xxviii., No. 3.)

A feeble-minded boy, eight years old, died after an illness of six months. There was much pain which the child could not locate, restlessness, hyperesthesia, photophobia, delirium followed by coma, and an erythemia which spread during the last two days. A diagnosis of cerebrospinal meningitis was made. Vomiting and diarrhea accompanied the onset.

The autopsy showed the brain to be edematous, and a large amount of blood-tinged cerebrospinal fluid escaped. No distinct evidence of inflammation could be determined with the naked eye. There were no tubercles. Microscopically degenerative changes were found in the nerve cells in the anterior and posterior horns of the cord, in the nuclei of the cranial nerves, in the sensory and motor nucleus of the fifth nerve, in the parietal lobe and in Purkinje's cells. The lesions of meningitis were not found, but there was a very slight round-cell infiltration in some parts of the pia and about some of the intramedullary blood vessels. Numerous small bacilli were present. The lesions were possibly due to a toxin, but this has not been proven.

Hallé, J., and Armand-Delille, P.: **The Coincidence of Rheumatic Endocarditis with a Congenital Heart Lesion.** (*Arch. de Méd. des Enf.* Vol. iv., No. 5.)

The case was that of a boy three years old who had always been healthy until the present attack of acute articular rheumatism involving the ankles and elbows. Attention was drawn to the heart by the rapidity and intensity of its beat. There was a systolic murmur at the apex, transmitted to the back; the area of cardiac dulness began at the right border of the sternum. The lungs were normal. Death occurred in the third week of the illness from heart failure after severe progressive dyspnea and cyanosis lasting several hours.

At the autopsy a cheesy mass (tuberculous) was found in

the left lung. The heart weighed 180 grams; there were vegetations on the mitral valve which was much thickened. The foramen ovale was open, and as large as a one-franc piece. All the other viscera were deeply congested. The interesting features of the case are the early age of the patient (rheumatism being rare under five years), the existence of a congenital lesion without cyanosis or any serious functional sign and the rapidity with which the terminal symptoms occurred—in a few hours. The case follows the rule recently laid down by Marfan: Whenever, in children, an acquired endocarditis presents very grave symptoms, one must suspect that it does not exist alone, but is accompanied either by a pericarditis or by a congenital anomaly of the heart. Congenital heart disease predisposes remarkably to endocarditis from various causes, and naturally makes the prognosis much more grave.

SURGERY.

Bruns, C. : Treatment of Contractures of the Knee Joint.
(*Centralbl. f. Chir.* No. 6. 1901.)

The case is one of convalescing tuberculosis of the knee in which for two years all conservative measures to prevent contraction had been of no avail. The biceps tendon was then transplanted into the quadriceps extensor. Five and one-half months after the operation the leg had remained in good position. The patient was able to walk without pain.

Power, D'Arcy: A Case of Strangulated Hernia in a Premature Child Aged Five Weeks; Operation; Recovery.
(*The Lancet.* No. 4057. 1901.)

The child was emaciated, blue and collapsed. He had been born at seven months. Three days before admission to St. Bartholomew's Hospital a swelling had been noticed in the left groin; since that time vomiting was repeated and there had been no stool. Taxis under chloroform failed to reduce the hernia, which was, therefore, cut down upon. The sac contained a very little piece of omentum with a knuckle of small intestine, rather deeply congested. The hernia was of the congenital variety, and the constriction was situated at the internal ring; it was very tight. The child made a perfect and rapid recovery.

About 100 cases of herniotomy for strangulation have been

recorded in which the patient was under one year old, nearly half the cases occurring during the first three months. The mortality in operated cases is by no means high.

Safford, Homer E. : Congenital Umbilical Hernia ; Report of a Case, and a Table of Cases Hitherto Reported. (*Philadelphia Medical Journal*. No. 165.)

The recorded material, embracing some 90 cases, is carefully tabulated, and in addition to the author's case, three others not included in previous tables are appended. The article therefore has the status of a monograph; 64 of the 90 cases were submitted to laparotomy for radical operation, and that 42 (= 65.6 per cent.) recovered, while 21 died, and in 1 case the result was unknown. One patient was cured by subcutaneous ligature, and of 3 cases in which percutaneous ligature was employed, 2 died and 1 was cured. Five cases were cured by Olshausen's extraperitoneal operation. There were 73 cases in which intervention was practiced, with 49 successful results (67 per cent.) Fifteen cases were treated expectantly with 7 recoveries and 8 deaths. Two cases died, concerning which data as to treatment are lacking. From another table it appears that operative mortality is much less in cases which were operated upon early. Thus the mortality was but 26 per cent. in cases operated on within thirty-six hours, and increased progressively with the interval before operation.

Willard, De Forrest: Congenital Deformity of Wrist; Osteotomy of Radius. (*American Medicine*. Vol. i., No. 3.)

The patient was a girl fourteen years of age, whose carpus was thrown, by an arched condition of the radius, so far out of the normal line anteriorly that it failed to articulate with the ulna and was joined very faultily with the radius. Osteotomy $1\frac{1}{2}$ inch about the wrist joint and flexation for five weeks gave improved position and increased power.

Judge-Baldwin, F. B. : Foreign Body in the Bronchus; Tracheotomy; Recovery. (*The Lancet*. No. 4061.)

A five-year-old boy had a beechnut pass into the lower respiratory tract from the mouth. He became somewhat cyanotic, with choking sensations, but appeared to be in no immediate danger of fatal strangulation. One hour after the accident his

symptoms consisted of rapid breathing, stridor and aphonia and were somewhat intermittent. The laryngoscope showed total bilateral paralysis of the adductors, but the larynx contained no foreign body, and the trachea was also free as low down as the eye could see. The thorax was now examined and evidences of obstruction of the left bronchus were readily apparent.

Tracheotomy was performed two days later, the symptoms having become urgent. In attempting to slightly anesthetize with chloroform, the breathing suddenly ceased. The trachea was thereupon hastily opened, and artificial respiration, applied for a considerable interval, produced reanimation. The long forceps introduced into the left bronchus encountered no foreign body. The boy was then inverted and some blood escaped from the bronchus. A tracheotomy tube was then inserted.

The subsequent course was unfavorable for the first few days, the breathing being extremely rapid with Cheyne-Stokes respiration. The symptoms then began to improve. Bits of the husk of the beechnut were found on the dressing over the tube on the seventh day after intervention. The patient made a relatively rapid recovery.

HYGIENE AND THERAPEUTICS.

Chapin, Henry D.: **A Simple and Accurate Method of Substitute Infant Feeding.** (*New York Medical Journal.* Vol. lxxiii., No. 8.)

There are three equally important factors in the preparation of a substitute for woman's milk: (1st) Selection of good cow's milk; (2d) modification of milk with reference to percentages; (3d) the choice of a diluent.

As milk is rendered unfit for use by growth of certain kinds of bacteria, the growth of bacteria is prevented by cooling milk to below 60° F. Cooling milk also promotes separation of cream. If the milk is bottled right after milking, cream will have raised by the time it is delivered to families. There is great variation in richness of milk and cream, but the same milkman's supply runs quite uniform from day to day. Calculated mixtures of milk and cream are not accurate and only confuse, as standardized milk or cream can seldom be procured. What is at hand must be used.

There are two great classes of milks: 1st. Those that form

hard, solid curds with rennet—cow's and goat's milk. 2d. Those that form soft, flaky curds with rennet—woman's, mare's and ass's milk.

Digestive enzymes act by contact, and the food that is most finely divided and can most easily leave the stomach is the most suitable for weak digestions. The proteids of woman's milk easily leave the stomach. Little of the proteids of cow's milk diluted with water can readily leave the stomach.

Diluting with wheat or barley gruel in which the starch has been digested breaks up the curds. Digested gruel is made by boiling a heaping tablespoonful of flour with a pint of water, cooling and adding an aqueous solution of diastase that can be made at home from malted barley grains or from preparations of diastase made for this purpose. Specimens of milk diluted with water and digested wheat gruel and curded by rennet were presented. The curds of milk with a digested gruel diluent passed through a sieve having 900 meshes to the square inch; those with water diluent remained on the sieve.

Have milk bottled and cooled at the dairy. Dip off top, nine to sixteen ounces, into a pitcher or bowl. Here fat and proteids are in about the same ratios as in woman's milk. If a siphon is used the sediment goes into the infant's food, and it is difficult to manipulate.

Prepare the digested gruel: Make the infant's food one-eighth to one-third of nine ounces top milk, or one-eighth to two-thirds of sixteen ounces top milk, the balance digested gruel. Add one part sugar, twenty to twenty-five parts water.

Fine adjustments of percentages are not needed by this method. Nearly the same percentage results will be attained with any milk. Rich milk will be diluted more, poor milk less. Each additional ounce removed from milk bottles reduces fat in top milk 5 per cent. to 1 per cent., which cuts down the fat in infant's food $\frac{1}{8}$ to $\frac{1}{3}$ per cent., depending on the dilution. The important point is to procure strictly clean, fresh cow's milk and then dilute it properly for the infant's capacity and digestion.

Kerley, C. G.: The Treatment of Scarlatinal Nephritis.
(*Medical News.* Vol. lxxviii., No. 24.)

A child with scarlet fever is not to be looked upon as having recovered until five or six weeks have safely passed. Dur-

ing the first three weeks he must be kept in bed, no matter how well he may feel nor how mild the attack may have been. The temperature of the room should range between 68° and 72° F.

In the management of a nephritis of average severity, appearing three to five weeks after the disappearance of the rash, the diet must be considered first. Milk, broths and thin gruels only should be given. Alcohol in any form should never be used in these cases. There should be two or three stools daily, for which purpose calomel (1-10 grain per hour until 1 grain has been given) every third or fourth day, with two to four ounces of citrate of magnesia on the intervening days, is useful. Aconite in doses of $\frac{1}{4}$ minim every two hours for a child three years old produces moderate diaphoresis and sometimes diuresis. Should this fail hot air is used, generated by a kerosene lamp and conducted under the bed-clothes by means of a funnel and tin pipe. The hot pack may be necessary as well, in which case the child is immersed in water at 108° F. and kept there ten to twenty minutes, hot water being added from time to time. Exposure after the bath or pack must be carefully guarded against. Hot poultices may be of slight service, but cupping over the kidneys has never been of any assistance in severe cases. The most useful remedy of all is hot water flushings of the colon. A pint to a pint and a half every six or eight hours of normal salt solution at 110° F. answers best, and will be retained by most patients. The rectal tube should be inserted at least ten inches. The results are most gratifying in restoring the kidney function after three to five flushings. The child must be kept in bed until the urine has been normal for two weeks.

Bellei, J.: Mental Fatigue in School Children. (*The Lancet*. No. 4054. 1901.)

Four hundred and sixty children were tested by means of dictations lasting twenty to twenty-five minutes. The average age of the boys was eleven years, four and a half months; and of the girls eleven years and eight months. It was not possible to draw any conclusion as to the influence of the single subjects of teaching upon the mental condition of the children. The first hour of lessons is a useful mental exercise, because the pupils then overcome the state of inattention in which they

come to school. The morning lessons do not produce great mental fatigue. The midday rest is valuable because it does not destroy the good effects of the mental exercise in the morning and enables them to do better work than that which they produce after a long rest. Though the children are in the best conditions of mind immediately after the midday rest, an hour or so of application in the afternoon is sufficient to produce such a mental fatigue as to lead at the end of the afternoon lesson to the worst work of the day. Therefore, if the morning application does not fatigue, it consumes the mental energy of the children in such a manner that they cannot undertake light work in the afternoon without falling into great mental fatigue.

Fornaca, Luigi: Lumbar Puncture in Chorea; on a Form of Chorea Occurring in the Course of Erysipelas. (*La Riforma Medica.* Anno xvii., No. 6.)

The first lumbar puncture practised in the medical clinic at Turin was upon a ten-year-old girl who was suffering from acute chorea. The case terminated fatally after an illness of about a fortnight. The disease had been ushered in with fever and angina. Although staphylococci were found in the cerebral pulp and in blood from the vessels of the brain, the cerebrospinal fluid remained sterile.

Within the past year the author has practiced lumbar puncture in three cases of chorea. The first patient was a girl aged thirteen years in whom the disease came on with acute symptoms and without fever. The puncture was made on the fifth day of the malady. The second patient was a ten-year-old girl in whom the chorea appeared to be due to a suppurative otitis media which terminated in perforation. Two lumbar punctures were made in this case, the second of which followed the development of a lesion of the mouth with purulent infection and fever. In this case the cerebrospinal fluid was sterile.

The third case was one of much importance. The patient was a fourteen-year-old girl with several cases of epilepsy or convulsive attacks in the family. In February, 1900, this child was treated for facial erysipelas; a second attack developed in the following April, and a third about June 1. On the second day of the third attack intense headache came on, and on the following day the choreic phenomena set in with high fever.

Lumbar puncture was at once performed and was followed by a defervescence, while the choreic symptoms disappeared a few days later. In this case the streptococcus pyogenes was cultivated from the cerebrospinal fluid.

About one case in three of chorea appears to be associated with fever and to have an infectious character. Erysipelas is the third in frequency of infectious diseases which seem to set up chorea, scarlatina and measles, ranking as first and second respectively.

Lumbar puncture appears to be able to exert a favorable effect on the development of chorea when all other measures fail.

Waxham, F. E.: **Intubation of the Larynx, with Personal Reminiscences.** (*Journal of the American Medical Association.* Vol. xxxvi., No. 16.)

The author gives an interesting retrospect of the evolution of the modern treatment of diphtheritic croup.

In tracheotomized cases there was one recovery out of four, five or six cases, while intubation reduced the mortality to 60 per cent. in some series. Finally the introduction of antitoxin in association with intubation has almost done away with mortality; during the author's last 70 cases it was but 6 per cent. To refrain from the use of antitoxin in diphtheritic croup, is, in the opinion of author, a crime.

He gives details that are of purely historical interest.

Strachan, Peter D.: **A Case of Belladonna Poisoning; Morphia Used as an Antidote.** (*The Lancet.* No. 4052.)

A five-year-old boy was given a tablespoonful of glycerin of belladonna by mistake for syrup of senna at 9.30 P. M. and at midnight the loud heart-beat and quick respiration of the child attracted attention. When roused he could not stand and became wildly delirious and restless; the motor phenomena were not convulsive. The face was flushed, but not cyanotic. No vomiting.

The stomach was immediately washed out with a siphon, and a hypodermic of morphia ($\frac{1}{4}$ grain) was administered. There was no evidence from the washings that belladonna had been swallowed, and doubtless the entire quantity had been absorbed.

Several hours later the child was still delirious, although there were no other alarming symptoms. He was given morphia again, and, after a good night's sleep, awaked with no evidence of what he had been through save for the pupillary state, dilatation persisting for several days.

It was computed that the boy had absorbed at least one grain of the active principle of belladonna (atropin or, as some believe, hyoscyamin), the medicinal dose of which for a child would be something like 1-100 of the amount ingested. The known tolerance of belladonna exhibited by children was thus strikingly illustrated. Morphia appears to have acted as a perfect physiological antidote in this case.

McKenzie, D. : Suprarenal Gland Extract in the Epistaxis of Hemophilia. (*The British Medical Journal.* No. 2104. 1901.)

A boy, thirteen years old, with a clear personal and hereditary history of the hemorrhagic diathesis, suffered from nose bleed on and off for ten days. No bleeding point was found. Plugging stopped the hemorrhage, but it began again as soon as the plug was removed. Pallor and weakness became marked. A purulent discharge, from the constant presence of the foreign body, was very annoying. Finally a solution of suprarenal extract (15 grains to the ounce of water) was applied by means of a cotton-wool tampon loosely inserted into the nostril. Violent sneezing accompanied the application of the remedy, but the hemorrhage was checked at once and permanently.

Kober, G. M. : Conclusions Based Upon Three Hundred and Thirty Outbreaks of Infectious Diseases Spread Through the Milk Supply. (*The American Journal of the Medical Sciences.* Vol. cxxi., No. 5.)

The number includes 195 epidemics of typhoid fever, in 148 of which the disease prevailed at the farm or dairy. Of the 99 scarlet fever epidemics 68 showed cases of malady at the dairy or milk farm. In 6 instances persons connected with the dairy lodged or visited in infected houses; in 17 cases the infection was conveyed by persons handling the milk while suffering or recovering from the disease, and in at least 10 by people who acted as nurses while handling the milk. In 1 instance the cans had been wiped with an infected cloth, and in 2 cases bottles or cans became infected while left in scarlet fever houses.

Of the 36 diphtheria outbreaks, 13 showed cases at the dairy. In 3 instances employés handled the milk while ill with the disease. Two hundred and forty-three epidemics (of 330) were recorded by English authors, 52 by American, 14 by German, 11 by Scandinavian, and 5 each by French and Australian writers. This is probably due to the fact that milk is consumed raw in England and America, but on the Continent it is rarely used without being boiled.

Somerset, W. L.: Notes on the Treatment of Diphtheria, Based on the Methods of the New York City Hospitals. (*New York Medical Journal.* Vol. lxxiii., No. 16.)

Antitoxin is given in doses of twenty-five hundred to four thousand units. Locally irrigation cleanses the throat and nose, contributes to the comfort of the patient, removes decomposed membrane and thus lessens absorption of putrefactive products, improves the odor of the breath, and when hot solutions are employed, lessens pain. Children are best placed on a table, wrapped in a sheet or blanket and covered by a thin rubber sheet. Either a fountain or a hand-ball syringe is used, with hard rubber fittings. A teaspoonful of salt to a quart of water is the most useful solution, usually at 110° F. If pain and swelling are severe, it may be run up to 138° F. The frequency of the irrigations depends upon the case, from every hour to three times a day being the rule. Some refractory children are best not irrigated at all. There is no evidence that irrigation favors infection of the middle ear.

In nasopharyngeal diphtheria the danger is toxemia with resultant heart failure, and the danger signals (nasal voice, cough, regurgitation in swallowing, rapid and feeble or intermittent pulse) must be treated with absolute rest, morphin, stimulation and attention to the nourishment. Gavage is frequently indicated, and intubation is required for paralysis of the abductors of the vocal cords. Strictest heed must be paid to the earliest and slightest sign of oncoming diphtheritic paralysis.

In diphtheritic laryngitis the first consideration is the avoidance of an operation. Ventilation, air space and temperature are of great importance. Hot applications, steam inhalations and emesis are beneficial in selected cases. Poultices are contraindicated when they are irritating. When used, they must not be allowed to cool before renewal. The slightest insufficiency in respiration calls for operative interference, and

if a patient is progressively getting worse it is better to be a little early than a little late.

When intubation has been done, irrigation of the throat is not desirable, as careful attention must be given to the drainage of the air passages. Nasal irrigation is permissible. All mucus and membrane coughed up but not expelled should be removed by the finger, the child being laid on a table, wrapped. Whenever possible, the child should drink from its cup in the ordinary way; if this is not possible, gavage is usually the remedy, or semi-solid food if gavage is contraindicated. Rectal feeding may be resorted to. Internal medication should be reduced to a minimum. The tube should stay in place as short a time as possible. In all early cases, it should be removed on the fifth day at furthest. Many factors must be considered in deciding when to extubate. Children under two years generally carry their tubes two weeks or longer, so that in these cases two or more reintubations are regularly necessary. Other causes of "retained tube" are: congestion, paralysis, diphtheritic or due to pressure of the tube, granulations following ulceration, and, later, cicatricial contraction. In general, neither tracheotomy or thyreotomy is of any avail in the protracted cases. Tubes larger than the age of the patient calls for, left in for long periods of time have effected several cures.

Primary tracheotomy is indicated in cases in which the pseudomembrane has extended below the larynx, and in cases with extensive involvement of the nasopharynx.

McCan, John: A Case of Tetanus Neonatorum Successfully Treated with Antitetanus Serum. (*British Medical Journal*. No. 2100.)

The baby was admitted to the Belfast Hospital for Sick Children when thirteen days old and four days after the onset of symptoms. The clinical picture was that of well-marked tetanus. There was marked infection about the navel. Cultures from this seat showed tetanus bacilli and streptococci. On the day of admission 5 c.c. of antitoxin were given subcutaneously, 2½ c.c. were given on the third day. Ice bags were used on the third and fourth days. The temperature ran an irregular course for one week when it became normal. The child was discharged well at the end of a month.

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PERNICIOUS ANEMIA IN INFANTS, WITH A PRELIMINARY REPORT OF A CASE.*

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The present methods employed in the clinical examination of the blood have done much to differentiate the varieties of anemia in adults and to a lesser degree in infants. In spite, however, of the progress which has been made we are impressed by the insufficiency of the data concerning the severer forms of anemia in infants to be found in the literature of children's diseases, and the readiness with which statements are accepted on the evidence of comparatively few cases. The anemias of infancy have not been investigated so thoroughly as those of later life. The number of complete and systematic examinations in infants are so infrequently reported that we cannot help feeling that the subject deserves much more searching investigation than has yet been accorded it, and that a more extended study of the different anemias is of great importance to those whose interests are closely associated with the early periods of life.

Cabot, in his third edition of "Clinical Examinations of the Blood," in a short but admirable section on the "Anemias of Infancy," summarizes the present state of our knowledge in regard to the nature of the pathological conditions of the blood which occur in infants, and indicates clearly the difficulty of

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distinguishing from present data the different blood diseases in children. This difficulty is partly dependent upon the peculiarities and instability of the blood-making organs in infancy, but it is undoubtedly enhanced by the incompleteness of many of the reported examinations of the blood and also by the comparatively small number of cases.

Fischl (*Fahr. f. Kinderheilk.*, 1899, p. 26) goes so far as to say that the blood examination in infants is of service only in determining the fact of the existence of a mild or severe anemia, but is of no value in the differentiation of the type of the anemia.

It hardly seems possible that the study of infants' blood has so far been so exhaustive and accurate in its details as to justify so extreme a position. We may hope that the future will, in infancy and childhood, as it has to a large degree in adults, give us a definite and rational classification of the different clinical types of anemia.

There are certain peculiarities in infants which may be reviewed with advantage, as they bear directly upon the difficulties which arise when we attempt to make a diagnosis from the examination of the blood.

Infants may in a low state of anemia have an enlarged spleen, which in many cases may be considered as secondary to some primary disease, such as syphilis, rachitis and chronic malaria. On the other hand, there may be marked enlargement of the spleen, without any demonstrable antecedent cause, with or without pronounced leucocytosis, and the blood may not show the proportion of white blood corpuscles characteristic of leucemia. Cases of the latter class have been designated by von Jaksch as *anemia infantum pseudoleucemia*. In these cases the red blood corpuscles will often show changes which may closely simulate the blood of pernicious anemia very much in the same way that, in the leucemias of adults, the red cells may assume all the characteristics of progressive pernicious anemia. This class constitutes the greater majority of the very severe anemias of infancy, and in the literature is sometimes classed as pernicious anemia, and sometimes as leucemia, or, again following the lead of von Jaksch, is put into a separate class by itself.

It is not the purpose of this paper to enter deeply into a discussion of this type of anemia or pseudoleucemia. It represents a class intermediate between pernicious anemia and leu-

emia. In its typical form, showing pronounced leucocytosis with marked enlargement of the spleen, and often of the lymph nodes of the neck, axillæ and groin, it represents a very different disease from the idiopathic pernicious anemia of infancy, characterized, as a rule, by only a slight increase in the white blood corpuscles, by little if any enlargement of the spleen and lymph nodes and by a blood which in respect to the red blood corpuscles is identical to that which occurs in the pernicious anemia of adults. We shall, therefore, exclude from further consideration this large and interesting class of anemia infantum pseudoleucemia, as the case which subsequently will be presented represents in a very striking manner the clinical symptoms and blood appearances of an idiopathic pernicious anemia, occurring in an infant nine months old.

Authorities are not agreed as to the use of the term primary anemia, some maintaining that all anemias are secondary or symptomatic. This claim is probably justifiable theoretically, but the examination of the blood by modern methods enables us to separate certain forms which, with a few exceptions which will be mentioned later, represent a severe and usually progressive affection of the blood, ending fatally in the great majority of cases and for which no cause can be found even after the employment of all the resources of the most advanced clinical investigation.

These cases of primary pernicious anemia are of rare occurrence in childhood and are still more rare in infancy, that is, in the first two years of life. They have been especially studied by Monti and Berggrün, d'Espine and Picot, and cases have also been reported by Retschlag, Huguen, Ellben, Baginsky, Variot and Mott. Audeoud, up to 1897, was able to collect only 25 cases, exclusive of cases due to intestinal parasites and poisoning by carbon monoxid, occurring prior to fifteen years of age. Nine of these occurred between the ages of ten and fifteen years; 8 between six and ten years; 4 between three and five years; and only 4 occurred in the period of infancy, the earliest being reported at three months. Death occurred in all of Audeoud's series.

In 2068 cases of infants under two years of age who were admitted to the wards of the Infants' Hospital, Boston, from January 1, 1882, to January 1, 1901, there has not been a single case of true idiopathic pernicious anemia. In the out-patient

clinic of the same hospital there have been treated in fourteen years 72,644 cases; if there was any case of idiopathic pernicious anemia in this large number of infants and children, the condition was never recognized, judging from the catalogue of diagnosis.

The youngest case of pernicious anemia on record has been reported by Demme (*28 Medic. Jahresberichte uber die Thatigkeit des Jenner'schen Kindes-spitales*), occurring in a breast-fed infant three months old. The red cells were said to have been 800,000 and the hemoglobin 28-30 per cent. The child died. We have not been able to obtain the original report, and do not know about the other important characteristics of the blood.

A second case (cited by Osler, *Twentieth Century Practice of Medicine*) was reported by Monti and Berggrün in an infant six and one-half months old.

Our own case at nine months would seem to be the third youngest.

A fourth case in an infant eighteen months old has been reported by W. Steffen, Jr. (*Jahr. f. Kinderheilk.*, Bd. XXVIII., p. 444). From the history, fragmentary blood examination and autopsy, the case was in all probability a case of pernicious anemia, but the examination of the blood is unfortunately not as detailed as one would like.

Two other cases, one in a child of eleven months and one in a girl of two years, have been reported by d'Espine and Picot (*Revue de Medicin*, 1890, p. 859), but it is difficult to accept the diagnosis in the case of the two years old child in the absence of both blood counts and autopsies. There was no blood count in the eleven months old infant, and the autopsy, while suggestive, did not give conclusive evidence.

A seventh case has been reported by Baginsky in an infant of two years (*Traite Mal. Enf.*, 1899).

After the age of two years the reported cases, while infrequent, are not so rare as was formerly supposed and are, in many cases, better attested.

All of these cases occurring during the period of infancy have died with the exception of our own, which will be spoken of later.

ETIOLOGY.—The changes in the blood which have been considered characteristic of pernicious anemia have been shown to

occur in certain definite conditions. Arslan has reported what might almost be called an epidemic of severe anemia with the blood characteristics of pernicious anemia occurring in 21 infants and young children, in whom the cause was due to an intestinal parasite, the ankylostoma duodenalis (Arslan, "Anemie des mineurs (ankylostome) chez les enfants," *Revue Mal. Enf.*, 1892, p. 555). Many other similar cases are recorded. The bothrioccephalus latus and the ascaris lumbricoides have also produced this form of anemia. Koren (*Arch. f. Kinderheil.*, T. XV., p. 390) has reported three cases of pernicious anemia due to carbon monoxid poisoning followed by death in one of them, a boy of eight years. Syphilis, as shown by the cases of Laache, Kjernes and Muller, chronic malaria, as shown by the studies on the bone marrow of fatal cases by Bignami and by Dionisi, and myeloid sarcoma, in one case described by Litten, have all been advanced as direct etiological causes of pernicious anemia. The present tendency is, however, to exclude from the category of progressive pernicious anemia all those cases in which the etiology is known and to retain the term for those cases of severe anemia, with the characteristic changes in the blood, in which no sufficient primary cause can be proved.

Many theories as to the pathogenesis of idiopathic pernicious anemia have been advanced, but none have found general acceptance. Ponfiks has attempted to attribute the cause to a fatty degeneration of the heart, and many other writers have considered the disease due to an atrophic condition of the glands of the alimentary tract. There is, however, quite as much evidence that these pathological lesions are secondary and not primary, and this assumption seems much more likely when we consider how greatly out of proportion is the severity of the anemia to the changes in the different organs of the body.

Brigidi and Sasaki have tried to show a causal relation between the sympathetic nervous system of the abdomen and pernicious anemia, but although such lesions often occur they are not so constant as to be considered a primary cause of the disease.

Baginsky, Aufrecht, Frankenhouse, Henrot, Bernheim and Petroni have been led by the frequency of fever and by the slight hyperplasia which is sometimes seen in the spleen to seek for some specific microbe, but no positive results have been obtained.

Hayem considers pernicious anemia to be due to a disease of the blood-making organs, by which the reparatory function becomes disturbed or arrested, and the severity of the anemia to be proportionate to the degree to which the interference with the blood manufacturing organs is carried. Cabot makes the pertinent observation that "in view of our ignorance of the blood manufacturing functions, there is little difference between saying that a primary anemia is a disease of the blood-making organs and in saying that it is one whose cause is unknown, especially as the pathological appearance in the bone marrow, recorded in cases of so-called primary anemia, do not differ from those which can be brought about by bleeding. There is no good evidence that there is any primary disease of the blood-making functions." It is conceivable that in the future definite causes for all of these idiopathic pernicious anemias may be found.

Hunter has in explanation of the pathogenesis of pernicious anemia advanced the theory of an autointoxication arising in the alimentary tract and thence entering the general circulation by absorption. In a study of some of his cases he found in the urine an excess of aromatic sulphates derived from the sulphur of the proteid material of the intestinal tract, indicating a pathological increase in the putrefactive processes. In still further support of this theory of autointoxication he isolated from the urine three special ptomains which he thought might be the specific poisons. But here again we are met with the lack of evidence that these ptomains are the primary cause, for they may rationally be looked upon as the secondary conditions resulting from an abnormal fermentation due to the digestive disturbances which are so frequently present in pernicious anemia. The studies of Arslan rather support this objection to the primary autointoxication theory. In his twenty-one cases of pernicious anemia of parasitic origin in infants, he succeeded in extracting a toxin from the urine, inoculated it in increasing doses into rabbits and produced the characteristic symptoms of pernicious anemia. When the inoculations were stopped, the rabbits gradually returned to their normal condition, very much in the same manner that a child with symptoms of pernicious anemia, due to the *ankylostoma duodenalis*, will recover as soon as the parasites are expelled. In one experiment it was found that the urine from the children from whom the worms

had been expelled did not exercise any toxic effect on the rabbits.

Koren's three cases of carbon monoxid poisoning, in which the symptoms and blood were typical of pernicious anemia, add weight to the intoxication theory, but as yet we have no evidence as to the nature of the poison nor as to the manner in which it is produced.

Audeoud summarizes and combines these various theories somewhat as follows: The infant, like the adult, can be exposed to certain intoxications from within, such as may arise from indigestion, nephritis, infectious diseases, etc., or from without, as in the case of carbon monoxid poisoning. These may produce pronounced alterations in the blood and other tissues. The organism combats the disease by putting into superactivity the blood-making organs. The production of these organs is limited; if the organism is feeble and the cause continues to act, the bone marrow, spleen and lymph nodes are not capable of their task and as the renovation of the blood is incomplete, the disease terminates fatally. If, on the contrary, the individual is young and vigorous, and the blood-making organs can make sufficient repairs, and above all, if the primary cause ceases to be active, recovery may take place. This might explain the lesser frequency of pernicious anemia in infants in whom the blood-making organs regain their activity with greater ease than in adults.

PATHOLOGY.—The pathological changes in the pernicious anemia of infants, so far as we can judge from the limited number of autopsies, show no essential differences from those which occur in adults. There is excessive pallor of all the tissues of the body, but rarely emaciation. It is not infrequent to find punctate or extensive hemorrhages into the different organs. In Cabot's series of 110 cases, hemorrhages were noted in 37 (*American Journal Medical Sciences*, August, 1900). The most typical lesions are in the bone marrow which is red and in many respects embryonic in type, containing large numbers of nucleated red blood corpuscles, especially the larger variety of megaloblasts. Fatty degeneration of the heart, liver, pancreas, kidneys, and of the muscular coats of the intestines is generally pronounced. The stomach and intestines show, as a rule, a well-marked glandular atrophy with or without interstitial proliferation and often with hemorrhagic extravasations or edematous infiltration. The spleen generally shows no important

changes. Its enlargement could be demonstrated in only 13 of Cabot's series, while the liver was enlarged in 30 cases. Eichorst, Quincke and others attribute this enlargement of the spleen to the degree of fever present during life rather than to a special activity of the spleen in the destruction of the red blood corpuscles. The liver is usually fatty and contains large deposit of iron in the outer and middle zones of the lobules. This deposit of pigment is considered by Hunter as a special characteristic lesion peculiar to pernicious anemia. It is also found in excess in the spleen and kidney.

The mesenteric lymph nodes are often hyperemic and may be increased in volume. Changes in the ganglion cells of the sympathetic nervous system have been reported on several occasions, but not in children so far as we know. Retinal hemorrhages were present in 15 out of 36 cases examined in Cabot's series.

The most important lesions from a clinical point of view are found in the blood. This, when freshly drawn, shows very feeble powers of coagulation and does not form in rouleaux. According to some observers ameboid motions of the poikilocytes and occasionally active locomotion of the microcytes may be seen. The blood is reduced in bulk and the specific gravity may run as low as 1027. The number of red blood corpuscles is greatly diminished, averaging between 1,000,000 and 2,000,000. Demme's count of 800,000 in an infant of three months appears to be the lowest in the pernicious anemia of infancy. Quincke's case, occurring in later life with 143,000 red cells, is the lowest count on record. The hemoglobin is absolutely much diminished and may be as low as 10 or 20 per cent. A characteristic feature, however, is the relatively high percentage of hemoglobin in the individual red cells, the color index often being increased. During the periods of improvement or remission of the disease, however, the color index may be normal or even diminished. The total number of leucocytes is generally below the normal, but this rule does not hold in infants in whom any anemia may cause an increase in the white count. The percentage of lymphocytes is usually increased at the expense of the polymorphonuclear leucocytes. The presence of a few myelocytes is not uncommon. Of equal importance with the extreme reduction in the red cells is the presence of nucleated red corpuscles, especially the large variety known as megaloc-

blasts which outnumber the normoblasts, also of large non-nucleated red corpuscles or macrocytes and of deeply staining red cells, or polychromatophiles. The average diameter of the red cells is usually increased and serves as an important aid in the diagnosis. Often large numbers of oval and pyriform cells are seen, and are considered very characteristic of pernicious anemia. Poikilocytes in large numbers and microcytes, in small numbers, as compared with the macrocytes, are present.

SYMPTOMS.—The symptoms of pernicious anemia in infants may be shown to the greatest advantage in the case which has come under our observation, and which we present to you in a preliminary report, as time alone can make its history complete.

J. T., a girl, was born on December 1, 1899. She has been under our observation from the day of her birth until the present time. There is one other child four years of age, and in perfect health. The family history is negative, in so far as this particular case is concerned. The labor was easy and the infant at birth was in all respects of normal physical development. She weighed seven and one-half pounds.

For the first few hours she was given a very weak modified milk, and was then fed by the breast entirely. During the first three or four days of the colostrum period she lost six ounces, at the end of two weeks she was gaining at the rate of an ounce a day, but showed the symptoms of a slight intestinal indigestion. At the end of three weeks the digestion was normal and the baby's weight had increased to eight pounds seven ounces.

At this time the mother developed a mild case of mastitis, causing some disturbance in the milk, in consequence of which the infant again showed symptoms of intestinal indigestion which, though not severe, were still persistent. In spite of the condition of the bowels the gain in weight was steady and at the end of sixteen weeks of breast-feeding, she weighed thirteen pounds and seven ounces.

When about four months old she began to lose in weight and the symptoms of intestinal indigestion became marked. The mother had plenty of milk, but it was found impossible to regulate its quality, and ten days later it was found necessary to adopt a substitute food. The child was put on a laboratory mixture beginning with a 3.50 fat, 7 sugar and 1 proteid, which was soon changed to a 4 fat, 7 sugar and 1 proteid. She then thrived and appeared much better than for some weeks

previous to the change from the breast-feeding. She gained one pound in ten days. She was in every respect a fine specimen of an infant.

When about five months old she had a mild attack of measles; from which the recovery seemed complete. She continued to grow and appeared in perfect health so that when about six months old her weight was sixteen and one-quarter pounds.

During the latter part of June and during July and August she had some indigestion which required, from time to time, changes in the quality of the milk. She was then living on the North Shore and with every possible provision as to feeding, hygiene and nursing. She was out of doors much of the time and became very much tanned. She gained in weight and strength, was unusually large and robust and seemed perfectly well, with the exception of the temporary mild attacks of indigestion. During the latter part of August, however, she began to lose in strength and a slight pallor was noticeable. She was then eight months old.

On returning to town in October an improvement appeared to take place, her digestion became normal and the percentages in the milk were gradually increased to fat 4, sugar 7 and proteids 2.

It is impossible to state when the symptoms of pernicious anemia began. If the occasional indigestion in the months of July and August had any bearing on the subsequent disease, there was nothing in the child's physical condition to indicate any serious trouble, and repeated physical examinations failed to excite any suspicion of a serious underlying disease.

During the latter part of September, however, when the infant was a little over nine months of age, she was noticed to fail, not at all rapidly, but on the contrary in a very insidious manner. Indigestion again set in. The child began to have a raised temperature and a slight coryza. There was some fretfulness and restlessness, which could easily have been explained by a disturbance due to dentition. The indigestion ceased for two weeks. Then came a period of malaise and loss of strength. The child grew pale, the pallor becoming more and more noticeable as the tan of the summer wore off.

On November 4th, when ten months old, the pallor had become quite pronounced, and the hands and feet were noticed

to be slightly puffed. The temperature was 100° C. both morning and evening.

On November 5th, a physical examination was again made. Pronounced pallor, general weakness and a faint systolic murmur heard all over the precordia and in the neck, without any cardiac enlargement, and considerable puffiness of the face, legs, ankles, feet and hands were the only signs of importance. The murmur had not been noticed before. There were no evidences of rachitis or scorbutus, and no subcutaneous hemorrhages. There was no glandular enlargement to be detected, the spleen not being palpable and giving the normal percussion limits.

An examination of the urine showed it to be high in color, acid, clear, and with a very slight amount of flocculent sediment; specific gravity, 1012; albumin, slightest possible trace, giving with the nitric acid test a distinct zone due to uric acid; chlorids, slightly diminished; sugar and bile pigments were both absent; urea, 1.01 per cent.; the total twenty-four hour amount of the urine could not be obtained.

Microscopically the sediment consisted of uric acid crystals in clumps, associated with a few round mononuclear cells from the neck of the bladder and a few squamous cells free and clumped. There was an occasional leucocyte, but no blood nor casts were seen.

There was evidently nothing more than a slight passive hyperemia of the kidney with a very mild irritation of the bladder. The edema could not be accounted for by the condition of the kidneys.

The blood examination on the same day gave the following results: November 5, Hemoglobin, 30 per cent.; red blood corpuscles, 1,732,000; white blood corpuscles, 9,200. A differential count of 500 cells showed: Polymorphonuclear neutrophiles, 32 per cent.; lymphocytes, large and small (small lymphocytes in excess of the large round cells), 66.2 per cent.; eosinophiles, 1.8 per cent.

During the count 3 megaloblasts and 3 normoblasts were seen. There were numerous poikilocytes and cells of pyriform and oval shape. There were many large red corpuscles or macrocytes. The average diameter of the red blood corpuscles was distinctly increased as compared with the normal, although there were some abnormally small cells, or microcytes. The

color index of the individual cells was difficult to judge owing to the fact that the spreads were somewhat overheated.

The examination of the blood showed beyond question the presence of either a very severe secondary anemia or of a primary or pernicious anemia. The blood by itself was strongly suggestive of the pernicious type.

Every effort was made to determine a cause for a secondary anemia. The urine and several specimens of wall paper and carpets were examined for arsenic with negative results. Every possible source of poisoning, such as the cooking utensils, was investigated, but no good evidence of any could be obtained. The fecal discharges were inspected daily, and there was no suggestion of intestinal parasites. The attacks of indigestion had never been severe, and the splendid nutrition of the child for nine months of its life on a food, first of breast-milk for four months and then a carefully supervised laboratory milk, eliminated improper food as a cause of anemia. It was, therefore, impossible for us to discover any rational cause for so extreme a degree of anemia and weakness.

The infant failed steadily; the loss in strength, the increasing edema and the intensification of the hemic murmur being the principal signs of importance. The temperature varied between 99.5° and 100°. The food was well digested. There was some loss of weight, but no emaciation. There was no vomiting and no diarrhea.

The treatment consisted of iron, brandy, and careful nursing and feeding.

Several later examinations of the urine showed essentially the same analysis as reported above, but the urine became more diluted and the uric acid crystals disappeared.

On November 10th, Dr. R. H. Fitz was called in consultation, and was then inclined to consider the case as one of secondary anemia of unknown cause, although admitting that the character of the blood was presumptive evidence of pernicious anemia.

Although there was no evidence which suggested that the milk from the laboratory was in any way responsible for the severe and progressive condition of anemia and loss of strength, milk was obtained from another herd of cows, and cereals and broths were tried, but as both of the latter caused symptoms of gastric indigestion they were discontinued.

For two weeks the temperature (rectal) ranged from 99.6° to 101°, and then became higher and more irregular, on several occasions reaching 103° F. The pulse became more rapid and and at times was irregular.

On November 20th, there was a slight collapse, the pulse suddenly rising to 200 and becoming very weak, and the respirations to between 50 and 60 per minute. The child was sleepy, weak and languid. The swelling of the feet, hands and eyes were more pronounced. The loss of weight in one week amounted to 1¼ lbs. The pallor was at this time extreme. The heart's action was irregular, and the systolic murmur loud and transmitted in all directions. The physical examination revealed nothing new. There was no chill, cyanosis, nor evidence of hemorrhage from any source.

On November 21st, another complete examination of the blood was made, which showed a rapid deterioration of the blood in the three weeks which had elapsed from the first examination. It was as follows: Hemoglobin, 20 per cent.; white blood corpuscles, 18,800; red blood corpuscles, 1,088,000; Widal reaction, negative; examination for plasmodia, negative.

The color index of the individual red blood corpuscles in both the fresh and stained preparations was nearly normal, and was relatively high as compared with the great diminution in the red blood corpuscles.

Differential count, 500 cells: polymorphonuclear neutrophils, 43.4 per cent.; lymphocytes (small lymphocytes being in excess of the large and transitional forms), 54.2 per cent.; eosinophiles, 0.6 per cent.; myelocytes, 1.8 per cent.

During this count there were seen 9 megaloblasts and 3 normoblasts. The average diameter of the red cells was much increased. There was considerable poikilocytosis. The presence of very large cells or macrocytes was marked, and many of the cells were oval and pyriform in shape. There was moderate polychromatophilia.

The character of the blood was by this examination shown beyond any question to be typical of the blood of pernicious anemia in adults, in all respects except for the presence of a low white count. The tendency to an increase in the white cells in almost any severe pathological process in infants is so well-known, however, that no special significance can be attached to this variation from the adult type of blood in per-

nicious anemia. Moreover, the case fulfilled all the other requirements of pernicious anemia. A most searching investigation failed to determine any cause to which the anemia might be secondary. The absence of any enlargement of the spleen and the comparatively low white count in the majority of cases, was sufficient to exclude an anemia infantum pseudoleucemia. The onset was insidious, the pallor extreme, the edema of the face, hands and legs was marked; and the languor and physical weakness rapidly increased. The temperature varied between 102° to 103° F., and the pulse averaged about 160. The infant was at this time so weak that she could not raise her legs or head and could scarcely move her arms. The general condition was such that the gravest fears were entertained regarding the result. At this time, November 21st, the inhalation of oxygen was tried, the oxygen being given for ten minutes every twenty minutes day and night whether the infant was asleep or awake. Coincidentally with this treatment a marked change took place in the condition of the child as was seen by the gradual defervescence of the temperature, by the steady improvement in the rate and quality of the pulse and by the perfectly evident improvement in the color and strength. The food, which was of the same quality as in the previous three weeks, was taken with more vigor, the apathy became less marked, and the infant took more notice of what was going on about her.

Two days after this sudden change for the better, Dr. Abraham Jacobi, of New York, saw the child in consultation. He agreed unequivocally in the diagnosis of pernicious anemia, both from the clinical history and from the result of the blood examination. At his suggestion a weak solution of liquor potassii arsenitis was given and small doses of ferratin were substituted for the saccharated carbonate of iron which had up to this time been taken. The oxygen, which was continued with twenty minute intervals for two weeks, was then reduced to one hour intervals and then gradually diminished until at the end of six weeks it was entirely omitted. At the end of a week the arsenic was discontinued, as there were signs of its physiological action, and although it was tried again the infant was unable to tolerate it.

The subsequent history of the case was one of steady improvement, interrupted only by a slight serous otitis media, a

few attacks of coryza and one of influenza. The color improved, the strength returned, the systolic murmur and the edema disappeared and the infant began to gain in weight. Its maximum weight during the summer was twenty-five pounds; at the height of its disease, *i.e.*, on November 21st, it was about nineteen pounds, and in the past six months it has regained the six pounds it had lost. To-day, May 18, 1901, the infant is eighteen months old and weighs twenty pounds. It is apparently in perfect health, and its blood so far as can be determined, is that of a normal infant.

Examinations of the blood were made at regular intervals and it is interesting and instructive to notice the changes which have taken place since the lowest point was reached on November 21st.

On December 5th, two weeks after the beginning of the inhalations of oxygen, the blood showed the following characteristics: Hemoglobin, 35 per cent., a gain of 15 per cent. in two weeks; white blood corpuscles, 10,800; red blood corpuscles, 2,324,000, a gain of 1,136,000 in two weeks.

The differential count of 500 cells was: Polymorphonuclear neutrophiles, 75 per cent.; lymphocytes (the small lymphocytes being in excess of the large and transitional forms), 21.5 per cent.; eosinophiles, 3 per cent.; myelocytes, .5 per cent.

During the count there were seen: Megaloblasts, 3; normoblasts, 2. The average diameter of the red cells was slightly increased. Deformities were slight. There was no polychromatophilia. The hemoglobin per corpuscle normal.

Dr. Richard C. Cabot examined the stained specimens of November 21st and December 6th, and returned the following report:

"Both sets show characteristics which in the adult would point conclusively to pernicious anemia, and while I do not feel ready to speak so positively of a baby's blood in view of the limited knowledge of babies' blood which we possess, I yet believe that the case is, in all probability, *pernicious*, and that the baby will die within a year."

On December 19th, two weeks after the third examination and one month from the height of the disease, the examination of the blood gave the following results: Hemoglobin, 60 per cent., a total gain of 40 per cent.; white blood corpuscles, 15,200; red blood corpuscles, 3,692,000, a total gain of 2,604,000, or a gain in two weeks of 1,368,000.

The differential count of 500 cells gave: Polymorphonuclear neutrophiles, 59 per cent.; lymphocytes (the large and transitional form being in excess of the small lymphocytes), 34 per cent.; eosinophiles, 6.6 per cent.; myelocytes, .4 per cent.

During the count and in a careful subsequent examination of several specimens, no megaloblasts and but one normoblast was seen. The increase in the average diameter of the red cells was still apparent, although less marked than before. Poikilocytes were still present.

On January 2, 1901, two weeks later, six weeks from the height of the disease, the examination of the blood was as follows: hemoglobin, 70 per cent., a total gain of 50 per cent., or a gain in two weeks of 10 per cent.; white blood corpuscles, 11,000; red blood corpuscles, 4,216,000, a total gain of 3,128,000, or a gain in two weeks of 524,000.

The differential count of 500 cells gave: Polymorphonuclear neutrophiles, 60 per cent.; lymphocytes (the large and transitional forms being in excess of the small lymphocytes, 35 per cent.; eosinophiles, 4.8 per cent.; eosinophilic myelocytes, .2 per cent. During this count and on subsequent search of the stained specimens, no nucleated red cells were seen. The average diameter of the red cells was still slightly increased and a small number of poikilocytes still persisted.

The oxygen was omitted at this time, January 2, 1901.

On January 16th, two weeks later, and eight weeks from the height of the disease, the examination of the blood was as follows: Hemoglobin, 70 per cent., a total gain of 50 per cent., but no gain from the previous count; white blood corpuscles, 11,800; red blood corpuscles, 4,560,000, a total gain of 3,472,000, or a gain in two weeks of 344,000.

The differential count of 500 cells gave: Polymorphonuclear neutrophiles, 58.8 per cent.; lymphocytes (the large and transitional forms being in excess of the small lymphocytes), 35.2 per cent.; eosinophiles, 6 per cent. No nucleated cells were seen and the blood was essentially the same in other respects as on January 2d.

On January 30th, ten weeks from the height of the disease, the examination of the blood was as follows: Hemoglobin, 75 per cent., a total gain of 55 per cent., or a gain in two weeks of 5 per cent.; white blood corpuscles, 11,800; red blood cor-

puscles, 4,884,000, a total gain of 3,876,000 cells, or a gain in two weeks of 668,000.

The differential count of 500 cells gave: Polymorphonuclear neutrophiles, 52 per cent.; lymphocytes (the large and transitional forms being in excess of the small lymphocytes), 41 per cent.; eosinophiles, 6.4 per cent.; mastzellen, 6 per cent. No nucleated red cells were seen.

On February 20th, thirteen weeks after the height of the disease, the examination of the blood showed: Hemoglobin, 75 per cent., a total gain of 55 per cent., but no gain over the previous examination; white blood corpuscles, 10,500; red blood corpuscles, 5,292,000, a total gain of 4,204,000, or a gain in three weeks of 408,000.

The differential count of 500 cells gave: Polymorphonuclear neutrophiles, 75.6 per cent.; lymphocytes (large and transitional forms slightly in excess of the small lymphocytes), 14 per cent.; eosinophiles, 1.4 per cent. No nucleated red cells were seen and the blood was, to all appearances, practically normal.

On March 12th, seventeen weeks after the height of the disease, the blood showed: Hemoglobin, 80 per cent., a total gain of 60 per cent., or a gain of 5 per cent. in four weeks; white blood corpuscles, 10,600; red blood corpuscles, 5,372,000, a total gain of 4,284,000, or a gain in one month of 80,000.

The differential count of 500 cells gave: Polymorphonuclear neutrophiles, 51 per cent.; lymphocytes (the small lymphocytes being slightly in excess of the large and transitional forms), 44.6 per cent.; eosinophiles, 4.4 per cent. No nucleated cells were seen and the blood appeared practically normal.

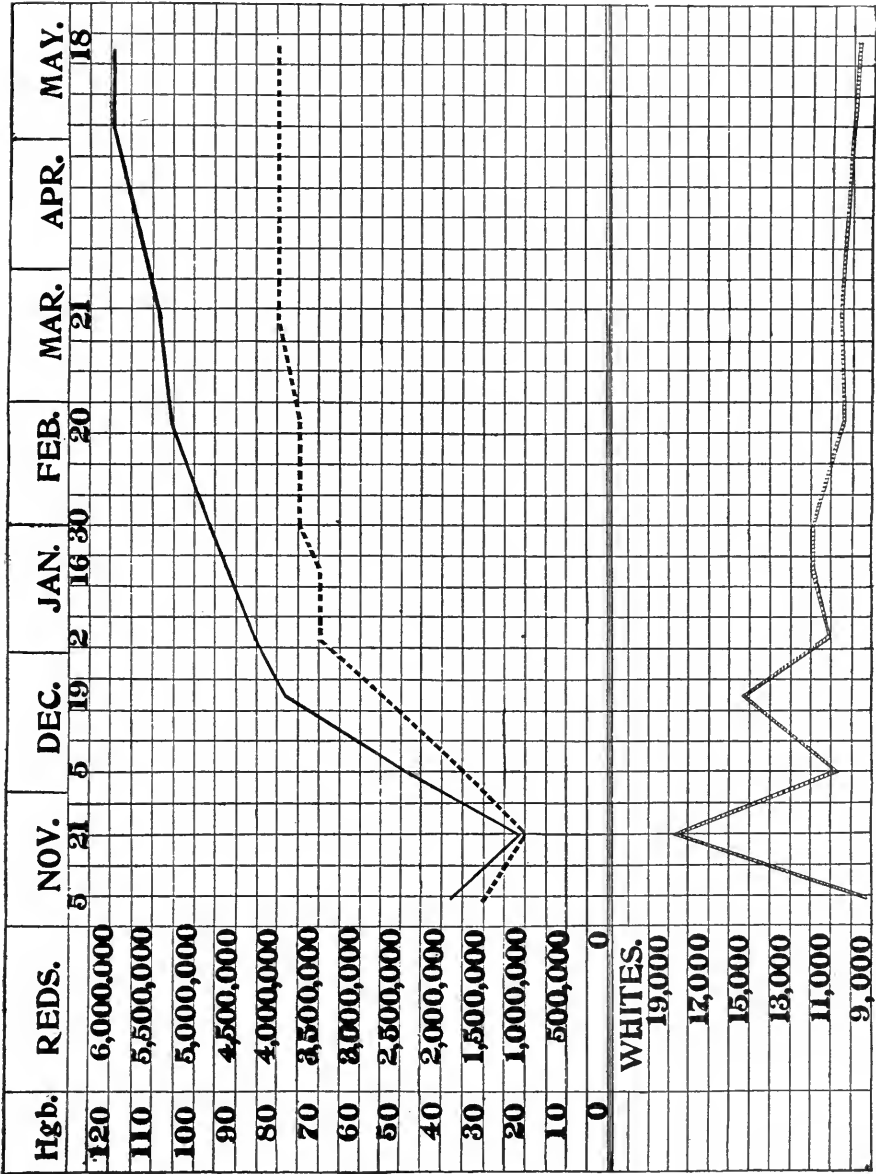
On May 18th, twenty-three weeks after the height of the disease, the examination of the blood showed: Hemoglobin, 80 per cent., a total gain of 60 per cent., but no gain in two months; white blood corpuscles, 9,700; red blood corpuscles, 5,980,000, a total gain of 4,892,000, or a gain of 508,000 in two months.

The differential count of 500 cells gave: Polymorphonuclear neutrophiles, 34.6 per cent.; lymphocytes, 64 per cent.; eosinophiles, 1.4 per cent. No nucleated red cells were seen. An occasional macrocyte and poikilocyte was seen. (See chart.)

The temperature still remains slightly raised, 99°-100° F., and has only once been 98.5° F. since the onset of the disease.

In considering the diagnosis in the pernicious anemia of infancy we are forced to acknowledge that signs which are almost pathognomonic in adults lose some of their significance in infants, owing to what we may assume to be a greater instability of the blood-making function. This function, like many others in the early months of life, appears not to have reached its full development, if we may judge from the ease with which the blood reverts to its embryonic type and again recovers its equilibrium. Thus we know that megaloblasts, normoblasts, macrocytes and poikilocytes may occur in grave anemias which are not to be classed as pernicious, but we are hardly justified in reasoning from this that the occurrence of these elements are of no importance in differentiating the type of anemia. We have already pointed out the extreme rarity of pernicious anemia in infants, and the majority of cases which have been reported do not give us the data which in modern methods of blood-diagnosis are considered essential. We have failed to find reports of cases occurring in infants who showed the typical clinical symptoms and blood characteristics of an idiopathic pernicious anemia and absence of a primary cause which subsequently was proved not to be pernicious anemia. It is impossible for one safely to draw general conclusions in regard to this disease in infancy until a much larger number of cases has been studied.

The important points to be emphasized in this particular instance are: (1) The insidious onset with moderate and paroxysmal attacks of indigestion. (2) The extreme pallor and great loss of strength. (3) The absence of any possible demonstrable cause for a secondary anemia. (4) The slightly elevated temperature for months. (5) The absence of glandular or splenic enlargement. (6) The presence of the pronounced typical characteristics of the blood of pernicious anemia. (7) The absence of any considerable degree of leucocytosis. (8) The rapid improvement in the general symptoms and in the character of the blood until the infant in all respects appeared absolutely sound and healthy, which in itself is typical of the remission which often occurs in pernicious anemia. We feel that a picture so typical cannot be explained by any other diagnosis than that of pernicious anemia.



Upper black line shows number of red blood corpuscles per c.mm. Middle dotted line shows percentage of hemoglobin. Lower dotted line shows number of white blood corpuscles per c.mm.

Great interest centers about the prognosis in this particular case. Whereas the infant is in perfect health to-day so far as can be determined, the fact remains that there has never been reported a case of permanent recovery in a well attested case of pernicious anemia in infants. Several cases of recovery in adults are on record, notably Quincke's, which also has the lowest red count ever noted (143,000 per cubic mm.), but they are exceedingly rare. We might be led by the knowledge of the greater recuperative power in the infant's blood, to hope that in a case so young as ours, the infant may resist the usual fatal tendency to a reversion to the embryonic type of blood, in the same way that it might outgrow other abnormalities of development. Speculation as to the future is, however, idle.

TREATMENT.—In regard to the treatment of these cases, little need be said. The greatest care in the management of the feeding is of first importance. Arsenic may be tried cautiously, but in our own case it was not tolerated and played no part in the gradual improvement which took place in the disease. Iron in the form of ferratin or similar preparations will certainly do no harm and may be of benefit. Cabot has recently been treating his cases with laxatives or purgatives on the theory that the primary cause lay in the absorption of toxins from the intestines, but no definite results have as yet been announced. In regard to the use of inhalation of oxygen, opinions will differ. We know of no other case in which such large quantities have been used over so long a period. The immediate and rapid improvement which followed its administration will be a strong encouragement to study its action again in similar cases in infants. At the same time, the evidence pointing to the rapid and spontaneous remission of the disease in certain cases, independent of treatment, is indisputable. It is, therefore, difficult to see how a judgment as to the efficiency of special remedies can at present be formed on absolutely scientific grounds.

DISCUSSION.

DR. WENTWORTH.—I should like to say a few words about the results of blood examination in infancy. Such men as Grawitz, Strümpell, von Noorden and others are agreed that the diagnosis of *pernicious anemia* in the adult cannot be made from a blood examination alone. The blood changes that were considered at one time to be typical of pernicious anemia have been found associated with various chronic diseases and the

deductions that can be made from the examination of blood in infancy are much less reliable than in adults. It is incorrect to say that but little work has been done on infants' blood—a great deal of very careful work has been done in the past ten years, especially in Europe. Fischl, Siegert and Loos may be particularly mentioned.

It has been found that the presence of nucleated red corpuscles in the blood in infancy has no diagnostic value but only shows the degree of anemia present. The number and size of the nucleated red corpuscles have no diagnostic significance in these cases. Differential counts of the leucocytes have no diagnostic value in the absence of leucocytosis.

It has been quite definitely settled that the cases of so-called anemia infantum pseudoleucemica are *secondary anemias* and not primary as was at one time believed.

I should like to ask whether the heart murmur persisted in this case. Hochsinger has made the statement that *functional* murmurs are very rare under three years of age. I do not know how many autopsies this statement is based upon. So far as my own experience goes I have not found cardiac murmurs in cases of anemia in infants no matter how severe the anemias were and I have made it a point for several years to examine the hearts very carefully in all the cases of anemia in infants that I have seen.

DR. KOPLIK.—The fact that the blood of infants presents the same appearances as that of adults suffering with pernicious anemia gives us no assurance as to the diagnosis. The cause of this has been stated partly by the author of the paper and partly by the last speaker, namely, that we find in some cases of secondary anemia changes that correspond very well with those of pernicious anemia in adults and still these children get well. We find nucleated red corpuscles to a large extent and of all sizes in secondary anemias with poikilocytosis and hemoglobin percentages, which are supposed to be characteristic.

A great deal of work has been done on the blood of infants and children but the difficulty is to interpret what we see and to compare the appearances with those of adults. I think for the present we do better not to make any positive diagnosis of some forms of anemia in children whether they occur idiopathically or are secondary.

DR. MORSE.—I merely wish to emphasize what the last two speakers have said, and what the reader of the paper has also said, that the rules of blood diagnosis in adults do not apply in the diagnosis of the various conditions of the blood in infancy. The attempt to apply the same rules in infancy will surely lead to errors in diagnosis. Megaloblasts and nucleated cells of all sorts are frequently found in all conditions of anemia in infancy. They are merely indicative of the tendency of the infant's blood

to revert to the fetal type and are of but little diagnostic value. The relative proportions of white cells vary from day to day under normal conditions and hence are of little value in diagnosis.

As to the classification of blood diseases I think there is no class in infants that deserves the name of anemia infantum pseudoleucemica. Cases of that disease have been described but most of them can only be regarded as examples of severe secondary anemia. A few years ago I went over the literature of pernicious anemia in infancy but could not find any cases which I was willing to accept as undoubted examples of that disease. Some may have been, but I was not convinced that they were. I hardly feel willing to say that this particular case is one of pernicious anemia, but do not dare to say that it is not. I have seen, I think, identical conditions of the blood in anemias in infants which I knew to be secondary. If we regard anemias as primary when we cannot find their cause, this case is certainly primary. It may, moreover, be pernicious. On the other hand there may be some cause for it, although it has not been found in the very careful study of Dr. Rotch and Dr. Ladd. I certainly cannot concur in the prognosis made by Dr. Cabot.

DR. NORTHRUP.—Have I misunderstood Dr. Wentworth when I thought that he said that in these cases of anemia with heart murmur there must be a heart lesion? I also understood him to say that he saw no cases of heart murmur without a lesion, and that in his experience and in that of Hochsinger, heart murmurs, without a lesion, did not occur under three years of age.

DR. WENTWORTH.—I said that Hochsinger finds heart murmurs exceedingly rare under three years of age, and I have examined the hearts of all the infants in our hospital and failed to find a murmur in connection with anemia. I have not had autopsies to verify these cases.

DR. NORTHRUP.—I should dislike to have it go on record as expressing the sentiments of this meeting that where you have a murmur the presumption is that you have a lesion, especially in patients under three years of age. I have written fully on the subject in Jacobi's *Festschrift*.

During the first twelve years of my medical experience I saw more dead than living children. My experience was, speaking from memory, that in the Foundling Hospital, where the children were under three years of age that we had many murmurs and no lesions. We had one typical case of malignant ulcerative endocarditis, but it was so rare that nobody recognized it before death, and by exception it serves to emphasize the rule.

DR. CHURCHILL.—I have been on the lookout for these murmurs in infants during the past few years and my observation is that they are extremely common, and if all the cases I have seen have really had cardiac disease then endocarditis is very common among children. My cases have been seen not only among hospital children but in the children of well-to-do parents. I have not followed them up at autopsy.

DR. KERLEY.—I will ask Dr. Rotch in connection with this case whether the improvement in the child's digestive condition was coincident with the improvement of the blood. In the history of the case reference is made to digestive disturbances. The child was commenced on rather a high milk formula when weaned. Could the case be a secondary anemia due to chronic indigestion and malassimilation?

That heart murmurs occur without a lesion there is not the slightest doubt in my mind. I cannot say in how many cases this has occurred. They are the cases that are diagnosed as hemic sometime during life.

DR. TOWNSEND.—I would like to ask what change was made in the food during the convalescence of the child, and I should also like to speak of two cases that illustrate what I wish to say on the subject. These two cases I have seen recently, and I think they are types of extreme secondary anemia due to the fact that the diet for a long time has been for some reason insufficient or improper for the child. One of these cases coming from a distant town had been fed on a very weak modified milk which was peptonized and pasteurized. The blood count was about to be made when unfortunately the child became much worse and died. The organs were examined by Dr. J. H. Wright, who found some slight fatty degeneration and a slight deposit of iron in the liver, not enough, in his opinion, to justify the diagnosis of pernicious anemia. I do not see how the blood count would have helped in the diagnosis in this case, owing to the embryonic character of the blood in all infants.

The other case showed the same anemia when I first saw it in a marked degree. It had been fed on laboratory mixtures, and later on home modified milk that was pasteurized and peptonized. By omitting these latter processes and gradually increasing the strength of the food the child got entirely well and has an excellent color to-day.

Now I have seen so many cases of extreme anemia in children that have been improperly fed, even where the impropriety at first sight is not apparent, that I feel sceptical about the pernicious nature of the trouble in the case reported, and should certainly not expect a relapse.

DR. WINTERS.—I would like to ask whether this baby was fed at all on pasteurized milk, whether the intestinal derange-

ments disappeared coincident with the improvement in the blood, and whether the change in the infant's food was coincident with the beginning of the improvement.

I saw a case similar to the last two reported where the baby had been fed on such milk and then improved promptly when put on the breast-milk of a good nurse.

DR. ROTCH.—It is difficult, of course, to follow a case of this kind as its history is being read. Most of the criticisms may have been answered in the paper as you will see when you come to read it. It is an unusual case, and the gentlemen who take the ground that it is one of common occurrence take an opposite position from one who is considered a high authority in this country on examinations of the blood, namely, Dr. Richard C. Cabot. The members who have spoken seemed to imply that we did not recognize the difficulty of making a diagnosis between pernicious anemia and severe secondary anemia. What has just been said about the diagnosis of pernicious anemia in childhood might apply equally well to the diagnosis of this condition in adults. You may say in either case that if you cannot find a cause for the condition, and if the examination of the blood and the clinical symptoms are typical, it is a case of pernicious anemia. Dr. Cabot carefully studied several specimens of the blood as prepared by Dr. Ladd, and gave it as his opinion that this was an unusual case which represented in every way pernicious anemia as it occurs in adults. You may say that pernicious anemia never occurs in infancy. Surely we have no right to assume such a position, and if we admit that it can exist, then the evidence is strongly in favor of this being a case of pernicious anemia.

In reply to some of the criticisms: Dr. Wentworth speaks about the heart and asks whether the murmur remains, and he implied, and I think he believes, that it was a case of organic disease of the heart. I do not believe so. In a great many cases I have found murmurs that I am sure were hemic and I think he in the future will find them also as he sees a large number of cases. In regard to this especial case I wish to say that I had unusual opportunities for studying it. I followed it from the day the child was born. At birth it had no heart murmurs and there was nothing the matter with the heart so far as I could judge by a number of careful examinations until after it developed this condition of anemia. During the anemia the murmurs developed and as the anemia disappeared the murmurs lessened and finally disappeared.

Dr. Townsend seemed to imply that he believed the child to have been improperly fed. All I can say is that according to our modern ideas of feeding I think the child was properly fed. During the first four months of life it was fed at the mother's breast on good milk as determined by examination. When it

began to have a little indigestion it was found that the mother's milk was failing, as it often does in American mothers of this type. It was then decided to wean it and it was put upon modified milk and thrived. At first the milk was heated to 167° F., but later it was not. As its condition did not improve milk was obtained from another set of cows, but no change took place, and in fact the food seemed to have nothing to do with the anemic condition. Indigestion played no part in the cause of the disease, and the change to artificial feeding which I have referred to was made several months before the infant began to be so ill.

As to Dr. Cabot's prognosis he said he believed it was a case of pernicious anemia and that, while he would not say that it was impossible for babies to get well of the disease, yet in most cases they died during the first year. He fully realized, of course, the difficulty of making the diagnosis from an examination of the baby's blood. Taking into account the examination of the blood with the clinical symptoms it is seemingly a case of pernicious anemia.

Purulent Rhinitis in Scarlet Fever.—C. Laprée (*Rev. Mens. Mal. de l'Enf.*, February, 1901) reports a purulent coryza entailing complications which proved fatal in 18 out of 39 cases in his experience. The statistics of others also indicate that purulent coryza is the most frequent cause of death in scarlet fever. It may be preceded by simple coryza, or may appear suddenly without warning, the second or third day, or as late as the tenth day. It usually coincides with severe sore throat and general symptoms. It aggravates the disease, keeps the temperature above 38.5° C. for several days and debilitates the patient. Treatment should be prompt and energetic, destroying the germ in the local infection before it infects the entire organism. The nasal fossæ and throat should be copiously rinsed with an antiseptic, preferably peroxid of hydrogen mixed with an equal volume of a 4 per cent. 1000 solution of sodium bicarbonate. This irrigation should be repeated three or four times a day and at least twice at night. Afterward the nostrils are plugged with cotton impregnated with a mentholized or resorcin salve. This treatment may arrest the rhinitis in thirty-six hours, but it usually continues for three days. If the discharge persists after the fifth or sixth day, an irrigation morning and night is usually sufficient. Laprée recommends irrigation through a Nélaton sound in which three holes have been cut about the center with the scissors. The sound is inserted through the nose and passes out at the mouth.—*Journal of the American Medical Association.*

SO-CALLED "CYCLICAL ALBUMINURIA," WITH PRELIMINARY REPORT OF CASE.*

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the University of Chicago, Chicago.

Pavy¹ was the first to call attention to the condition known as "cyclical albuminuria," *i.e.*, a condition characterized by the absence of albumin in the early morning urine, by its presence in specimens passed from about nine or ten o'clock in the morning up to about eight at night, when the albumin as a rule is again absent. True, long before this time an intermittent albuminuria with a cyclical course had been recognized, but no characteristic name had been given to the phenomenon. Among the earlier writers on the subject of albuminuria may be mentioned: Vogel,² Ultzmann,³ Moxon,⁴ Dukes,⁵ Rooke,⁶ Edlensen,⁷ Furbringer,⁸ Rendall⁹ and Bull.¹⁰

Since Pavy's article and owing largely to the interest excited thereby, numerous cases have been reported, but few have been exhaustively studied. The authors of these later articles all agree in the observation that on assumption of the upright position after several hours in the recumbent position albumin appears in the urine and dwell on this fact as a causative factor. Almost all have observed also, that with prolonged rest in bed the albumin disappears from the urine, but is apt to return immediately on getting up, even after the lapse of several weeks. Many observations have been made under different conditions of life as to the effect of exertion in varying degrees in the recumbent, sitting and standing positions, of diet, of weather, etc., but beyond the association of the upright position with the albuminuria, it cannot be said that anything of importance is developed as to the true nature of the condition. Curiously enough these authors have made no exhaustive study of the urine in their cases, nor have they followed them up any considerable length of time. I have been unable to find any

* Read before the American Pediatric Society, Niagara Falls, N. Y., May 27, 28, 29, 1901.

post-mortem records, for the obvious reason that the prognosis is usually good.

Some interesting facts, however, have been brought out in the study of this subject. Dukes,¹¹ physician to Rugby School, found cyclical albuminuria in many boys and attributed it to sudden rising and the exertion of hurried dressing and running 100 yards and up a flight of stairs to attend morning prayers. These patients usually had hard, rigid pulses, with high tension and were subject to fainting spells. Dukes urges more careful urinary examinations in such cases (but not the abolition of morning prayers!)

Stirling¹² discovered the condition in 77 of 369 boys in a training-ship on the Thames, finding it more frequent and persistent among those playing wind-instruments. He attributes it to backward pressure upon the renal vessels. He suggests the term "postural albuminuria."

Rudolph¹³ speaks of the prevalence of the condition in families, citing instances of his own, and also cases from Heubner,¹⁴ Moxon,¹⁵ Schön,¹⁶ and Lacour.¹⁶ He believes it to be due to an obstruction in the glomerular vessels. These, by previous inflammatory processes, have lost some of their elasticity, as a result of which they cannot prevent the leakage of albumin when subjected to the increased blood pressure of the upright position though able to withstand the ordinary pressure of the recumbent position. The frequent occurrence of some previous infectious disease and of a coincident or previous nephritis in those cases which have been most carefully studied, supports this view. The children Rudolph has seen with this form of albuminuria are sick; they are anemic, lack energy, and are subject to headache, vertigo and intestinal disturbance. He suggests that the disappearance of the albumin from the evening urine may be due to the sitting position at the evening meal and gives a table showing the absence of albumin after the mid-day meal also.

G. Johnson¹⁷ regards a long-continued, though slight and intermittent albuminuria as pathological and serious, demanding prolonged and frequent urinary examinations. Wood¹⁸ discusses albuminuria not due to organic disease of the kidneys, but says nothing directly about "cyclical albuminuria." He believes we may have an albuminuria due to irritation of the kidney from a concentrated urine, with the deposition of con-

siderable amounts of calcic oxalate and uric acid crystals within the renal tubules, this increased amount of crystalline matter resulting perhaps from perverted metabolism. He considers it important to detect this irritation early. He speaks of a "normal albuminuria," *e.g.*, after great muscular exertion, or a long march which, as far as he knows, is never accompanied with casts. This opinion, however, Wood expressed in 1892, six years before Darling's¹⁹ observations on Harvard crews after the Yale race. Darling found an actual acute nephritis in many of the crew, with casts, blood and renal epithelium in the urine passed immediately after the races.

Oswald's²⁰ article, perhaps the most thorough one yet written, reviews the literature up to that time (1894), referring to the work of von Noorden,²¹ Klemperer,²² Rohlfing,²³ Heubner,¹⁴ Tewes,²⁴ besides others already mentioned above. He gives 9 cases of his own, with reports on the amount of urine and albumin, the specific gravity and pulse-tracings (6 cases). All his subjects suffered from symptoms pointing towards renal trouble, 7 were cases of actual nephritis, the other two were doubtful. Observations on the effect of the recumbent, sitting and upright positions, with and without muscular exertion confirm the universal opinion that the upright position has the greatest effect upon the albuminuria; excessive muscular exertion and the forenoon are especially favorable to its production. Oswald frequently found nucleoalbumin in his cases and regards it as indicative of renal irritation. He attaches much importance to the character of the sediment and agrees with Leube²⁵ and Senator, in regarding the frequent occurrence of hyaline casts with long-continued albuminuria as a sure sign of renal disease even in the absence of co-existing organic changes. He agrees with Johnson that these cases represent a "sneaking nephritis" which may be cured or run on into a chronic form. He believes the cause of them to be a pathological condition of the glomerular tissues.

Senator discussing a case reported by Klemperer²² speaks of a curiously interesting case; a patient with a splenic tumor always had albuminuria if he laid on his right side, never if lying on his back or left side. The albuminuria was attributed to pressure on the kidney by the tumor and carelessly observed, might have been regarded as a case of "cyclical albuminuria."

Our text-books all refer to the condition. Rotch believes

in a physiological albuminuria but urges care in the examination of many specimens of urine, passed at different hours of the day, in order to exclude nephritis. Holt advises a guarded prognosis and prolonged observation of cases; if constant and long-continued, he regards it as serious. Williams believes these cases should be regarded as mild subacute or chronic nephritis and treated accordingly. Osler believes a large proportion of cases get well after a variable period but recognizes a second group when the albumin is more persistent, indicating probable organic changes in the kidney. Ashby and Wright (American edition) consider the condition not infrequent in children between the ages of eight and sixteen years. A majority improve and the albumin disappears after months or years. They consider the prognosis more serious in those with a family history of Bright's disease or a previous history of nephritis.

Various theories have been advanced to explain the phenomenon of "*cyclical albuminuria.*" One can of course understand the presence, though not the peculiar course, of the albumin in those cases with other well-defined signs of nephritis. The most plausible explanation as to its peculiarity would seem to be those which attribute it to a combination of general and local conditions, to the combined effects of increased blood-pressure upon either altered vessel-walls or altered blood, or upon both. The increased blood pressure of the upright position must, it seems to me, be regarded as one causative factor. What is, or are, the others? Rudolph's theory seems most probable; impairment by previous inflammatory processes of the walls of the glomerular vessels, with loss of elasticity and hence greater degree of permeability with the increased blood-pressure of the upright position. von Noorden's theory, however, is worthy of consideration; he suggests a change in the blood-albumin itself in virtue of which it transudes more freely, or that we have to do with an indefinite disturbance in general metabolism^{22a}. He bases the latter view upon the increased phosphates and urea found in the urine.

It must be confessed, however, that we know practically nothing of the real cause of this symptom. But whatever the cause, the actual condition confronts us; in some cases a genuine nephritis beyond a doubt—in others an albuminuria peculiar in its course and apparently without other abnormal

signs. As one peruses the literature of the subject, he cannot help asking: What becomes of them? both those without other apparent signs of organic disease, and those with evident signs. Do the women die of puerperal eclampsia? Do the men subsequently develop an interstitial process? Is this albuminuria an obscure and insidious symptom indicative of some deep underlying pathological condition, undetectable with our present methods of investigation? Or is it but a harmless condition, to be regarded lightly and dismissed with a cursory examination of urine and patient?

Weissman's theory of heredity that it is tendencies, not actual characteristics, which are transmitted from parent to offspring is applicable pathologically, as well as physiologically. A child receives from his progenitors cells and tissues with tendencies to develop and grow in certain directions, the direction taken depending to a large extent upon the environment of the individual, using the term environment in its widest sense, to include external surroundings, general hygiene, nutrition, diet, etc. These tendencies will develop into actual conditions or characteristics obviously with varying degrees of rapidity in different individuals; thus they may begin to manifest themselves, to our imperfect eyes, in one person at fifty years, in another at thirty and perhaps in another at eleven, but in different ways and with different external signs at different periods of their development. This "*cyclical albuminuria,*" *e.g.*, may be a manifestation of a tendency gradually developing into the actual characteristic or condition of renal cells and tissues known as nephritis, the tendency manifesting itself in one form at eleven years and in another at fifty years. To us who are working chiefly among children is this conception of the case especially of interest and importance: for in the early part of the animal existence inherited traits, both good and bad, are not traits at all—if I may be pardoned the Hibernianism—but are only tendencies capable of being moulded and markedly modified by properly-directed measures. If we can by patient study of the individual, discern early in life his vicious tendencies—for all have such—and attack them at once and persistently, we may do much to modify or even practically eliminate them, may long postpone or entirely prevent serious trouble, may prevent the evolution of a tendency into an actual condition.

I can but believe that this so-called "*cyclical albuminuria*"

is in reality a danger-signal to be heeded and its cause carefully investigated. It has occurred to me that more extensive examination of the urine in subjects presenting this symptom may throw some light on the problem, both from the general and the local point of view, in a general or constitutional way, by showing the extent to which total excretion is going on, or to what extent and in what direction it may be abnormal; and secondly in a local way by showing, from examination of the sediment, the condition of the urinary tract. If study of a large number of cases along these lines reveal some constant departure from the normal, either in total excretion or in some particular direction, further study of that abnormality may be of service in explaining the condition. As a contribution to such a study I have the following case to report:

A. B., girl, aged eleven years, presents the following record:

FAMILY HISTORY.—Her paternal grandfather and grand-uncle (brothers) died of heart trouble at the ages of seventy and sixty-seven years respectively. Her maternal grandmother was never robust, but never had any organic disease. Her mother died in 1896 of typhoid fever, having finally an infectious nephritis; father and one brother healthy and strong.

She was originally referred to me by Dr. H. B. Favill and was first seen on January 3, 1899. Up to that time there had been nothing noteworthy in her history aside from an attack of measles in infancy. At this time (January, 1899) she had a mild attack of follicular tonsillitis, and, except for the condition of her throat, physical examination, including analysis of a single specimen of urine, was negative. Her subsequent history has been: In July, 1899, a second attack of measles; in August, 1900, while on Cape Cod, an irregular fever, with intestinal symptoms confining her to bed for twelve days, said by attending man to have been typhoid; in October, 1900, on her return to Chicago, an attack of intestinal catarrh; vaccination in April, 1900, and again on January 27, 1901, both times with negative results. Several examinations of the urine made at intervals during the last two years have shown nothing abnormal. I did not attend her during her intestinal attack in October, 1900. On February 26, 1901, I saw her again, with a slight attack of follicular tonsillitis. Physical examination then showed a remarkably well-developed and well nourished girl, with good color, and except for the characteristic signs in the throat nothing of special

DATE, 1901	AMOUNT	SP. GR.	ALBUMIN *				UREA *	CL. *	PHOS. *	SULPH *	SEDIMENT
			8 A.M. %	11 A.M. %	2 P.M. %	4-6 P.M. %					
FEBRUARY—											
26, 2.00 P.M.		1032			Tr.†						Much; many leucocytes, few blood corp. (normal), few squamous cells, 1-2 round cells (kidney), 2 f. g. casts after long search.
27, 8.00 A.M.			Sl. Tr.†								As yesterday, but no casts and a few uric acid crystals.
27, 5.45 P.M.					Sl. Tr.†						As this A.M.
28, 8.00 A.M.			0		0.9						
28, 2.00 P.M.											
28, 4.00 P.M.					4						
MARCH—											
1, 7.00 A.M.		1019	0		0.25						
1, 2.00 P.M.		1026									
2, 7.00 A.M.	380 CC.	1022	0		0.75	2.4	6.5	7	1		
2, 2.00 P.M.	185 "	1021				2.1	5.0	6.5	0.75		
2, 4.00 P.M.	50 "	1032				2.7	6.0	11.5	1.5		
2, 8.00 P.M.	150 "	1024				2.1	3.75	10.0	1.0		
Total	765 "	1024		0	5	2.2	5.25	4.75	1.0		Total urea=16.83 grammes.
3, 8.00 A.M.		1021	0			2.1	3.75	7.50	1.0		
11, 2.00 P.M.		1031			0.75	2.5	9.0	11.0	1.0		
11, 4.00 P.M.		1004			0	0.2	0.75	1.5	0.5		Immediately after gymnasium.
21, 2.00 P.M.		1032			0	2.5	8.		1.		
21, 4.00 P.M.		1034				2.7	5.	13.			Immediately after gymnasium.
28, 2.00 P.M.		1031			0.25	2.4	8.		1.		
28, 4.00 P.M.		1032				2.4	3.75	11.			
31, 10.00 A.M.	40 CC.	1024		0.5		2.3	6.75	5.	1.		
31, 5.45 P.M.	250 "	1025				1.8	6.	8.	0.5		
APRIL—											
1, 8.00 A.M.	370 "	1022	0			2.3	4.	10.5	1.		Total urea=14.52 grammes.
Total	660 "	1023			about 1-10	2.2	4.5	7.	1.		

14,	8.00 A.M.	200	"	1020	0				2.	2.	8.	0.75	Leucocytes, few renal cells, 1-2 uric acid crystals, 1 f. g. cast (2 slides). In house quiet until noon.
14,	10.30 A.M.	100	"	1021	.....				0.9	9.	2.75	0.5	
14,	6.00 P.M.	75	"	1016	.....				1.2	2.	3.	0.75	
15,	8.00 A.M.	190	"	1018	.....	0.5			1.2	2.25	10.	1.	
15,	11.00 A.M.	95	"	1019	.....				1.1	10.	3.	0.5	
15,	4.00 P.M.	85	"	1027	.....	1.25			1.6	10.	7.25	1.	
15,	6.00 P.M.	50	"	1027	.....	0.5			2.8	8.	6.	1.	
15,	8.00 P.M.	90	"	1019	.....	0			2.0	3.	4.	1.	
20,	8.00 A.M.	380	"	1026	.....				2.4	4.	7.	1.	
20,	9.30 A.M.	25	"	.....	.....				1.0	7.	.....	.....
21,	8.00 A.M.	425	"	1024	.....				1.9	3.75	8.	1.	
21,	10.30 A.M.	80	"	1024	.....				1.9	10.	5.	0.75	
22,	10.00 A.M.	265	"	1024	.....	0			2.3	8.	11.	1.	
23,	3.00 P.M.	180	"	1016	.....	0			1.1	6.	2.5	0.5	
23,	5.30 P.M.	60	"	1026	.....	0			1.7	7.	9.	1.	
23,	8.00 P.M.	55	"	1029	.....	0.5			2.5	6.	10.	1.	
24,	8.00 A.M.	165	"	1028	.....	0			2.4	5.	10.	1.	
24,	2.00 P.M.	180	"	1027	.....	0			1.8	11.5	6.	.....
24,	8.00 P.M.	25	"	.....	.....	0			2.9	.....	.....	.....
25,	9.00 A.M.	205	"	1029	.....	0			2.6	7.	8.	1.25	
25,	11.40 A.M.	180	"	1024	.....	0			2.0	9.	9.	1.	
25,	3.30 P.M.	205	"	1020	.....	0			1.7	6.	5.	0.75	
25,	6.30 P.M.	?	"	.....	.....	0			2.2	.....	.....	.....
27,	10.30 A.M.	.....	"	.....	.....	0			.....	.....	.....	.....
29,	8.00 A.M.	205	"	1026	.....	0			2.8	7.	11.	1.	
29,	11.00 A.M.	175	"	1010	.....	0			0.8	4.	1.5	0.5	
29,	5.30 P.M.	325	"	1013	.....	0			1.3	4.	4.	0.75	
29,	8.00 P.M.	205	"	1007	.....	0			0.4	1.5	3.	0.5	
30,	9.30 A.M.	315	"	1025	.....	0			2.5	7.	10.	1.	
30,	3.30 P.M.	295	"	1010	.....	2			0.6	2.	4.	0.5	
30,	5.00 P.M.	35	"	1020	.....	?			.....	4.	.....	.....

Bed till 5.30 P.M., then sat up one hour.

Bed all day.

Bed nearly all day.

Renal cells and leucocytes much fewer; few large round cells from bladder, 1-2 blood corp. (abnormal); 1 f. g. cylindrical tapering, with leucocytes adherent.

Bed till 5 P.M.; up in chair short time.

Up about 10 A.M.; walked down stairs—out to drive.

5 P.M. specimen shows only slightest cloudiness with K Fe Cy solution—no reaction with heat or H N O₃.

DATE, 1901	AMOUNT	SP. GR.	ALBUMIN *				UREA *	CL.*	PHOS.*	SULPH.*	SEDIMENT			
			8 A.M. %	11 A.M. %	2 P.M. %	4-6 P.M. %						8 P.M. %		
MAY—														
3, 8.30 A.M.	{		0								{			
3, 5.00 P.M.					0							{		
8, 11.30 A.M.		1022	0				1.7	13.	12.				{	
8, 5.45 P.M.		165 "			7.									{
										{				
9, 8.00 A.M.	{	425 "	0.1			2.1	4.	10.			{			
9, 5.30 P.M.		127 "			4.	2.2	7.	15.				{		
9, 8.00 P.M.		75 "	?			2.1	4.	11.					{	
10, 7.00 A.M.		345 "	1016	0		2.	4.	12.						{
11, 7.00 A.M.	{	200 "	0			2.5	3.75	13.		{				
11, 12.40 P.M.		480 "	1008	0		0.5	5.	3.			{			
11, 4.15 P.M.		135 "	1017			1.3	12.	9.				{		
11, 6.00 P.M.		35 "			0	1.6							{	
11, 8.00 P.M.		145 "	1015			2.1								{
										{				
12, 8.00 A.M.	{	265 "	0			1.9					{			
12, 6.00 P.M.		320 "	1017		0	1.3	9.	7.				{		
12, 8.00 P.M.		65 "	1022			1.4	15.	7.					{	
13, 8.00 A.M.		135 "	1026	0		2.5	9.	16.						{
13, 3.00 P.M.		200 "	1012		0	1.2				{				
13, 6.00 P.M.	55 "				2.0	6.	13.		{					
												{		
													{	
														{
											{			

Bed all day.

Many leucocytes, singly and in clumps, renal cells more, calcic oxalate crystals. Casts: hyaline, f. g. and coarse granular, some with leucocytes and renal epithelium adherent; some of casts broader than any seen before.

Leucocytes, 1-2 renal cells, 1-2 bladder cells; round; 1 coarsely gran. cast. All elements much less than yesterday's 5.45 specimen.

Leucocytes as yesterday, 5.45; renal cells fewer, 1-2 blood (n.), no casts. Considerable number of leucocytes, singly and in clumps. Some renal epithel. Few crystal calcic ox.; 1-2 hy. and f. g. casts.

12-40; very slight; 1-2 round cells (bladder), 1 round cell (kidney); no leucocytes, no casts.

4.15 P.M., less than 7 A.M., more than 12.40 P.M. Few blood corp. (normal and abnormal); 1 brown-gran. cast; some granular débris.

Many crystals calcic oxalate; other elements as before, but much less in amount.

14,	8.00 A.M....	360 "	1016	0		1.9			Elements still less; no crystals calcic oxalate.
15,	8.00 A.M. {	355 "	1020	0		2.4	8.	9.	6.00 P.M. Elements, except pus, much less; pus slightly less in amount. No crystals calcic oxalate.
15,	1.00 P.M. {	335 "	1009	0		0.8	2.5	4.	
15,	6.00 P.M. {	245 "	1016		0	1.5	6	8.	
16,	5.30 P.M....	55 "	1028		5.	2.7	7.	13.	Elements little increased; many crystals calcic oxalate; no casts.
24,	2.00 P.M. {	418 "	1008		0				6.30 P.M. 1-2 renal cells, 1-2 leucocytes; no blood, no casts, no oxalate crystals.
24,	6.30 P.M. {	280 "	1014		0				
25,	8.00 A.M....	450 "	1017	0					As last night, plus many crystals of calcic oxalate. Had a little asparagus last night.

* The percentages of albumin, chlorids, phosphates and sulphates were estimated by Purdy's method of centrifugal analysis. The urea was estimated by Doremus' ureometer.

† Tr.—Trace.

‡ Sl. Tr.—Slight Trace.

interest until the urine was examined. The results of this examination are recorded in the table. I attached but little importance to the analysis of this specimen, as I have often seen albumin with other signs of renal irritation in tonsillitis as well as in other infectious diseases. As the urine did not immediately clear up, however, I began to make systematic observations and soon discovered that the albumin was running a so-called "cyclical" course and that, furthermore, the sediment showed the signs of serious organic disease. We will return to a more detailed study of these observations later.

Repeated physical examinations made during the last three months have shown the following: *Development, nutrition* and *color* remarkably good; *mental condition*, bright and happy; *chest*, slight increase in the area of cardiac dulness to the left, apex fifth space in mamillary line; heart action regular, normal vigor, no murmurs; lungs negative, except as mentioned below; *abdomen* negative; limbs and extremities negative. No vaginitis, no leucorrhœa, no intestinal parasites either in stools or about vulvæ. *Pulse*, normal force and vigor, never irregular, never intermittent, rather rapid, 84 lying down, 96 sitting, 112 standing.

March 2d—Blood, red, 4,860,000; white, 11,000; hemoglobin, 80 per cent.; 2 P.M., immediately after lunch.

April 15th—Height, 4 feet 7 inches; weight, 86 pounds.

The urine has shown quite constantly the presence of albumin between the hours of 10 A.M. and 8 P.M., and its absence in all morning specimens with but two exceptions. The sediment has shown the presence in varying amounts of renal and bladder epithelium, pus, blood, casts and crystals of calcic oxalate.

There should be mentioned, in addition to the above record, the occurrence of a dry pleurisy (left) from April 20th to 25th, and a small abscess of the gum early in May (3d to 9th). The absence of all symptoms and signs of discomfort at all other times has been a striking feature of the case. The child has been to outward appearances perfectly well. She has been up and about, except at the times noted in the table; has been to school, to gymnasium, and up to about the last of April has led the life of a healthy child of her age.

The above record reveals a family history of cardiovascular trouble, a previous history of several attacks by infectious dis-

eases, some possibly of a rheumatic nature, and finally a urine showing the existence of actual organic disease with a cyclical course to its albuminuria, this organic disease being absolutely without any subjective symptoms directly referable to it.

The chief interest of the case of course centers in the condition of the kidney as manifested by the urinary examinations, and to a study of these examinations I would now invite your attention.

Eighty specimens of urine have been examined, passed at different hours of the day between 7 A.M. and 8 P.M., the observations extending from February 26, 1901, to May 24, 1901. Looked at as a whole the child is found to be passing a fair amount of urine, the average of eight complete days being 722 c.c. It is as a rule rather concentrated in character and shows a high specific gravity and percentage of urea. Total excretion as a whole is not impaired and the kidneys are performing well their function of elimination, a fact accounting for the entire absence of even the mildest symptoms of uremia, such as headache, general lassitude, etc.

We note the character of the sediment, which together with the albumin leaves no doubt of the organic nature of the disease. The reaction has been almost invariably acid, indican has never been found in excess, sugar has never been found at all.

Curious indeed and most interesting to watch, have been the fluctuations in albumin. The excessively high percentages have invariably been traceable to some definite specific cause. The 4 P. M. specimen of February 28th for example, was undoubtedly due to a too early return to the gymnasium after her attack of tonsillitis. Again the 9.30 A. M. specimen of April 20th, with 4.5 per cent. of albumin was coincident with her attack of pleurisy. She was put to bed at this time and note the diminution and disappearance of the albumin during the following two days, to return in a smaller amount (5 per cent.) in the evening specimen of April 23d. On this day she sat up from 5 to 6 P. M. to have her bed made. After that she stayed in bed till the 30th, arose at 10 A. M., walked downstairs and went out to drive. The 3.30 P. M. urine showed 2 per cent. of albumin. On May 8th, after several days in bed with a slight abscess of the gum and cervical adenitis, she arose at noon and at 5.45 P. M. voided a specimen with 7 per cent. of albumin, so

great an amount indeed that it continued to "leak" through the night, the next morning (May 9th), urine showing .1 per cent. Nor did the system and kidneys regain their equilibrium throughout the day, for we find the 5.30 P. M. specimen with 4 per cent. of albumin and the evening specimen with 1.5 per cent. Although the child's general condition at this time seemed excellent, I decided to put her to bed for at least two weeks, such was the character of the urine. Note the result in the record from May 11th to 15th inclusive. On May 15th in consultation with Dr. Favill, it was decided to segregate the urine on the 17th. That the kidneys might be acting under every day conditions, I had the patient get up on the afternoon of the 16th. Note the 5.30 P. M. specimen, 5 per cent. of albumin. The 8 A. M. and 11 A. M. specimens of May 17th contained no albumin. The segregation, however, was indefinitely postponed, such was the objection of the family, hence I am unable to report whether the child has a unilateral or bilateral process going on. The patient has now been in bed practically for two weeks and the analyses of May 24th and 25th are as per table.

The effect of exercise upon albuminuria has been by no means constant. I have already referred to the 4 P. M. specimen of February 28th, with its 4 per cent. of albumin after an hour in the gymnasium. That this high percentage was not due to exercise alone is shown by the record of March 11th under corresponding conditions: no albumin at all. I cannot account for the quality of this specimen with its low amount of total solids. The urine of March 21st after gymnasium work showed 1.5 per cent. of albumin.

Further detailed study of the table shows departures from normal excretion in certain directions aside from the albumin and sediment. The high percentage of urea has been mentioned but cannot be regarded as excessive considering the age of the child. The chlorids as a whole range low, 49 out of 60 specimens examined, or 83 per cent., being below 10 per cent., while the phosphates range high, 36 specimens or 62 per cent. being 7 per cent. or over, 22 under 7 per cent. The sulphates are about normal.

Does the albuminous urine differ markedly from the non-albuminous in other characteristics? In the matter of specific gravity, it cannot be said there is any marked difference, it is, as a rule, high in both groups. That a large amount of albu-

min does not necessarily mean a high specific gravity is evidenced by the 3.30 P. M. specimen of April 30th, which with 2 per cent. of albumin has a specific gravity of 1010, this low specific gravity being due to the low percentage of urea, only .6 per cent.

Do the percentages of urea, phosphates and chlorids range differently in the two groups? Regarding 2 per cent. as the dividing line between high and low urea, we find that 13 of 22 albuminous specimens, or 60 per cent. are high, and 9, or 40 per cent. low, 21 of non-albuminous specimens, or 52 per cent. are high and 19, or 48 per cent., low. In other words the proportion of high to low urea is slightly greater in the albuminous than in the non-albuminous urines. The chlorids, as has been noted, run low and the proportion of low to high is about the same in both groups. Eighteen of 20 albuminous specimens, or 90 per cent., being low (less than 10 per cent.); 24 of non-albuminous specimens, or 85 per cent. being low; the phosphates resemble the urea in running high; 13 of 20 albuminous specimens, or 65 per cent., are high; 23 of non-albuminous specimens, or 70 per cent., are high. The sulphates show but little variation, ranging as a rule from .5 to 1 per cent., and this range I have found constant in many other cases both in health and sickness.

The relation of sediment to albumin is always constant; the greater the amount of albumin, the more the sediment; casts, pus, blood, renal epithelium and crystals of calcic oxalates were found in non-albuminous specimens, but usually in smaller amounts. Whatever the immediate or exciting cause of the albuminuria it evidently acted to produce an increased exudation of leucocytes and desquamation of epithelium in the kidney. Increase in blood-pressure might explain these phenomena.

On the whole, the albuminous urine cannot be said to differ markedly from the non-albuminous except in the amount of sediment. Both groups are somewhat alike in departing from the normal in the matter of urea, phosphates and chlorids, the first two being above the average, the last below it.

It will thus be seen that this case with its condition of "*cyclical albuminuria*" is passing a urine which shows excretion, as a whole, well-maintained, especially in the matter of urea, but which departs from the normal in the amount of phosphates and chlorids eliminated. Beyond this simple

statement of facts but little can be said. This is only a single case and we cannot say whether the increased phosphates and diminished chlorids are a peculiarity of this one subject, or are characteristic of cases with "cyclical albuminuria" generally.

As regards urea and phosphates, however, the observations here are in accord with those of v. Noorden. Future investigations will doubtless settle these relations, but until such time it is not worth while to discuss the questions naturally occurring to us: Are the conditions causing an abnormal excretion of phosphates and of chlorids in the urine well-known? Do these conditions tend to produce a nephritis, either immediately or remotely? If so, can we prevent their development or modify them once established? Will they explain the phenomenon of "cyclical albuminuria"?

The origin of the nephritis in this case cannot be determined with any degree of certainty. It doubtless has arisen from one of the several infectious attacks which the child has had, viz: measles, tonsillitis and intestinal. In this connection the following reports are of interest, the one from a bacteriological examination of the urine (2 P.M., May 23d, a non-albuminous specimen) the other from a drop of blood subjected to the Widal test:

Urine.—"Cover slips from the centrifugated sediment show short bacilli, cocci in chains, and a very small diplococcus. No tubercle bacilli could be found in a large number of specimens. Plate cultures gave the same forms of organisms as seen in the sediment. None of the colonies of bacilli gave the Widal reaction with typhoid serum, and a colony cultivated gave all the features of the *B. coli communis*. The streptococcus is not the streptococcus pyogenes. The bulk of the sediment was inoculated into two guinea-pigs, one intraperitoneally, the other subcutaneously, the former dying promptly from peritonitis. The other will probably live."

As the specimen was not obtained by catheter we cannot attach any significance to the presence of the *B. coli communis*. The completeness of the bacteriological report, however, is of value in excluding a tuberculous process in the kidney.

Blood.—The report from this investigation reads "incomplete reaction," with the oral statement "as if the patient had an abortive form of typhoid or had had the disease within the last few years."

These reports thus prove nothing as to the origin of the

nephritis, though that from the blood tends to confirm the diagnosis of typhoid last summer. But the very obscurity of cause in this case simply emphasizes the importance of urinary examination in all infectious diseases.

Until recently but little treatment has been adopted, except to watch the urine closely and to insure a generally hygienic life. She is now on a diet low in nitrogenous material, is urged to drink much water, and at the suggestion of Dr. Green, of St. Paul, who saw the case in consultation on May 17th, is receiving urotropin gr. v., t. i. d. She is having massage and light Swedish gymnastics.

The marked improvement in the character of the urine leads one to hope that eventually complete repair will take place in the kidney. The case, however, must be carefully watched, especially at critical periods, *e.g.*, these next few years with the disturbing influences of puberty, during pregnancy and labor, or on the occurrence of any infectious disease. At such time the urine should be examined, and needless to say, more than one specimen and under different conditions of life; we shall not then be "caught napping" or be surprised by an uremic convulsion "like lightning out of a clear sky."

I have no conclusions to offer from this study of a single case. Perhaps, however, the child's record serves to emphasize the importance of urinary examination in all our cases, and furthermore of several specimens of urine passed at different hours of the day under varying conditions of life. The necessity of examining the sediment of non-albuminous urine is also evident.

I am indebted to Prof. W. S. Haines for examination of several specimens of urine; to Dr. S. G. Wells for the bacteriological report on the urine and to the Bacteriological Laboratory of the Chicago Board of Health for the report on the blood.

460 DEARBORN AVENUE.

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DISCUSSION.

DR. DORNING.—This is a very interesting subject that has been brought before us and should not be dismissed without some consideration. I have in mind one case in which twenty years ago albumin appeared in the urine once a week, invariably on Sunday. In the course of a year it appeared every third or fourth day, and was then often associated with excessive exercise. Some five years later this patient developed a cough with expectoration, but at no time were tubercle bacilli found in the sputum. Eight years later bladder symptoms appeared. On cystoscopic examination a small linear ulcer was found at the base of the bladder. For some time after the cystoscopic examination the urine was loaded with pus. At no time were casts found. Repeated examinations for tubercular bacilli gave negative results. Three or four guinea-pigs were inoculated with the urine: one died in two weeks, and the others were killed later, but none of them showed any evidence of tuberculosis.

At present the patient does not cough and only the physical evidence of a small adhesion at the left apex can be detected. The urine still contains albumin most of the time but no casts. Another remark that I would like to make concerns the movability of the kidney in this particular class of cases. Occasionally a movable kidney seems to account for a transient albuminuria, and sometimes albuminuria and casts. All of these symptoms have disappeared in some reported cases of movable kidney after a fastening of the organ by operation. It has been noticed that palpation of a kidney has been followed by albumin and casts in the urine subsequently voided, whereas it was not present previously. I think it would be well worth observing, in children especially, whether vigorous palpation of the abdomen as practiced in some of our examinations, does not give rise to a transient albuminuria: in such an event it would be the result of a traumatism.

DR. CHURCHILL.—I would like to ask in regard to that case under observation for twenty years at what time of the day the albumin appeared.

DR. DORNING.—On Sundays it appeared invariably in the afternoon.

DR. PACKARD.—Dr. Dorning's remark about movable kidney reminds me of a case that was sent to me on account of a large amount of albumin in the urine. I found that there was always a large amount in the evening, but little or none in the morning, and physical examination showed a movable kidney. When I get specimens of this patient's urine for examination I can always tell when the patient's pad is out of place by the presence of albumin. Whenever we have a large amount of albumin in the evening urine and a small amount or none at all in the morning we should look with especial care into the question of the presence of a movable kidney or of stone in the kidney.

I would like to ask whether in Dr. Churchill's case, the albumin found was entirely serum albumin.

DR. WINTERS.—I had in the case of a girl twelve years of age, in spite of every care as to exercise, etc., albumin appear regularly though she never gave any other evidence of kidney disease. At one time she was kept in bed for four months, on a milk diet for two months of that time, and no albumin appeared during the entire period. Very soon after getting out of bed albumin appeared again and I then advised her father to send her to California and she has now been there two years, living during the entire period as other school girls do, and there has been no reappearance of albumin.

DR. KOPLIK.—I have under observation such a case, the daughter of a physician. I gained the impression from this case

and from the literature that all these patients have to be watched very closely. In these cases there may be a very mild nephritis, and this was the condition probably in my case. This girl began with an albuminuria, cyclical in character appearing after exercise at intervals of a few months, with occasional casts. She was dieted very carefully and the albumin and casts have disappeared, but it is difficult to say when they may reappear. In this case the albumin was so slight at times as to be scarcely seen except with the most delicate tests.

DR. CHURCHILL.—As to the question of movable kidney, I examined this child carefully with that point in view but did not find one. The albumin was serum albumin.

The Pseudoparalyses of Children.—Vierordt (*Deutsche Zeitschrift für Nervenheil*, December 4, 1900) criticises Parrot's idea that in these cases syphilitic and rachitic disease of the bone is sufficient to explain the paralytic symptoms. He reports 2 cases which were characterized by paralysis of the lower extremities, coming on at the age of one and a half and two years. In the latter case the child was able to stand before the disease developed. The limbs were not especially tender; the spinal column was excessively mobile; there were no signs of syphilis but moderate rachitis in both. The paralysis was flaccid, but there were no reactions of degeneration. Both recovered completely. Vierordt regards the paralysis as the result of loss of power, and the hypertonicity of the muscles. He excludes the possibility of Chassaignac's disease on account of the absence of pain. He also calls attention to a condition of paralysis of the muscles of deglutition that occurs in children who have been subjected to tracheotomy. He has observed it in 70 per cent. of the children under two and a half years that have had this operation performed upon them in his clinic. It usually persists during the period that the canula is in position. In conclusion he states that in young children paralysis may occur as the result of peripheral irritation, especially of the skeleton, and that therefore we are justified in assuming the existence of a pure functional paralysis, the result of irritation of the inhibitory centers, and that this paralysis disappears as soon as the peripheral irritation discontinues.—*Philadelphia Medical Journal*.

PROBABLE ETIOLOGY OF RECTAL POLYPI IN CHILDREN.*

BY FRANCIS HUBER, M.D.,
New York.

In the different works on diseases of children, the varieties of rectal polypi are described, their situation is pointed out, and the appropriate treatment is given. Little, however, is said regarding the etiology, nor is any attempt made to elucidate the question. A similar result is noted, when the special works upon rectal disorders are consulted.

We are told the etiology is unknown. Many of the authors entertain the view that the affection or a predisposition to such is congenital. Some assert that mechanical causes may accelerate the growths or by causing superficial lesions give rise to secondary inflammatory processes. One author, Hauser, because of their uncertain origin, is inclined to attribute (at least the multiple form) to the action of certain microorganisms. The polypi are generally met with at points exposed to frequent irritation. The location or "*loci minoris resistentiæ*" being the cecum and rectum—for the feces are apt to accumulate in hardened masses in the lower bowel and an increased pressure is found to take place immediately above the ileocecal valve.

The obscure nature of the subject led me to send a note of inquiry to several prominent specialists, for definite details and individual views. Among the replies received, the following from Dr. J. P. Tuttle, of New York, represent the current views:

"The question of etiology in the production of rectal polypi in children is a very difficult one. One must distinguish in the beginning between the different varieties of polypi. Writers upon this subject are in the habit of calling everything a polypus that has a pedicle. As a matter of fact we may have benign and malignant polypi. The large majority of those occurring in children are of the adenoid variety. These may begin as flat sessile tumors, and by their weight and the expulsive action of

*Read by title before the American Pediatric Society, Niagara Falls, N. Y., May 27, 28, 29, 1901.

the intestine be dragged downwards until a pedicle of mucous membrane is formed.

Heredity undoubtedly has some influence, as was claimed by Esmarch many years ago. Inflammation also may cause the development of these tumors.

The action of certain parasites, such as the distoma hematoba, and microbic infection of the adenoid tissues may also have an etiological influence.

In the other varieties of polypi, such as the mucous polypus, which occurs occasionally in children, one may say that it is a malformation. In the fibroid polypus it is a question whether this is a result of the intrauterine inflammatory process or a malposition of the fibrous tissues. Inasmuch, however, as most all of these tumors have been found at birth or shortly thereafter, one may hardly attribute any etiological influence to intestinal infection by ingested materials."

In the discussion let it be understood that we are only concerned with the benign type met with in children, the growths presenting themselves in one of two forms. (1) The soft gelatinous, composed of the elements of the mucous membrane, and (2) the mixed variety supplemented by the cellular tissue beneath, the hard or fibrous polypi.

SYNONYMS AND DEFINITION.—Adenocoele, adenoma, or adenoid tumor is defined as an hypertrophy of gland texture. The term polypus is used synonymously with the above, since all these growths upon the secreting surface for the most part contain the glandular element. In the further study of the nature of the growths, we must consider the anatomical elements of the rectal mucosa which contains villi, solitary follicles and tubular glands of Lieberkuhn. These structures must be studied in order to explain the origin and development of the polypi.

Polypi, common in the lower rectum, though met higher up, usually originate within an inch or an inch and a half from the anus and are attached by a pedicle varying in length and thickness. If of the soft variety, they may be villous or glandular. The villous vary in size from a pea to a Concord grape and are pedunculated; the glandular or cystic form has a shorter and thicker pedicle. This form is apt to undergo malignant transformation. Both bleed freely. In the mixed variety, the polypi are hard and the tumor contains mucous elements and submucous cellular tissue. The importance of bearing in mind

the fact that the growths contain the constituent elements of the mucosa and submucosa will be appreciated later on.

Usually single, they are not infrequently multiple in character. Mr. Thomas Smith has recorded three cases of disseminated polypi of the adenoid class in young persons. Cripps also has reported cases of multiple polypi springing from the rectum and colon. Kammerer reported (ARCHIVES OF PEDIATRICS, April, 1899) a very interesting case, a girl about six years old with multiple growths in the rectum and colon. Those in the latter situation were removed after the abdomen was opened. He also refers, in a brief way, to a previous case occurring in a girl eighteen years old, with hundreds of smaller growths. Dr. A. Vadjo (*Jahrbuch für Kinderheilkunde*, Bd. L., p. 411) discusses the subject exhaustively in an excellent article.

A number of cases have come under my observation, in which two or three were found in the lower rectum. In a few instances occurring in members of the same family; in two others, the patients were cousins. Before we enter upon any detailed discussion, a consideration of the following case is suggested.

Michael D., six years old, of German-American parentage, undersized and somewhat backward, for years has suffered with recurring attacks of bronchitis and asthma. Has had pneumonia a number of times.

Physical examination.—Mouth breather due to adenoids; chest somewhat "barrel-shaped"; moderate sized goitre. Treatment: nasal irrigations were ordered and for his asthmatic attacks five grains of iodid of potash three times a day with tincture of belladonna was followed by some improvement. As the treatment gave relief for the time being only, it was decided to give him free nasal breathing, hoping that the tendency to new catarrhal processes would be lessened. After the adenoids were removed his asthmatic attacks were reported as being milder and less frequent. A further interesting observation was made. It was noticed that when he lived in New York there was a complete cessation of the paroxysms, and during the months that he remained in this city he had complete relief. Upon returning to Brooklyn the attacks would recur, but were milder in character.

A further point of interest, and one which interested us a

good deal, was the frequent complaint of pain and itching in the anus, with tenesmus and some blood. There was no diarrhea nor other evidence of proctitis or dysentery. A rectal examination revealed a few small flat polypi and several eminences in the mucous membrane. Cold water injections were ordered and when regularly carried out gave him a great deal of relief.

To recapitulate—an undersized boy, somewhat backward, with pronounced aprosexia due to adenoids. In addition goitre and moderately enlarged lymph nodes furnished further evidences of the status lymphaticus. The abnormal rectal condition was doubtlessly a local manifestation of the same nature. It may be stated that these small growths are not infrequently the source of a persistent anal pruritus in such patients.

The case is reported to serve as a text for some very interesting observations and conclusions as to the probable etiology of rectal polypi. In this instance and in quite a number that have come under observation in the past four or five years, I have noticed one feature common to all the cases—*rectal polypi were only found in patients who at the same time showed evidences of lymphoid hypertrophies in the nasopharynx with other manifestations of the constitutio lymphaticus, status lymphaticus.*

This can hardly be a mere coincidence. On the contrary, the observations made in my own cases and in those in the practice of professional friends, have led me to believe that the variety of rectal polypi under discussion is simply a local manifestation of the status lymphaticus.

Through the courtesy of Dr. H. Koplik * I was allowed to examine the interesting case reported by Kammerer. Both tonsils were enlarged and adenoids were found. Recently Dr. Jos. Huber saw two cases within a week. He writes: "Have looked up the two patients (cases of rectal polypi); first, age nineteen, female, turbinated hypertrophies and mild adenoids; second, age seven, male, adenoids very marked."

About the time of writing Dr. MacHale directed my attention to a case at the Vanderbilt Clinic in which, upon making a digital examination, a polypus was torn away and escaped with some blood when my finger was removed from the rectum. In

* Dr. Koplik writes me that he had treated the child on several occasions for attacks of tonsillitis.

this case two large adenoids were present in the nasopharynx. Two cases in girls about sixteen or seventeen who had been under treatment years ago are recalled, both having suffered from rectal polypi, and in both cases the tonsils were enlarged.*

So much for clinical observation. It may now be interesting to study the question from another standpoint—that of the pathologist.

In Lilienthal's case reported as hyperplastic colitis and to cure which the entire colon was removed, the pathological condition was found to consist in a hyperplasia of the solitary lymph follicles (*Medical Record*, February 2, 1901).

Wm. M. Beach concludes that the growths "contain the constituent elements of the mucosa and the submucosa" (*Philadelphia Medical Journal*, December 16, 1899).

S. G. Gant, in an informal discussion, speaks of the similarity of the microscopic appearances of nasopharyngeal adenoids and rectal polypi.

Vadjo reports a case with autopsy and described the lesion as follows: "Das wesen der Krankheit wird durch circumscribte und multiple, eine grössere Partie des Darmzuges betreffende, primäre Drusenwucherung bedingt."

In the dyscrasia to which the term "status lymphaticus" has been applied, we have in addition to the characteristic changes in the nasopharynx, among other lesions, the following bearing directly upon the subject; the abdominal lymph nodes, especially those of the intestines and mesentery are strikingly enlarged. The Peyer's patches and their follicles and the solitary follicles project prominently above the surface of the mucosa. The swollen mesentery nodes may remain discrete or form a solid mass of lymphatic tissue. The nodes of the entire gastroenteric tract are frequently involved in the hyperplasia.

Dr. Bovaird, in speaking of a specimen presented at the Section on Diseases of Children of the New York Academy of Medicine, said: "The only change of note, as far as the colon and rectum were concerned, was the hypertrophy of the solitary follicles. These were enlarged throughout the whole extent of the large intestine, the enlargement being somewhat more marked in the upper part of the colon. The enlargement was fairly uniform and of such extent that the individual follicles

*Since the above was written, Dr. C. kindly referred to me a girl about fourteen who had been troubled with rectal hemorrhages for some time. She was undersized and a confirmed mouth breather. A digital examination revealed a solitary rectal polypus upon the posterior wall.

stood out as distinct, small grains, upon the background of the otherwise normal mucous membrane. The walls of the gut seemed unchanged."

To sum up briefly, then, it is fair to regard the rectal polypi under discussion as to the local manifestation of the status lymphaticus. In all the cases of rectal polypi which have come under personal observation or which have been observed in the practice of friends, Waldeyer's tonsillar ring was involved. In the two conditions there is a hyperplasia of tissue—in one, of the lymphoid structures of the nasopharynx, in the other of the intestinal solitary follicles. Both these hypertrophic states are but part and parcel of the general lymphoid hyperplasia, developed to a greater or less degree in the "conditio lymphatica." Secondly, the pathology, as far as the large intestine is concerned, is identical in status lymphaticus and in the case of the polypi.

Whenever the follicles are enlarged constipation, diarrhea, or some peculiar idiosyncrasy in the patient, induces a further increase in their size. Intestinal peristalsis and the passage of fecal masses exert a downward traction, gradually forming a pedicle and not infrequently a tearing away of single growths.

The question now arises, if the conclusion be correct—Why are polypi not more common?

The large number of cases of adenoids apparently without any polypi in the gut requires an explanation. Many of the patients present rectal symptoms, hemorrhages slight in amount, pruritus, fissures, mucorrhœa with or without tenesmus and even prolapse. A digital examination reveals either small—more or less distinctly pedunculated growths or simple distinct elevations corresponding to the enlarged solitary follicles. The frequency with which even large polypi are overlooked is well known. All writers refer to the fact that polypi are not infrequently torn from the walls by the fecal mass and passed with the contents of the intestines.

Reference has already been made to the opinion held by some, that the affection or a predisposition to such is congenital. In this connection we may refer to the suggestive and pertinent views of Dana. He has directed attention to the teratological defect or weakness or occasional unequal vitality of the different tissues of the body, particularly observed in the study of nervous diseases. The importance of the subject leads me to quote his conclusions.

"In the study of nervous diseases one becomes impressed

with a fact which does not seem to have been appreciated by pathologists in their studies of pernicious anemia. This is the occasional unequal vitality of the different tissues of the body. For example, in the muscular dystrophies we know that the muscular system is congenitally short-lived and wastes away before the individual's other organs are even matured. In hereditary chorea the gray matter of the brain cortex, especially in the central convolutions, dies before the man is forty. In certain forms of primary dementia the same fact is true. In locomotor ataxia and the spinal atrophies and other degenerative diseases, certain systems are born with a weak vitality and succumb to infections, toxins, or accidental injuries, which do not affect the other parts. Of the millions who get syphilis only some thousands have tabes, and of the thousands who are poisoned with lead only a few have an atrophy of the corneal cells. The same law, I believe, applies to other structures. The kidneys and the liver atrophy and die early in some, while others subjected to the same influence continue healthy. These tissues have inherited a feeble resistance to deleterious agents."

The factor of teratology or unequal vital endowment of the tissues is one of the most important and compelling in the explanation of progressive degenerative diseases of the human body, and it appears applies equally to the subject under discussion. In the dyscrasia underlying the changes in the nasopharynx and large intestine the addition of a local cause in the latter, as diarrhea or constipation or an individual idiosyncrasy would tend to increase further the size of the solitary follicles. The weight, together with the expulsive action of the intestine would tend to drag them downward until a pedicle of mucous membrane is formed, and thus the polypi are completed.

Unrecognized Cases of Whooping-Cough.—Saint-Philippe says (*Jour. de Med. de Bordeaux*, February 3, 1901) that pertussis may exist without the spasmodic cough, or the typical whoop. Sneezing may take its place, often. Râles are generally heard, and nasopharyngeal catarrh may be present, with adenoids. On account of its extreme contagion, and its ubiquity, he advises that every child with a longstanding cough be carefully watched. Children who expectorate are generally far advanced in whooping-cough. If pertussis be present, scratching the trachea will elicit a typical paroxysm. For the treatment, and to prevent the severe sequela, especially, minute scrutiny of all suspicious cases must be routinely practised.—*The Philadelphia Medical Journal.*

LAMELLAR DESQUAMATION IN AN EPIDEMIC OF GERMAN MEASLES OR OF "FOURTH DISEASE."

BY FREDERICK T. SIMPSON, M.D.,

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"May german measles have a prolonged desquamation in shreds and sheets after the manner of scarlet fever?" was the query which gave rise to this paper. To relate the circumstances of a recent epidemic will be perhaps the easiest way to answer the query.

At the American School for the Deaf in Hartford on April 27, 1901, a boy, eight days from Winsted, Conn., where he had been two weeks on vacation, was observed to be covered with a rash. He was at once isolated for further examination. It was found that there existed a slight reddening of the conjunctiva, slight suffusion, a universal discrete, coarse, papular rash, enlargement of post-cervical lymph nodes, slight injection of fauces, a temperature of 99° , no malaise. No new symptoms appeared. Three days later, another boy showed similar symptoms, but the rash was fine and there were no eye-symptoms. A third and a fourth boy broke out on successive days, number four having some cough. The diagnosis of german measles was made and the boys were allowed to return to their studies as soon as the rash disappeared. The cases continued to develop, among them one teacher who experienced a sore throat and developed a fine rash. Most of the cases had been in her room, and she preferred to keep on with her work upon my assurance that the disease was harmless, and that the children were not additionally exposed. The seventh boy vomited freely for two or three days and showed considerable malaise. But something in the diet was apparently responsible, as a dozen children vomited that day for a few hours, but recovered promptly without showing any other symptom. At this time one of the supervisors developed a severe sore throat, increasing fever and on the fourth day a fine universal bright rash on a flushed skin. The temperature reached 103.5° . The left tonsil was greatly swollen and covered with exudate. The patient was severely ill. The case looked like a typical case of scarlet fever, and an experienced physician, Dr. E. J. McKnight,

who was called in during my absence from the city, pronounced it as such. The patient, however, affirmed she had had scarlet fever, and learning of the other cases, Dr. McKnight suspended judgment.

The boys, who were first taken ill, were now examined carefully, and three of them were found to be peeling in small strips about the fingers, and one in large shreds and patches over the body. I concluded the diagnosis was wrong, and that we were in the midst of a mild epidemic of scarlet fever. A strict quarantine was therefrom instituted, and the nature of the disease was reported to the Board of Health. In the next group of boys to sicken, two cases lying in adjacent beds presented the widest contrasts. The one vomited a little, had faucial injection, a temperature of 104° , a profuse fine rash on a reddened skin. Tiny white papules thickly studded the inner surface of the thighs. The rash did not come out on the legs for forty-eight hours, and here it was in patches with intervals of normal skin. The boy was severely, but not dangerously sick. The other case showed decided lachrymation, photophobia, cough, a coarse lumpy discrete rash which became on the face confluent and blotchy, temperature 102° . Dr. E. K. Root, ex-president of the Board of Health, was called in. After looking over all of the cases, we found ourselves unable to declare positively whether we were dealing with one or two diseases, or what the exact nature of the single disease might be, if there were but one. Most of the cases clinically resembled german measles, but the first case, though of pronounced measles type, was desquamating after the fashion of scarlet fever. At Dr. Root's suggestion, I sent as accurate an account of the epidemic as possible to Dr. L. Emmett Holt of New York, who in reply, while conceding the possibility of the presence of two different diseases, was inclined to regard the whole epidemic as one of mild scarlet fever, and expressed the wish to know what took place in all the cases in the matter of desquamation.

Case no. 14 was a supervisor, who called in yet another physician, Dr. E. W. Kellogg, an experienced practitioner, who pronounced her case a typical one of old-fashioned scarlet fever. Several girls were now infected, all of whom showed the measles type, *i. e.*, eye symptoms, cough, and a discrete coarse rash. Case no. 12 was now desquamating copiously in large lamellæ, an inch in diameter. Dr. Kane, president of the Board of Health, examined the cases. He affirmed unhesitatingly his

belief that the epidemic was one of german measles only, and stated that he had seen two cases of german measles desquamate freely, which afterwards had developed scarlet fever within a year. Dr. Naylor, of Hartford, treated one of the later cases at home and pronounced it typical german measles. Thus six Hartford physicians saw cases of the disease of whom four were inclined to the diagnosis of german measles. At this time I came across Dukes' description of his "Fourth Disease" in the London *Lancet* of July 14, 1900, with the instances of extensive lamellar desquamation mentioned therein. I determined to return to the diagnosis of german measles and at once released from quarantine those who were convalescent and not peeling. We had subsequently seven or eight cases, all of which, but one, were of the measles type. Case no. 27 showed a fine copious rash on a reddened base. It did not appear on the legs before the third day. Temperature, 99.2°. Desquamation began on the seventh day, was in large lamellæ, and could be torn off in sheets from the body. It occurred later on the fingers and lasted two or three weeks.

Two items important for diagnosis were noted in connection with these later cases. The first indicated the period of incubation. These cases all occurred in pupils living in one building. Case no. 25, a girl, had been sent to another building, where she recited, early in the epidemic before any of the girls had been taken sick. Fifteen days later she developed the rash and was hastily returned to quarantine. Case no. 27, the final case, developed just thirteen days after case no. 26.

Case no. 24 lived in Hartford and was treated at home. Two weeks after the commencement of her illness, a brother developed the disease, and nearly three weeks later two younger sisters. Case no. 10 went home June 21st. Two weeks later a sister developed a marked case of german measles. No other exposure could be ascertained. Thus in five cases an incubation period of two weeks or more was established. The second item had reference to the previous occurrence of scarlet fever. On looking up the histories afforded by the school papers, it was found that five cases had had scarlet fever. These cases were nos. 5, 12, 20, 25 and 27. This list, it will be seen, includes the two cases which desquamated most copiously, and also no. 5, whose symptoms were those of a severe typical scarlet fever. This is important, for if one were to claim that two diseases co-existed here, of which one was scarlet fever, he would be

Most prominent symptoms noted in epidemic of eruptive fever at American Asylum in Spring of 1901.

No.	DATE	VOMITING	COUGH	EYE SYMPTOMS	RASH. COARSE	TEMP.	ENLARGED POST CERVICAL NODES	DESQUAMATION	SCARLET FEVER PREVIOUSLY
1	Apr. 27			present	discrete	99	present	Universal in shreds	
2	" 30				fine	"	present	Small shreds on fingers	
3	May 1				fine	"	"		
4	" 2		present	present	fine	"	"		
5	" 3		slight		fine	103.5	"	Patches on fingers and soles	occurred
6	" 6				coarse	99.5	"		
7	" 6				"	99.5	"		
8	" 6				fine	101	"	Toes peeled in strips	
9	" 9	present	present		fine	101	"		
10	" 13			present	coarse		"		
11	" 13	present			"		"		
12	" 13	present		} fine with white papules	} coarse	} 104	}	Very profuse in large pieces	occurred
13	" 16		present								102	"
14	" 19		"	present	"	102.5	"	Peeling on soles	
15	" 20		marked	present	"	101	"		
16	" 21				"	"	"		
17	" 22				"	"	"		
18	" 22		present	present	"	"	"	Large patch on heels	
19	" 23				"	"	"		
20	" 23		present		"	"	"		occurred
21	" 23				"	"	"		
22	" 24				"	"	"		
23	" 26		present	present	"	"	"		
24									
25	" 28				"	100	"		occurred
26	" 28				"	101	"		
27	June 10				fine	90.2	"	Profuse in large strips	occurred

confronted with the fact that those cases which most resembled scarlet fever in clinical features were the ones in which scarlet fever had previously occurred. In every case but one, no. 24, tests were made for the presence of albumin in the urine as late as the fourth week of the disease. It was never found, nor any symptoms of nephritis.

The throat was slightly injected in most cases, but in only three or four was there a subjective feeling of soreness so far as could be ascertained. Enlargement of the post-cervical lymph nodes was a marked feature in every case. If looked for, the axillary and inguinal nodes were also found enlarged. True strawberry tongue was never seen. Vomiting occurred in only three cases.

DESQUAMATION.—A fine branny desquamation following disappearance of rash was reported when inquired for. Nothing was carefully looked for except the coarse variety. Altogether 8 cases desquamated in strips, or lamellæ, nos. 1, 2, 5, 8, 12, 14, 18, 27. But only 3 of these were copious and universal, 1, 12, 27. In the others, visible desquamation was confined to the hands and feet, and in several cases would have been overlooked but for careful inspection. Here there were tiny strips hanging from the ends of the fingers or an irregular area denuded of epidermis would be found on the palms or soles. In no. 18 a detachment of the epidermis of the entire heel like a cast occurred. Desquamation on the hands was always late in appearing, not before the twelfth or fourteenth day, and lasted two or three weeks. In private practice such cases would be unnoticed. The cases to desquamate most copiously were of the scarlet fever type, except case no. 1, which was of the measles type. In at least one of the cases that desquamated freely, no. 27, there were pre-existing eczematous patches on the face. Dukes also noted the same coincidence.

SECOND RASH.—A number of the cases developed a second rash at from ten to fifteen days after appearance of first rash. These cases were nos. 1, 2, 8, 9, 10 and 27. No. 27's might be due to heat, which was extreme, and the rash looked like a heat rash. In other cases, however, the rash was coarse, discrete, papular. There was no apparent malaise though the temperature was elevated $\frac{1}{2}$ to 1 degree when taken. At the time of appearance of second rash, the epidemic was supposed to be scarlet fever, and knowing that reappearances of the rash

were not uncommon in that disease, I paid little attention to it. Mention is made of it now, because it is the endeavor to give minutely all of the facts noted in connection with the epidemic.

A letter was sent to the parents of the patients as late as July 10th, inquiring first as to the present condition of patients; second, as to whether the disease had been communicated to any other person; third, as to previous occurrence of german measles. No patient was reported sick. One case of communication was reported from no. 10. No. 10 had a second rash May 23d. As to previous german measles, the father of nos. 12 and 21 (brothers) stated they had had the disease. No. 3 had had german measles with pneumonia. No. 2 had had german measles, but no doctor attended the patient.

To sum up—the points which justified the diagnosis of german measles were briefly as follows: (1) Absence of albumin in the urine in all cases; (2) period of incubation which was unquestionably fixed at fifteen days or more; (3) previous occurrence of scarlet fever in 5 cases, or 18 per cent.; (4) profuse development of rash in all cases with slight disturbance of temperature or pulse. This would not occur in scarlet fever; (5) absence of vomiting, strawberry tongue, angina and of complication; (6) morbilliform type in two-thirds of the cases.

Dr. Holt, after receiving a summary of the epidemic, wrote: "Taking the cases together with their complete history, I feel with you, that there is no doubt that the epidemic was one of german measles. A differential diagnosis between that disease and scarlet fever in some of your cases would have been impossible, and one or two of the more serious ones taken by themselves would, I think, have been regarded by any one as scarlet fever."

So far as I have been able to ascertain, in none of our textbooks dealing with the exanthemata, is the statement to be found that german measles may desquamate like scarlet fever. Dawson Williams in Allbutt's recent work, quoting the authority of Dr. Dukes, states that when the eruption is of the scarlet fever type, the desquamation is more copious, but still branny and in small scales. Dr. Dukes himself, in the article referred to above, records an epidemic at Rugby occurring in the spring of 1900, which in his opinion was not scarlet fever, but a disease which has hitherto passed for either a mild form of scarlet fever or for the scarlet fever form of german measles and which he

provisionally terms the "Fourth Disease." In this epidemic he says peeling took place in some cases "equal to the worst I have ever known in scarlet fever, in one case detached in sheets from the whole of the body. Peeling may continue as long as that of scarlet fever."

In his epidemic of 19 cases, 8 or 40 per cent. had already suffered from german measles which therefore proved that the disease in question was not german measles. In the differentiation from scarlet fever, however, two important items were lacking. First, none of the cases had had scarlet fever; and second, it had not been possible to establish the period of incubation. Hence the *Lancet* editorially remarks: "The question whether the epidemic at Rugby of last March may not have been after all a mild form of scarlet fever is one which appears to present claim for consideration." In the epidemic at the American School for the Deaf, however, these important items in the evidence are present, so that it can be regarded as demonstrated that some cases of that affection hitherto known as german measles may desquamate like scarlet fever.

To establish the fact of lamellar desquamation in at least one of the specific exanthematous fevers other than scarlet fever is the chief object of this paper. But in my study of this epidemic, I have come across evidence which I think supports the claim of Dr. Dukes that the term german measles covers two distinct specific eruptive fevers instead of one, so that a new disease must be added to the list of exanthemata. This evidence would tend to show that in the present epidemic two diseases were present instead of one and that these two diseases were rubella, and the so-called "Fourth Disease" of Dr. Dukes. This evidence is as follows:

First.—A number of patients, at least 5, as already mentioned, had second rash. This second rash occurred between two and three weeks after the first, lasted several days, was accompanied by a slight rise of temperature, but by no feeling of malaise. The rash was always coarse and discrete. The patient appeared to be going through the disease over again. At this time the epidemic was considered by me to be wholly scarlet fever. Others thought we had german measles and scarlet fever mixed and as the patients had been mingling freely in the hospital ward they were getting both diseases. But I do not find that relapses, which are not uncommon in scarlet fever,

occur in german measles. It is not easy to account for these second rashes and their occurrence would certainly suggest another disease.

Second.—It will be further recalled that 4 of the patients were stated to have had german measles. This has not the same probability as the statement that 5 of the pupils had had scarlet fever, for it will be recalled that quite a proportion of deaf-mutes become so in consequence of scarlet-fever. Nevertheless the statement cannot be wholly discredited.

Third.—The previous occurrence of an epidemic of pink-eye. Dr. Duker makes the statement original with him, as far as I know, that a form of pink-eye may be the only symptom of rubella, that it may produce the ordinary form in another patient, and that it is protective of a second attack of rubella. Now an epidemic of pink-eye occurred at the American School this spring for the first time in three years. The cases were all but one in this same building and were seen by Drs. W. T. Bacon and W. G. Craig, oculists, from whom I get the following dates:

No. 1.	February 9th.	No. 6.	March 26th.
“ 2.	“ 13th.	“ 7.	April 1st.
“ 3.	March 2d.	“ 8.	} Later but not fixed.
“ 4.	“ 8th.	“ 9.	
“ 5.	“ 23d.	“ 10.	

The cases were very mild, lasting on an average about a week, and were seen only twice by the oculist. The last three cases were treated by a supervisor in the institution, who places the dates as late as the beginning of the epidemic of the eruptive disease. It will be observed that an interval of two weeks occurred between the first and second pairs of cases, and between the second and third pairs. Rubella has been prevalent in Hartford this spring, cases occurring within two blocks of the institution and at the time of the epidemic. Within a week a boy was brought to me with very pink eyes and a temperature of 103° . Did not feel sick, post-cervical lymph nodes enlarged. The next day, eyes became pink towards night and temperature rose to 102° , the third day the same, but the temperature was 100° , and the fourth day normal. There was no rash at all. The boy came from the orphan asylum where there was measles. I am now personally prepared to believe Dr.

Dukes' statement. But to return to the epidemic of pink-eye. Of these 10 cases, nos. 2, 3 and 8, or 30 per cent., developed the later disease, being no. 27, no. 6 and no. 9 respectively. To my mind, this is additional evidence that two forms of disease co-existed here, that one was rubella and that the other was the disease designated by Dr. Dukes "fourth disease."

Fourth.—The fact of the lamellar desquamation in a large proportion of cases of a disease which was certainly not scarlet fever, does more than anything else to make credible the existence of another eruptive disease. This form of desquamation is the chief diagnostic point between fourth disease and rubella. If it belonged to rubella, it would certainly have been noted long before. According to Dr. Dukes, while rubella is a very infective disease in the pre-eruptive stage, fourth disease is much less so and therefore is a relatively rare disease and not occurring in large epidemics. It probably often passes for mild scarlet fever from which it can be differentiated by its incubation period, and by other points for which I must refer to Dr. Dukes' tables. The people who have had three attacks of measles and who are by no means uncommon have probably had it. The peeling is only occasionally so very extensive and, as already stated, would be overlooked in many cases. To restate the case—here is a series of cases of an eruptive fever having an incubation period of at least two weeks, 8 of which peeled in strips, 5 of which had had previous scarlet fever, and 4 and possibly 7 had had previous german measles. If we believe in the validity of Cullen's law that one attack of an eruptive fever entails immunity from a second attack during childhood, we must regard it as demonstrated by the foregoing evidence that another variety of eruptive fever exists in addition to those already known.

The practical value to the institution of a correct diagnosis in the present epidemic was no small one, and can be reckoned in dollars and days. Two years ago an epidemic of 17 cases of scarlet fever visited the school. Each case was immediately transferred to the contagious ward of the Hartford Hospital, and kept there six weeks till desquamation was over, at an expense of \$6 per week. If the present epidemic had been allowed to go as scarlet fever, and the same procedure been followed, the expense to the institution would have been over \$900, and the loss of time to the pupils over 600 days.

Dr. Holt remarks: "Until one has collected facts enough in any epidemic to be certain, the only safe thing to do is to regard the epidemic as probable scarlet." That is true; and as things are now, it is only in the boarding schools and similar institutions that all of the necessary data can be obtained. But with much greater co-operation on the part of health boards and physicians, it is probable that in the smaller towns and villages it might be demonstrated that some of these mild epidemics of scarlet fever occurring in the spring and summer are in reality the harmless affections which now pass under the name of german measles.

The Actions of Bactericidal Serums.—Neisser and Wochsberg (*Münchener Med. Wochenschrift* for April 23, 1901), state that experience with the antitoxin serum of diphtheria has shown that an excess of antitoxin does no harm; but in the case of the bactericidal serums the interesting fact has been developed that an excess is at times injurious. They have demonstrated this by experiment *in vitro*. They determined the amount of immune-serum necessary to kill a given quantity of bouillon culture of a bacteria. When less than this amount of serum was used, the bactericidal effect was less or entirely absent; when more was employed, it was also less; and when a very large quantity of the serum was used, no bactericidal effect was demonstrable. This paradoxical result is only explicable on Ehrlich and Morgenroth's theory of immunity. In this theory, it will be remembered, 2 bodies are necessary for a bactericidal effect to be produced; an intermediate body (*Zwischenkörper*) which is specific, and a complement, a nonspecific body contained, in every serum. The complement, which is a ferment-like substance, is limited in amount. The intermediate body has 2 bonds of affinity; with the one it attaches itself to the bacterium; with the other, to the complement. If there is an excess of the intermediate bodies those unattached to the bacteria take up the complement and keep it away from the microorganisms.—*American Medicine.*

A CASE OF CHRONIC ARSENICAL POISONING IN AN INFANT OF SEVEN MONTHS.*

BY JOHN LOVETT MORSE, A. M., M. D.,

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Chas. W. was born August 15, 1900, about three weeks premature. He was the first child and weighed five pounds. He was normal at birth but an hour or two later became blue and collapsed. As it was warm weather he was not placed in an incubator but was put at once into his basinette. This was lined with blue sateen and had a canopy of the same material. He was fed from the beginning on modified milk from the Walker-Gordon Laboratory.

He did not seem vigorous from the first. He was always more or less blue about the mouth and eyes, and at times became very blue. Although the heart was examined repeatedly nothing abnormal was detected until September 30th, when a faint systolic murmur was heard at the apex. Although his digestion was feeble yet it steadily improved from the beginning and after the first few weeks he gained steadily but slowly. His general condition improved rapidly, although the blueness about the mouth and eyes was always present. The systolic murmur was heard at intervals.

About the first of February he ceased to gain and lost his appetite. About the middle of February he began to lose color rapidly and by the first of March the pallor was very marked. The digestion at that time was normal but there was no gain in weight. The cyanosis was rather more marked and the systolic murmur was louder. There was a slight rosary. The anterior fontanelle was decidedly large. Physical examination was otherwise negative. It was then thought that he might be suffering from the lack of fresh food and he was therefore given a home-modified milk, unpasteurized.

Two or three days later he began to pass his urine often but in small amounts. It stained the diapers red. On examin-

*Read before the American Pediatric Society, Niagara Falls, N. Y., May 27, 28, 29, 1901.

ation the urine was reddish, acid, 1012 and contained a trace of albumin. It contained a little normal blood, an occasional blood cast and hyaline cast with blood adherent. The eyelids were a little puffy. Physical examination was otherwise as before.

A venous hum soon developed in the neck. The urine continued reddish and contained a large trace of albumin and considerable blood. At this time, March 8th, Dr. Ogden found a trace of arsenic in the urine.

Almost everything in the room was at once examined for arsenic. The blue sateen with which the basinette was lined contained a trace of arsenic. Nothing else contained an appreciable amount. There seemed no doubt that the source of the arsenic in the urine was to be found in the blue lining of the basinette. He was taken out of the basinette March 12th and put into another room, in which there was known to be nothing containing arsenic.

In spite of the change of food he had not up to this time regained his appetite and had not gained in weight. He was even paler and the systolic murmur in the heart and the venous hum were louder. The spleen, which was not palpable the first of March, was now easily felt at least 2 cm. below the costal border. There was no puffiness of the eyelids and no nasal discharge. The gastroenteric tract was normal. The urine was increased in amount, probably because of the ingestion of much water, but continued reddish and contained a large trace of albumin, considerable normal blood and a few casts.

He began to improve within a few days after he was moved into the other room. His appetite slowly returned and his color began to improve. He began to gain in weight during the last of March. The murmur in the heart was gone April first and the venous hum about the middle of April. The spleen was not palpable after the first week in April. The urine gradually cleared up until about April 20th; it was then pale and not reddish, contained only a slight trace of albumin, a very little blood microscopically but no casts. The gain in weight had been progressive but not very rapid up to this time. The gain in strength and color had been more marked.

At this time the baby had a severe coryza as part of a house epidemic, the temperature rising to 104° F. The urine immediately became red, the albumin increasing to at least one-eighth per cent. The sediment contained much normal blood and a

considerable number of hyaline, fine granular, epithelial and blood casts. Recovery from the cold was rapid. The trouble with the kidneys has continued, however, although no symptoms referable to it have developed. The recurrence of the renal complication has unfortunately prevented the re-examination of the urine for arsenic.

NOTE.—August 17, 1901.—The urine became normal about the middle of June. Improvement has been rapid and uninterrupted since that time.

The Mixed Tumors of the Lower Urogenital Tract of Children.—The theory generally attributed to Cohnheim, but which was first advanced by Durante, as to the origin of malignant growths during fetal life by bits of epithelium being nipped off and included in connective tissue, has been gradually abandoned by most recent writers. A recent inaugural dissertation, *Die Mischgeschwulste am unteren ende des Urogenitalapparates der Kinder* from the pathologic institute of the University of Giessen, by an American student, Dr. J. Edwin Sweet, gives an exhaustive study of a mixed tumor of the vagina, with the result of a study of the literature on the subject of the mixed tumors of the lower end of the urogenital tract in children. He was able to collect information about twenty-two tumors of the prostate, and forty-five tumors of the bladder. These tumors for the most part were reported as sarcomas, but Sweet finds considerable evidence that they belong to the group of mixed tumors, and he inclines to the belief that they arose as fetal inclusions. He finds that the age of the patients at which these tumors develop is about the same in all, but the tumors of the prostate and of the bladder have a greater tendency to produce unfavorable symptoms because of their greater tendency to interfere with the urinary apparatus, and because of their greater malignancy. The primary seat of all the tumors of the bladder was at the base of the bladder, some of them about the internal opening of the urethra, others about the openings of the ureters. Metastases were not present in any case. The seat of these tumors, exclusively at the base of the bladder, he considers evidence that they could not be made up of the normal tissues of the bladder wall, for in no case were they found where only bladder-wall tissue was present. The tumors were about equally common in both sexes. Recently, Wilms, of Leipzig, has also carefully studied another group of mixed tumors of the kidney, vagina, and cervix uteri, *Die Mischgeschwulste* (Leipzig, 1899-1900), and he was also of the opinion that these congenital tumors may arise from fetal inclusions. The opposition to Cohnheim's theory has been mainly from those engaged in studying carcinoma. Possibly a different conclusion may be reached by those who undertake a study of sarcoma and other forms of new growths. —*American Medicine.*

Clinical Lecture.

PLEURAL EFFUSION.*

BY JAMES CARMICHAEL, M.D.,
Edinburgh.

GENTLEMEN:—Our clinical lesson this morning relates to three cases of pleural effusion, two of which you have already seen, although I have not had the opportunity of discussing them fully with you. All the cases have terminated favorably.

CASE I.—This boy, George L., aged six, is the case you have not seen. He has come for examination and report. He was dismissed just a month ago, after having been under treatment for simple or serous effusion. We shall now examine him. You see he appears to be quite healthy and is reported to have been very well since he left the hospital. He has increased in weight and is fairly well nourished. You will notice both sides of the chest are equally developed and the movements are normal. The percussion over both lungs is resonant and the breathing everywhere distinct and vesicular, that on the right or affected side being equally pure and the same as on the left side.

The resident physician will read from his case book his previous history, which is interesting and full of instruction, for I must now tell you this boy has been twice under treatment in the ward, on the first occasion with symptoms of abdominal tuberculosis, about ten months ago. He was a month under treatment at that time and was dismissed apparently cured. His abdomen was much distended and showed signs of a limited amount of fluid. Careful bimanual examination per rectum did not reveal the presence of any tumor. He was kept in bed for three weeks without any special treatment except abdominal massage and elastic compression with cotton wool and a flannel bandage, a method of treatment which by stimulating absorption of the exudate has, in my hands, been attended with excellent results in such cases, of which we see many in this hospital. It is now nearly a year since he first left the hospital and the mother states he has been quite well till a week

*A Clinical Lecture delivered at the Royal Edinburgh Hospital for Sick Children, Edinburgh.

ago, when he complained of pain in the right side, shortness of breath and cough, and became feverish at night. Two years before he came first to the hospital he had suffered from whooping-cough and subsequently from measles.

The family history shows both parents alive and in good health; twelve children, eleven of whom are reported to have died of tubercular disease, this boy being the only one now alive.

On admission he was found to be a well-formed and fairly well-nourished boy. His temperature was slightly pyrexial, 98° to 100.4° on the average. All the other systems were normal except the respiratory, of which the report states that the chest was well formed; the left side showed exaggerated movement, the right side was motionless, respiration, 40.

Percussion showed normal resonance on the left side, absolute dulness on the right side except above the third rib anteriorly and posteriorly, in which situation there was well-marked Skodaic resonance. *Auscultation* showed vesicular and exaggerated breathing on the left side, and hardly audible respiration on the right side below the third rib. Exploration below the scapular angle withdrew clear serous fluid which on bacteriological examination showed no organisms.

Treatment.—He was kept in bed, the chest being enveloped in a Gamgee tissue jacket. The diet consisted of milk, soups, farinacea with full doses of liq. ammonia acetate every four hours. At the end of a week, there being no evident change, the right pleura was aspirated to the extent of 10 ounces. Ten grains of acetate of potash in infusion of scoparium was given every four hours. There was a steady improvement in the physical signs and at the end of the third week iodid of potassium and quinin were substituted for the acetate of potash.

The temperature chart showed little change till the fourth week when it fell to normal and at the end of the fifth week he was dismissed with the following note: He has gained two and one-half pounds in weight. Respiration on the right side is vesicular and freely audible, the percussion still shows slight impairment. The clinical history of this boy's present illness is a very ordinary one and presents no special features. Such cases generally recover under treatment with or without aspiration. When, however, we consider the particulars of the family history, which was eminently tubercular, and the fact that

less than a year ago he suffered from what appeared to be incipient peritoneal tuberculosis, the case shows features of special interest mainly from the fact that he has made such a good recovery.

I told you that the bacteriological examination of the pleural exudate was of a negative nature, but this does not disprove the existence of pleural tuberculosis, for as a matter of fact we seldom find the tubercle bacillus in these cases if the pleura is intact.

The ultimate *prognosis* must be considered doubtful, but yet hopeful, as undoubtedly, in children, in the early stages when there is no actual destruction of organs or tissues or involvement of vital parts such as the brain, tuberculosis must rank among the curable diseases.

CASE II.—The next case is that of Victoria M. J., aged one year. You will remember in recalling her case that about six weeks ago she was taken suddenly ill, having been quite well previously. The illness began with vomiting, which is a frequent initial symptom in these cases. She became feverish, cried a good deal and seemed in pain. The physician who was called in diagnosed pneumonia on the right side. Convalescence not being established at the end of two weeks, the pleura was aspirated and pus found, aspiration being repeated three times during the next two weeks. On admission you will remember we found she was a well-formed infant, and fairly well-nourished but flabby.

Alimentary System.—Tongue clean and moist, mucous membrane of the mouth and fauces healthy; dentition, $\frac{3}{3}$; abdomen natural; bowels constipated; feces normal.

Nervous System.—She is irritable and peevish, sleep quiet but interrupted; temperature, 99.5°.

Circulatory System.—Heart in situ, sounds normal; pulse compressible, regular 164.

Respiratory System.—Chest well formed, movements of the regular infantile type.

Left side shows nothing abnormal.

Right Side.—Percussion impaired anteriorly below the fourth rib, posteriorly below the scapula spine. Respiration is of a distant bronchovesicular character and without accompaniments. Crying resonance not altered. Exploration found pus, which on examination showed the cells to be degenerating; several

organisms were found, pus bacilli and rounded cocci scattered among the pus cells, and large numbers of capsuled diplococci. You will remember we inserted a drainage tube of the largest admissible size in the seventh interspace below the angle of the scapula. She has now been two weeks in the ward and twenty-four hours ago the tube was removed and you see she looks now a healthy, vigorous baby, and on examination of the affected side you find that the percussion is still relatively impaired to a slight extent, but the respiratory sounds are hardly distinguishable from those on the sound side. The case is a typical one of pneumococcus empyema following pneumonia, a not uncommon occurrence in childhood. In an infant of such tender age you may think the recovery unexpected, but even in such young children the results of treatment are quite as satisfactory as in older ones if the child has been previously healthy and brought soon enough under treatment.

CASE III.—The last case we shall examine to-day is that of Jane U., aged eight. You saw her a week ago and I shall now review the clinical history. When admitted she was a sparely nourished girl. The mother stated that a week before she brought her here she was at school and in her ordinary health. The first symptoms she complained of were pain in the left side and cough. After a few days the pain disappeared and she became very breathless. Her previous history showed that when three years old she had suffered from measles and subsequently from pertussis. Family history shows the father asthmatic, mother healthy; four children, three healthy, one died of croup. On admission you will remember we thought her a delicate-looking girl. Her temperature during the first week was pyrexial 99° to 101° , since then it has been normal.

The *respiratory system* showed the left side of the chest to be motionless and more voluminous than the right 11° to 10° . The percussion was absolutely dull over the affected side, but respiration was faintly audible and of a distant bronchovesicular character, the crying resonance being hardly audible. On the right side, as was to be expected, the breathing was loud and distinct.

The *circulatory system* showed the pulse to be regular, somewhat compressible, 120; epigastric pulsation very visible and tangible. The apex beat in the normal situation could not be felt and the cardiac sounds in this situation were hardly

audible. In the epigastrium and to the right of the sternum they were loud and distinct, and of maximum intensity midway between the lower sternum and vertical right mammillary line.

Examination of the other anatomical systems revealed nothing abnormal except that the corner of the right eye showed slight interstitial keratitis. Exploration of the plural sac withdrew clear fluid, which, on bacteriological examination showed no organisms. You have had the opportunity of watching the progress of the case since she was admitted three weeks ago. She has been kept in bed all the time and you will remember we put her on a mixture of acetate of potash and iodid of potash, and to-day I have substituted for this citrate of quinin and iron.

Let us examine the chest. You observe that the percussion is now nearly equally resonant with that on the right side and the respiratory murmur distinct. The heart is now almost in situ, epigastric pulsation has disappeared and the sounds are loud and distinct in the normal situation. The absorption of the fluid has been rapid and the progress of the case in every way satisfactory.

It is a well-known clinical fact, of which this case is a demonstration, that the absorptive power of serous membrane under favorable conditions is almost as rapid as the effusive.

Pleural effusion in infancy and childhood is a common disease. Purulent effusions are much more common in large proportion especially in infancy, the period of early life up to two years. In older children until the seventh year empyema is less frequent, but still more so than in adult life, in which serous effusions are in larger proportion. Pleurisy is rarely a primary disease. It occurs generally as a sequel or accompaniment of pneumonia, or one or other of the eruptive fevers. It may be associated with tuberculosis of the lungs or abdominal organs. You will remember an interesting case of acute pleurisy followed by pneumonia in a boy six years old which we had in this ward about two months ago. He recovered after having a high temperature for about three weeks. The effusion in this case was solid lymph which underwent absorption and during the process the physical signs were similar to those of liquid effusion.

With reference to the treatment, first of serous effusion, I have a word to say. You have seen the practice followed in

the two cases under review to-day. Rest in bed during the whole period of absorption is important; light, nourishing diet with attention to the digestive system. I do not know that we attach so much importance now as formerly to free action of the kidneys, but no doubt along with maintainance of the cutaneous perspiration it has its effect. In large serous effusion the question of aspiration often presents itself. In my experience it is only exceptionally necessary. In the case of Jane U. a large effusion became rapidly absorbed under the simplest medical treatment. In the case of George L. you will remember we aspirated with good effect. It seemed to stimulate the absorptive process in the pleura. The two main indications for aspiration in serous cases are *slow absorption of the fluid* or *physical embarrassment* on account of its presence, as evidenced by dyspnea from interference with the function of the lungs or other organs. With reference to purulent effusions, they are to be treated on surgical principles the same as for pus collection in other parts. Simple drainage with careful antiseptic precautions is all that is necessary in most cases in children. Resection of ribs is rarely required. Irrigation of the pleural sac we never have recourse to unless sepsis occurs.

A Case of Diabetes Mellitus in a Nursling.—Dr. N. A. Orloff (*Vratch*, March 3, 1901) states that this case is the seventh on record in which sugar was found in the urine of a nursing baby. Of these seven cases the present is nearest to genuine diabetes mellitus. It is difficult to decide whether, in the other cases of glycosuria in infants, there was really diabetes mellitus or only an abnormally large quantity of lactose excreted by the kidney. The infant whose case the author reports was four months old. His urine showed distinctly the presence of sugar. In addition, he had an umbilical hernia and a crop of furuncles. He lost rapidly in weight and nursed poorly. The child died on the twelfth day of the disease. The autopsy showed an enlarged third ventricle filled with serous fluid, bronchopneumonia, acute enteritis, and edema of the meninges.—*New York Medical Journal*.

ARCHIVES OF PEDIATRICS.

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EDITED BY

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THE "FOURTH DISEASE."

There is little doubt that scarlet fever and measles were at one time undifferentiated in the minds of the profession and laity, and that these two diseases passed for particular types of a single affection. Not until the time of Rhazes, or even later, do we find some records of an attempt to distinguish between these maladies. The unknown pioneers in this great advance in practical medicine may have found it convenient to speak of a "second disease," which had hidden undetected beneath the picture of the more deadly scarlatina.

Hundreds of years elapsed before the profession awakened

to the fact that a "third disease," the mysterious r theln, was included in the clinical picture which embraced the various types of measles and scarlet fever. While observers were in accord as to the independence of the new disease in regard to the two older maladies, it was no easy matter to characterize this new affection. With accumulation of data it became evident that there were included under the term r theln a measles type" and a "scarlet fever" type; and this duality of expression gave rise to the belief that the new malady was simply a hybrid of the long known affections.

In 1892, Dr. Clement Dukes, a physician with exceptional opportunities for the study of the infectious exanthemata, conceived the notion that a "fourth disease" existed beneath the composite picture of scarlatina, measles and r theln. To speak more accurately, he sought to separate the disease r theln into two distinct entities, one of which is the typical rubella, rose-rash, epidemic roseola, german measles, etc.; while the other, which bears a most striking external resemblance to milk scarlatina, he designates temporarily by the term "fourth disease."

At first sight this innovation might be regarded as an aggravation of a state of affairs already sufficiently complicated. But if the mysterious and intangible "german measles" should be replaced by two well-characterized affections, the innovation would represent a distinct advance in knowledge. In any case, the discovery consists simply in the recognition of the fact that what we have long regarded as types of a common disease are in reality distinct affections.

The chief practical interest which attaches to the "fourth disease" lies in the resemblance of the latter to mild scarlatina. This resemblance is indeed a subject of the highest importance, for a patient who had undergone an attack of "fourth disease" would possess a false sense of security in regard to this immunity towards scarlatina. But what is thus true of the individual would imply with increased force to communities.

Authorities inform us that the differential diagnosis of infectious exanthemata is often difficult unless an epidemic is in progress—under which circumstances it should be easy. Dukes, however, shows that this principle does not hold good in differentiating between the “fourth disease” and mild scarlatina; wholesale confusion having arisen in this regard in connection with recent epidemics. That this confusion is not merely local is shown by the fact that Dr. Simpson, of Hartford, Conn., reports in this number of ARCHIVES OF PEDIATRICS on a similar state of diagnostic uncertainty in his own neighborhood.

What is the nearest approach to a radical distinction between the “fourth disease” and scarlatina? First the period of incubation of the former affection is notably long. Instead of the two to five days which distinguishes scarlatina from other eruptive affections, we see intervene in the “fourth disease” a period of from nine days to three weeks between the exposure to and the appearance of the eruption. (Dukes looks with suspicion upon cases of scarlet fever with a prolonged incubation period.)

In the “fourth disease,” there is little evidence of a toxemia or of a systemic reaction of any sort. According to Dukes and Weaver there are in this affection no prodromes, no vomiting, no marked angina nor high pulse. We observe only a slight fever, a little reddening of the fauces and sometimes an enlargement of the cervical lymph nodes, although this last symptom is not so common as in german measles. Albuminuria and nephritis have been observed in a few instances. Simpson, who is in general inclined to subscribe to Dukes’ views, has noted that high temperature and vomiting were present in three or four of his cases.

The most striking feature in common between the “fourth disease” and scarlatina, is said to be the exanthem which in many cases of the two affections is indistinguishable, except that in the “fourth disease” the eruption usually appears first on the face.

A feature of great practical interest is the disparity in the "fourth disease" between the intensity of the eruption and the degree of desquamation, which may be extensive and lamellar after a very moderate exanthem. In true scarlatina there is a fairly constant relationship between the degree of eruption and that of the peeling. Practitioners frequently pretend to identify past and unrecognized scarlatina by the presence of otherwise inexplicable desquamation of the fingers. It would appear that this sequence would apply more pertinent to the "fourth disease."

As an interesting point in determining between scarlet fever and "fourth disease," Dukes lays particular stress on the appearance of the tongue, which in scarlet fever loses its epithelium on the fourth day, but in "fourth disease" does not.

In the differentiation of these two affections both Dukes and Simpson have noted that a large number of "fourth disease" victims were known to have had scarlatina.

The Topography and Etiology of Retropharyngeal Abscess Involving the Lymph Nodes.—West in considering the etiology of retropharyngeal abscess (*Archiv. f. Klin. Chirurg.* Bd. lxi., H. 3), states that a knowledge of the topography of the lymphatic nodes and vessels of this part of the neck is most important. In children there exist two sets of nodes, a small chain situated near the middle line, which is not constant in either its existence or position, and a second and more important group which, being placed more laterally, is called the glandulæ pharyngeales laterales. These lateral nodes may persist into late adult life, but the smaller and more central chain atrophies and disappears as the child grows older. The lymphatic vessels which run to these nodes arise from the posterior wall of the oropharynx and nasopharynx, from the interior of the nose and the accessory sinuses, and possibly also from the internal ear. The faucial tonsils are not in direct communication with these nodes.—*The Philadelphia Medical Journal*, Vol vi., No. 14.

Bibliography.

A Treatise on Orthopedic Surgery. By Royal Whitman, M.D., Instructor in Orthopedic Surgery in the College of Physicians and Surgeons, and Chief of Orthopedic Department in the Vanderbilt Clinic, etc. With 447 illustrations. Philadelphia and New York: Lea Brothers & Co., 1901. Pp. xii.-17 to 650. \$5.50.

This work on orthopedic surgery is based on the clinical experience the author has had at the Hospital for Ruptured and Crippled and at the Vanderbilt Clinic. Such a book cannot fail to contain a great deal that is valuable not only to the orthopedic surgeon but also to the general practitioner of medicine. The author states in his preface that the most distinctive advance in recent years has been toward the prevention of deformity. Treatment has become more direct, more simple and more effective. For proper treatment there must be a diagnosis of the diseased condition and the author has shown that a careful study of cases will do a great deal in lessening the difficulties of diagnosis. The treatment can be then carried out on the right lines.

There is no part of surgery in such intimate relationship with pediatrics as the branch of which this book treats. Not only are all the tuberculous diseases of early life seen first by the medical man, but he has also an opportunity to detect the deformities due to congenital dislocations, birth palsies, poliomyelitis and spastic paralyses.

The first chapter is on tuberculous disease of the spine. There are chapters on non-tuberculous disease of the spine, tuberculous diseases of the joints, congenital and acquired affections leading to distortions, diseases of the nervous system, torticollis and on deformities of the foot. The treatment of the deformities that result from nervous diseases is described in a manner that indicates the opportunities to be found in outpatient work where patients can be seen for a long period. Rachitis and scurvy are considered and while the articles are not lengthy they are ample for a work of this sort.

The volume is profusely illustrated. Most of the half-tone plates are good, but a few are blurred and when another edition of the book is printed, which, no doubt, will be soon, other photographs should be used.

This treatise is all that it is claimed to be. The author has made the best possible use of his clinical advantages and his readers will be indebted to him for a clear exposition on the subjects connected with the deformities that are common in both medical and surgical practice.

Current Literature.

PATHOLOGY.

Durante, Durando: Digestive Leucocytosis in the Child in Normal and Pathological Conditions of the Intestine. (*La Pediatria*. Anno ix., No. 6.)

As a result of original research, he concludes that the white corpuscles of the blood increase in number during digestion. This increase is confined principally to the polynuclear leucocytes (polynucleosis of digestion). The maximum of increase is present in the second hour, although the augmentation is in evidence an hour, and even a half-hour, after the meal. The kind of aliment appears to exert considerable influence upon this phenomenon; thus in children nourished with milk or milchsuppe, leucocytosis was less marked than in those who were fed with more highly nitrogenized pabulum. In case of the presence of intestinal affections, a decisive modification of the leucocytosis was not in evidence. It could only be concluded that disease exerts a certain amount of retardation upon the process. Considerably more decisive was the influence of the general state, for in cases characterized by denutrition the leucocytosis was much more sluggishly performed than in the normal subject.

While the study of this phenomenon will hardly lead to brilliant results in diagnosis, the degree of leucocytosis seen in the blood during digestion gives us a fair idea of the general condition of the subject. But the question is by no means a simple one, for observers have noted the presence of leucocytosis under indifferent circumstances, such as purgation, blood-letting, the use of cutaneous revulsion, etc.

MEDICINE.

Taylor, J. M., and Pearce, F. S.: Heart and Circulation in the Feeble-Minded. (*American Journal of the American Sciences*. Vol. cxxi., No. 6.)

Forty boys whose average age was twelve years, and 32 girls of the same age were studied. A great number of varied cardiovascular signs (organic murmurs, irregular pulse, rapid pulse) were found, out of proportion to the mental defect—so much so as to warrant assuming organic valvular heart disease to be a large etiological factor in continuing the downward

course of imbeciles. A plea for careful anthropometric studies and detailed observations of somatic disease other than that of the nervous system in cases of mental enfeeblement is urged. The authors are impressed by the fact that many of the high-grade cases can be bettered much more by attention to therapeutics of the cardiovascular disorders, both of imbeciles and of the insane. Study of the blood and excretions will also furnish valuable data in this direction. The proper use of especially directed movements will be of help, but overexercise is to be strenuously avoided.

Rachford, B. K. : Lithemic or Recurrent Coryza. (*American Medicine.* Vol. ii., No. 4.)

The case reported is a girl nine years of age who for three years has had repeated attacks of irritation of the mucous membrane of nose and eyes. There was marked photophobia, nervousness and watery discharge from the eyes and nose. The secretion was irritating to the surrounding skin. The treatment was potassium bromid and belladonna, besides regulation of diet and exercise. The author explains that an attack of lithemic coryza is sudden in its onset, and is characterized by intense photophobia and hypersecretion from the eyes and nose. The profuse watery discharge from the nose irritates and causes redness and swelling of the lip over which it flows, and the eyes also are red and swollen. The patient is in a state of extreme nervous irritability, and there is generally some elevation of temperature. These symptoms continue for two or three days and then disappear as rapidly as they came. Within a few days the patient is quite well and may continue so for a variable length of time, when without apparent exciting cause a similar attack recurs.

Silvestri, Silvio: On the Diagnostic and Prognostic Value of the Ehrlich Diazo Reaction in Diseases of Children. (*La Pediatria.* May, 1901.)

He has instituted numerous researches into the subject of the diazo reaction in children, incited thereto by the general want of harmony in the findings of others. He subjected to Ehrlich's tests a number of children affected with the most diverse diseases. Alleged improvements contributed by Lammanna, Sahli and others he found to possess no value over the original Ehrlich process. He examined the urine of 90 healthy children without obtaining a single reaction. In typhoid fever

the results were invariably positive, and the intensity of reaction appeared to vary directly with the severity of the disease. The reaction first appeared about the fourth or fifth day.

In measles the reaction was constantly present, generally at the acme of the disease. The intensity of reaction was not always in proportion to the gravity of the disease. Twice the reaction appeared after the disappearance of the eruption, coincident with the development of a pulmonary complication.

In 3 cases of roseola the diazo reaction was absent. But 2 cases of pulmonary tuberculosis were tested, both with positive results. The reaction was also positive in 5 cases of miliary tuberculosis and in 3 out of 5 cases of tuberculous meningitis.

In croupous pneumonia, diphtheria, scarlatina, erysipelas and pyemic processes the result was positive in from 25 per cent. to 40 per cent. of cases tested, always present in the more severe and absent in the milder cases.

In influenza, contrary to what might be expected, the percentage of positive results was but 20 per cent. The reaction was present in the more severe cases, and especially in pulmonary complications.

The results were invariably negative in pertussis, rickets, hereditary syphilis, anemia, eclampsia, catarrhal bronchitis and pneumonia, acute febrile gastroenteritis, follicular enteritis, acute and chronic peritonitis.

SURGERY.

Connal, James Galbraith: Furunculosis of the External Auditory Canal. (*Glasgow Medical Journal*. Vol. lvi., No. 1.)

These cases appear in groups in the spring and autumn, and at times appear to have an epidemic background. Children are often affected, and in 4 cases 2 were in young boys. A boy, aged eight years, complained of loss of hearing with great pain the ear; these symptoms lasted eight days, with inability to sleep. The patient had always been robust. Examination revealed the presence of two furunculi, one on the floor and the other on the posterior (cartilaginous) wall of the external auditory canal. The mastoid region was much swollen and displaced the auricle forward; and there was edema of both eyelids of the same side. One of the boils was incised, and a pure culture of the staphylococcus aureus was obtained from the pus.

The author's treatment consists of early incision followed

by an ointment consisting of iodoform, 4 grains; menthol, 2 grains, and vaselin, 1 drachm. If the patient resists incision, Gruber's aural bougies (containing morphia) may be used.

In habitual furunculosis, general regimen is, of course indicated. Many pseudofuruncular affections may occur in this locality. Some of the causes are iodism, bromism, purulent otitis media, diabetes, etc.

Furuncle of the auditory canal may produce symptoms suggestive of mastoiditis; but while the former affection obliterates the retroauricular fold, the latter is without effect upon this feature.

HYGIENE AND THERAPEUTICS.

Shurly, Burt Russell: Antitoxin and Intubation in the Treatment of Laryngeal Diphtheria with a Summary of 230 Operations. (*New York Medical Journal.* No. 1180.)

He computes his present mortality in cases of diphtheria of the larynx treated by antitoxin and intubation combined as $6\frac{2}{3}$ per cent. In his first 200 operations, however, he had 51 deaths. In addition to these two resources he makes use of occasional emesis (mechanically produced), the steam-tent, a calomel purge, an ice collar, saline infusion (rectal) with strychnia and alcohol as stimulants:

The ignorant foreign element in large cities, who formerly antagonized the practice of intubation, now demand its performance. It is unfortunate that we have not a larger number of skilled operators, as skill and experience are essential to success. Practitioners may render themselves expert by practice upon the cadaver of a child, or an anesthetized dog.

In regard to indications, a tonsillar exudate with laryngitis in a child not over eight years of age should be construed as a case of laryngeal diphtheria. Antitoxin to the amount of 1500 units should be injected at once and repeated in from six to twelve hours, and the probability is that surgical intervention will not be needed. If the antitoxin does not, for any reason, dispel the dyspnea within reasonable time, the age of the patient may determine whether or not to proceed at once to intubation. While the case of an older child may be left to itself for a time, we should not delay if the patient is under three years of age, and we should not postpone intervention in any case beyond the period of extraordinary respiration.

Kraus, Edward: On the Use of Epicarine in Certain Cutaneous Affections in Children. (*Gazette Médicale Belge.* No. 37. 1901.)

The author gives the results which he obtained in the service of Prof. Monti, as well as in his own private practice. He used a 5 per cent. ointment, epicarine 5, olive oil 10, lanolin 90, and this proved efficacious.

Acute and chronic scabies were promptly cured, but the inveterate cases of eczema which accompany scabies were not benefited by the treatment. The duration of the treatment is stated as being from four to fourteen days. In herpes tonsurans the epicarine ointment had excellent results. In cases of prurigo it produced a notable amelioration of the symptoms. In all cases itching was quickly relieved.

Hewlett, R. T., and Murray, H. Montague: On a Common Source of Diphtherial Infection and a Means of Dealing with it. (*British Medical Journal.* No. 2111.)

At the Victoria Hospital for Children the throats of 385 children under fourteen years were examined, and in 92, or 24 per cent., the pseudodiphtheria bacillus was found, and in 58, or 15 per cent., the Klebs-Löffler, which means that 1 out of 7 sick children is a possible source of infection.

In children over two years of age the pseudobacillus was present in 28 per cent., the Klebs-Löffler in 13 per cent. In children under two years, the former was present in 14.5 per cent., the latter in 21 per cent.

Wertman, S. E.: Pilocarpin Hydrochlorate and its Uses in Croup. (*American Medicine.* Vol. ii., No. 1.)

The author claims that in his hands he has had better effects from pilocarpin than with antitoxin in the treatment of diphtheritic croup. Five cases of croup, presumably of diphtheritic origin, though no bacteriological examinations were made, were treated by the administration of pilocarpin hydrochlorate, hypodermically administered in doses of 1-48 to 1-24 grain. The first case was that of a boy of four years in whom the severity of the symptoms and course of the disease were due to an intense systemic poisoning, in all probability diphtheritic, but in the other cases the histories do not indicate the same character of disease. [The results of the pilocarpin were so rapid that no intense toxemia could have been present].

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[No. 10.]

Original Communications.

TUBERCULOSIS OF THE FEMALE INTERNAL GENITAL ORGANS—SECONDARY INFECTION OF THE PERITONEUM AND THE INTESTINE.*

BY J. L. DUEÑAS, M.D.,

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Medical literature is not very rich in observations on genital tuberculosis of female children. Eighteen well-defined cases are only known up to the present date, compiled by Martha Wollstein in a recent article published in ARCHIVES OF PEDIATRICS (Vol. xvii., No. 5, May, 1900, p. 347).

The following case, the first to be described in the Island of Cuba, deserves especial attention not only on account of its clinical interest but for the results in biopsy:

P. V. L., eleven years old, colored, entered the Children's Ward at Hospital No. 1 on July 11, 1900.

FAMILY HISTORY.—Father was arthritic and died when sixty years old. Mother is asthmatic, forty years old, living. The parents had eight children, three of whom died in early infancy from diseases of the intestines. The rest are healthy. There is no syphilitic nor tubercular taint in the parents and relatives.

PERSONAL HISTORY.—This girl enjoyed good health up to the period of the first teething. Slight bowel trouble during this period. No history of bronchial catarrh, diseases of the eyes, bones, joints or lymph nodes. During childhood there was an eczema and some transient attacks of fever. About seven months ago she developed measles during an epidemic. The disease was intense but regular up to the stage of desquamation. At the end of that period a moderate anasarca appeared with scanty urine, all of which phenomena gradually and spontaneously disappeared in two weeks. There remained fever attended by diarrhea and

* Read before the Section on Pediatrics of the Third Pan-American Medical Congress, Havana, Cuba, February 5, 1901.

loss of flesh. That condition persisted for four months, followed by a period of apyrexia, which lasted three months, during which time the abdomen augmented in volume till it reached the size it exhibited on the day of entrance to the hospital. There were abdominal pains of no great intensity. These pains were located in the hypogastric region at the beginning of this period of distension.

According to the patient's aunt the condition of this little girl had been good during the past two months. There was no fever, the appetite was fair, she could walk freely, and she did not appear to suffer at all, notwithstanding the abnormal size of her abdomen. The intestinal functions were regular. The child had had no medical attendance.

PRESENT CONDITION.—On inspection we find a girl of fair constitution and with pale mucous membranes. She weighs fifty-four pounds and is somewhat undersized for her age. Her height is 1.22 meters; circumference of the head, .495; circumference of the thorax, .60.

Physical examination does not reveal any abnormal condition in the respiratory, digestive and cardiac systems. There is no enlargement of the lymph nodes, nor is there any skin eruption nor vaginal discharge. The urine is clear and neutral with traces of albumin but without any morphotic elements. The only circumstance which deserves especial attention is the great size and oval form of the abdomen, which measures 82 cm. in circumference at a level of one and one-half inches above the umbilicus. Careful examination demonstrated the existence of considerable ascitic effusion.

On July 18th a puncture was made with a trocar and cannula which allowed the flow of 2800 grammes of a yellowish liquid, slightly turbid, and of alkaline reaction and a specific gravity of 1026. By means of Reuss' formula to find the proportion of albumin, it was found to be 6.95 per cent. The microscopic examination revealed the existence of epithelial cells in large quantity, also granulations and refringent globes. A bacteriologic examination could not be made.

Taking into consideration the symptomatology, the anamnesis and the character of the liquid examined, peritoneal dropsy should be excluded, whether from hydremic or hepatic origin. The discussion of differential diagnosis between chronic serous peritonitis and tubercular peritonitis now remains, but such a

diagnosis becomes sometimes so difficult as to require the use of an exploratory laparotomy.

After thoroughly discussing the case with Dr. Fortun, children's surgeon at the hospital, we agreed to accept the idea of a chronic exudative peritonitis, although not in definite terms, and in consequence we decided to wait for the reproduction of the effusion in order to employ more energetic treatment.

On August 11th another puncture was made which allowed a flow of 2800 grammes of a yellowish liquid somewhat more turbid than on the previous occasion and we again postponed the laparotomy.

Since the time of the first tapping the patient remained without fever, nourishing herself well and keeping in excellent spirits. For treatment, tonics and the iodid of sodium internally; externally, three successive blisters on the iliac and hypogastric regions were employed.

On August 29th laparotomy was performed with the idea of procuring subsequent abdominal drainage, this operatory practice having been very successful in similar cases.

Dr. Fortun makes his report as follows:

“The patient being under chloroform we made in the middle line and below the umbilicus an incision about five centimeters long. After the fluid was evacuated our attention was called to the dark reddish coloration of the parietal peritoneum and its notable thickening. Introducing the index finger through the incision in the direction of the pelvic cavity, we discovered quite a large tumefaction, the surface of which, on being touched, felt like a papillomatous mass, which caused us to think that we might be contending with one of those ovarian papillomata, which are nearly always accompanied by ascitic effusion. On enlarging the incision downwards a deep red coloration could be noted in the intestinal mass protruding across the wound which was covered with innumerable granulations of varying sizes, the majority of them the size of millet grains while others were as large as peas. These granulations had more or less of a reddish color. On touching the intestinal mass it had the sensation of shagreen, and on pressing it, the solitary follicles of the small intestine were felt, which were extraordinarily increased in size and of hard consistence.

“After reducing the intestinal mass we proceeded to explore the pelvic region. We then saw that the tumor felt by

the index finger was no other than the right ovary and the Fallopian tube covered with an infinite number of granulations similar to those already described, but generally larger. The entire broad ligament was also enveloped with granulations the same as the pelvic peritoneum. We at once performed the extirpation of these appendages, cauterizing the pedicle with the thermocautery. Those of the left side were then explored, which also confirmed the existence of tubercles, although not so numerous as those of the right side. They were also extirpated.

“In no part did fibrinous exudation, purulent collections, nor adhesions exist. Neither did we find a caseous tubercle, but on the other hand the compression of both Fallopian tubes, above all the right one, caused the flow of caseous matter in abundance.

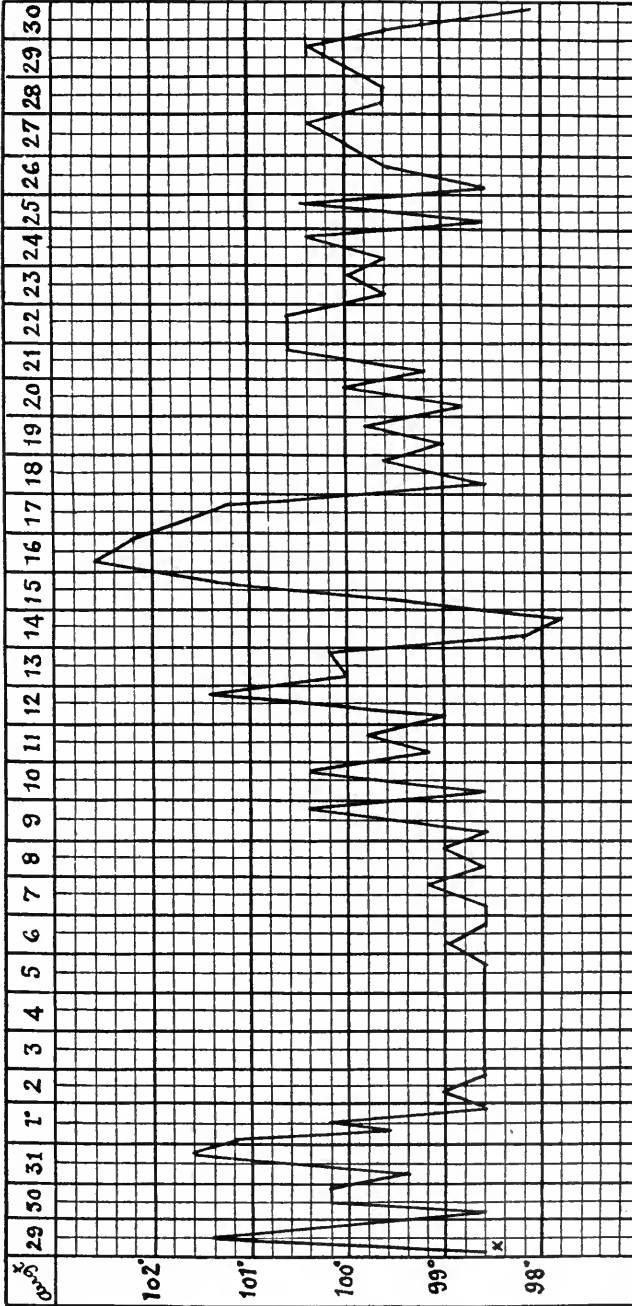
“The evisceration of the intestinal mass was then performed, not only for the purpose of examining it, but also to expose it to the atmospheric air, which exercises such wonderful influence over tuberculous lesions of the peritoneum. The entire portion that we examined, which was considerable, was full of granulations, the same as all of the parietal peritoneum, which could be reached with the finger. In the mesentery, swollen and hard lymphatic ganglia were noted.

“After drying with gauze the remaining liquid portions we closed the wound in two layers, one a peritoneal and the other a cutaneo-aponeurotic, without leaving a drain.”

The result of the operation was good, but about five days after performing it the abdominal tension, occasioned by the reproduction of the ascitic effusion, brought about a separation of the borders of the wound, although only superficially and the ascitic fluid did not run out.

Below will be found a table of the temperature (see chart) taken during the days following the operation. There was a phase of moderate reaction followed by a period of apyrexia which lasted seven days. The fever reappeared afterwards while the patient was under an exclusive milk diet, but this time accompanied by a marked saburral state and tendency towards constipation without any notable change of the general condition. Through saline evacuants, intestinal antisepsis and a milk diet this post-operative period was gradually disappearing, when on August 30th the mother moved the patient to the country.

P. V. L., 11 years old.—Laparotomy on August 29th.



The anatomic piece and the ascitic liquid were sent to Dr. Agramonte for the bacteriological and hystological examination, and he has given the following interesting report:

MICROSCOPICAL EXAMINATION OF THE TISSUES.

“ *The left ovary.*—The covering of the organ is considerably thickened, the germinal epithelium cannot be discerned, having been replaced by a thick mass of interlacing, connective tissue cells. In the cortical zone are seen numerous Graafian follicles in the early stages of their development, also a decided increase of all the cellular elements. This ovary contains at least four distinct cavities filled with caseous material, all of them apparently involving only the cortical portion of the organ. The walls surrounding these degenerated spots represent typical granulation tissue, the conglomeration of cells is more pronounced and the blood-vessels are increased in number. Besides these caseous cysts, the ovary contains a few areas of beginning tubercular infiltration (miliary tubercles), some with partial destruction of tissue and containing the classic giant cells. (See Figure 1.)

“ *The right ovary and tube.*—The right ovary is closely adherent to the Fallopian tube near its fimbriated extremity; it also contains several large cavities with caseous material in the cortex; in fact, a naked eye view of the specimen shows that the greater part of the ovary consists of five large cysts enclosing the cheesy result of the tubercular process. The superficial coat is formed of a thick layer of interlacing elastic and connective tissue cells. The inflammatory process here seems to have been more active than in the other ovary, for although there are less miliary tubercles to be seen, the destruction of tissue has been greater as evidenced by the large size of the existing cavities.

“ The right Fallopian tube is filled with a mass of cheesy material, the mucous membrane proper having been apparently destroyed. The peritoneal surface is made up of a thick serous coat but no miliary tubercles can be outlined. The muscular coat of this tube is deeply infiltrated with small cells but no distinct tuberculous inflammatory process can be made out, although doubtless part of this coat has undergone the cheesy degeneration which has made away with the mucous membrane.

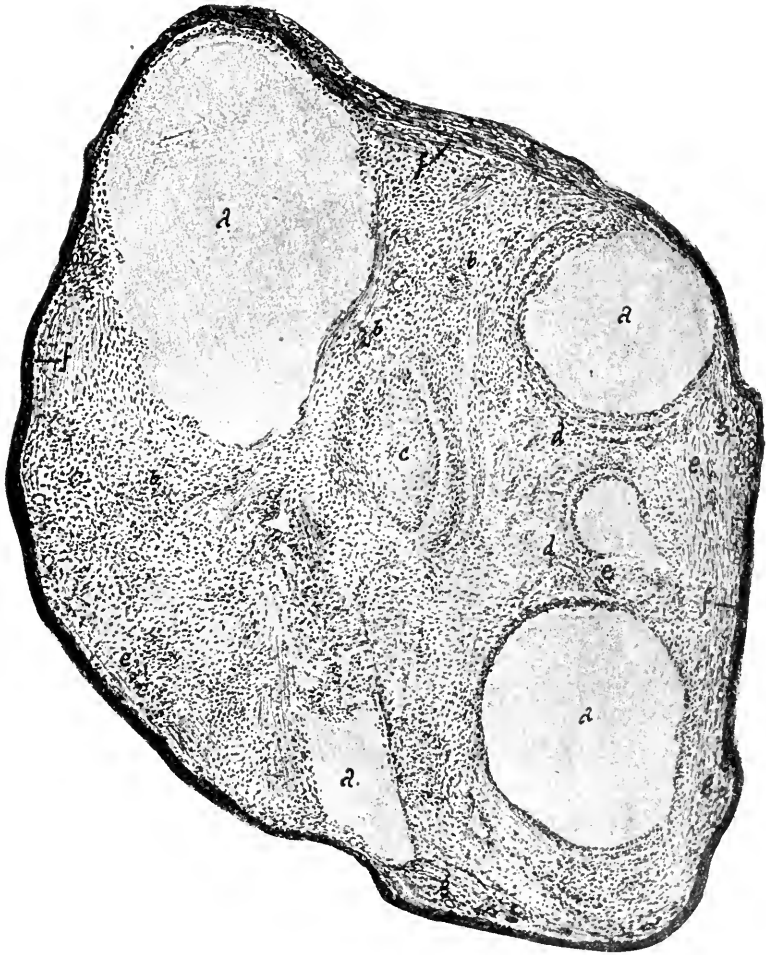


FIGURE I.—TRANSVERSE SECTION OF LEFT OVARY. SEMIDIAGRAMATIC.

(a) Cavities, (b) Miliary tubercles. (c) Beginning caseation. (d) Embryonic tissue zones. (e) Blood-vessels. (f) Germinal epithelium. (g) Graafian follicles.

"The process apparent in both ovaries and in the Fallopian tube described is evidently of a tubercular nature, as may be readily seen even upon a cursory examination of the sections. (See Figure II.)

" BACTERIOLOGICAL INVESTIGATION.

"On September 5th 5 c.cm. of the ascitic fluid were inoculated in a guinea-pig through the peritoneal cavity.

Original weight,	-	-	-	-	-	485	grammes
September 9th,	-	-	-	-	-	468	"
" 15th,	-	-	-	-	-	460	"
" 30th,	-	-	-	-	-	450	"
October 10th,	-	-	-	-	-	460	"
" 20th,	-	-	-	-	-	460	"
" 30th,	-	-	-	-	-	465	"
November 23d,	-	-	-	-	-	460	"
December 12th,	-	-	-	-	-	460	"

"Autopsy did not show any enlargement of the retroperitoneal lymph nodes. The spleen presents two necrotic foci of no importance."

Both from the macroscopical and microscopical examination of the anatomic piece it can be inferred that the oldest lesion in this case belongs to the appendages of the uterus from which the process was secondarily propagated to the peritoneum and the intestinal mass. The Fallopian tubes and above all the right ovary are the organs which demonstrate a more advanced stage of development of lesions. The evolutive type of the tubercular lesions belongs to the chronic diffuse form of Williams, characterized by successive crops of miliary tubercle, which originated in the tubes and ovaries even those of more recent date found scattered in the peritoneum and the intestinal mass. From the pathogenetic point of view, it seems that the genital lesion on this girl is primary and, so far as clinical experience permits, we can affirm that the existence of foci of a more ancient date in any other organ of the body could not be substantiated. It is difficult to state with precision whether the beginning of the infection took place through the vulva or whether the bacilli made their way through the blood.

Notwithstanding, taking in consideration the rarity of the ascending tuberculosis of the genital tracts in female children, demonstrated by the data collected in M. Wollstein's paper, and also, the absence of vaginal discharge from the outset of

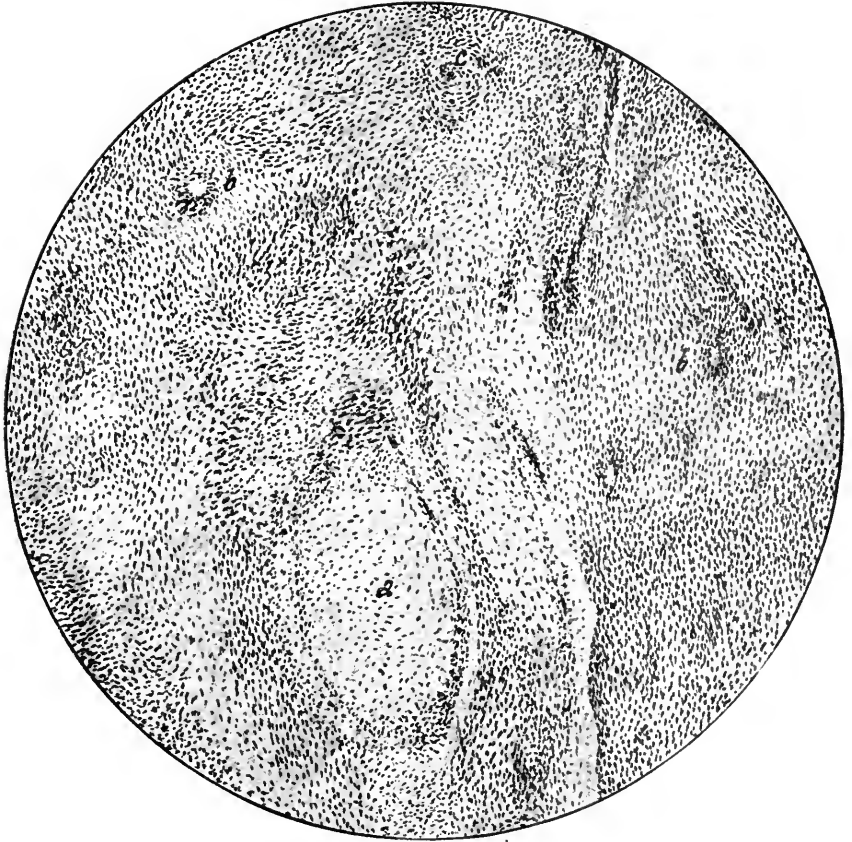


FIGURE II.—DETAIL OF FIGURE I. X 400 DIAMETERS.

(a) Miliary tubercle. (b) Commencing miliary tubercle. (c) Perivascular embryonic infiltration.

the disease, the patency of the vulva and vagina and the healthy condition of the uterus revealed by the exploration accomplished during the operation, it may be supposed that infection took place through the blood, since there is no data up to the present time which may allow a decision as to whether an infection of the adnexes of the uterus may take place through the vagina without first contaminating some of the other structures placed in its way.

From a clinical standpoint this fact proves how difficult is the diagnosis of peritoneal tuberculosis in certain cases of complex etiology and uncommon development.

As an argument in favor of tubercular peritonitis, we had, amongst antecedents, the lymphatic constitution of the patient, the unfavorable hygienic surroundings, the lack of means and the attack of measles which initiated the morbid series which is known to favor the development of the tuberculous process. Against it, we had the negative hereditary antecedents and the girl's good health until the attack of measles.

After the eruptive fever, the evolution of symptoms took a peculiar character. A stage of anasarca accompanied by a decrease of urine first appeared, which at once suggested the idea of a possible transient nephritis. Then followed a period of four months' duration which was characterized by fever, diarrhea and emaciation, phenomena which although easily explainable to-day by the existence of salpingo-ovarian tuberculosis discovered during the operation, were not of sufficient value to permit the diagnosis of tubercular peritonitis, notwithstanding the enlargement of the abdomen which occurred during the three months of apyrexia, and which was at the onset characterized by hypogastric pains more or less defined and intermittent.

The normal functions of the intestine in all that stage, the increase in weight and the excellent condition exhibited by the patient when first seen, justified us in assuming an attitude of reserve which could only be altered either by the positive result of a bacteriological investigation or by exploratory laparotomy, as counseled by most recent writers.

I do not speak of the tuberculin test, because up to the present it can not be considered absolutely satisfactory. The presence of a large free effusion in the peritoneal cavity, the absence of pain on pressure, and the possibility of finding in chronic exudative peritonitis the same train of symptoms to-

gether with the lack of precise hereditary antecedents, the suppression of fever for such a prolonged period and the patency of the digestive functions, made us hesitate, inasmuch a simple peritonitis sometimes follows eruptive fevers and acute nephritis in childhood.

From the foregoing clinical history it can be stated, that in the absence of a bacillar purulent vaginal discharge it is not even possible to presume the presence of primary tuberculosis of the female genital tract in children.

We have lately learned that the patient is enjoying perfect health in the country town to which she was removed. There has been no reproduction of the serous effusion and her gain in weight has been regular and progressive.

New Blotting-Paper Test of the Blood.—S. Pertot (*Wiener Klinische Woch.*, August 15th) says that the factors that enter into the absorption of fluids by a porous substance are both physical and chemical. Pertot suggests a new method of clinical diagnosis of the blood at the bedside, which is based on absorption, and is so simple and inexpensive that it is within the reach of everyone. All that is required is a square of good blotting-paper about the size of a playing card. A small amount of blood is aspirated in a pipette and mixed with water, in the proportion of 2.5 cm. to 1 cm. The blotting-paper is placed on a sheet of glass and the pipette is placed inverted upon it, held perpendicularly in a small standard, just touching the paper. The fluid is slowly absorbed by the paper, and forms rings of various hues, the tints and size of the rings characteristic of the different composition of the blood. Two pipettes are always used, in one the blood is diluted with water from the faucet and in the other with distilled water, as the resulting pictures differ with these media, probably owing to the presence of salts in the undistilled water. Pertot has made hundreds of these blotting-paper pictures of the blood, and found them invariably identical under the same condition of health and disease. The color fades in time, but the rings are still perceptible. The clearest pictures were obtained with the blood of new-born infants; their blood contains a larger proportion of reds than that of adults. Paper treated with dilute hydrochloric acid exhibits a picture resembling a narcissus flower.—*Journal of the American Medical Association.*

ACUTE RECURRING RESPIRATORY FAILURE IN THE
NEWLY BORN, WITH SYMPTOMS APPARENTLY
OF BULBAR ORIGIN.*

BY IRVING M. SNOW, M.D.,

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I have had two extraordinary experiences with newly born infants which are certainly worthy of record. Both children were born after a normal labor, and for the first few days of life were in perfect health. Suddenly they developed a peculiar group of symptoms, the chief of which was a failure of respiration associated with opisthotonos.

In the *Lancet* of November 24, 1900, Dr. George Keith describes a fourteen and one-half hour struggle to save the life of a boy eight days old. The baby suddenly stopped breathing and for hours was kept alive by inhalations of oxygen and artificial respiration.

The history of Dr. Keith's case coincides so exactly with the symptoms of my own two patients that I should consider all three patients as affected with the same malady which caused the death of one child and a nearly fatal issue in the other two.

Inasmuch as a description of the condition and its treatment is to be found in no treatise on diseases of children, and as some physician might give up in despair a case which persistent work might save, it may be of interest to relate the clinical history of the three infants.

CASE I.—D. W., born August 27th after a normal labor—first presentation, forceps used for fifteen minutes to terminate second stage. There was no obstetrical injury, no asphyxia; weight at birth seven and one-half pounds. The baby thrived with all functions in order until the fourth day of life, when he suddenly grew cold, blue, and the breathing became shallow and irregular. When I saw the case with the accoucheur, the child was badly cyanosed, with gasping respiration. There

* Read by title before the American Pediatric Society, Niagara Falls, N. Y., May 27, 28, 29, 1901.

were harsh râles through both lungs, heart sounds normal, rectal temperature 100.6°. For the next nineteen hours, until seven in the morning, the baby showed the most alarming symptoms, which caused us to expect death at any moment. The symptoms were: (1) The frequent stoppage of respiration with intense cyanosis and no spontaneous effort at natural breathing; (2) the frequent occurrence of convulsions which seemed closely associated with the respiratory pause; (3) intense exaggeration of the pharyngeal and anal reflexes. Thus when the intestine was irrigated or food or medicine given by rectum, the child grew rigid and ceased breathing. The same apnea occurred when liquid food and medicine were placed in the mouth. This, of course, precluded the giving of nourishment and all usual means of treatment.

The most striking feature of the illness was the apparent inability of the baby to breath for itself. Life seemed to be sustained only by artificial respiration and the continuous administration of oxygen. If the artificial respiration was suspended for from five to fifteen minutes, the breathing would grow slow and superficial and would finally stop; the heart's action became weak and irregular only when the cyanosis became extreme. Throughout the afternoon and night the baby had frequent attacks of opisthotonos. The eclampsia was often independent of the respiratory disturbance. Occasionally we could establish respiration for a while, but it would always fail and finally cease after a few minutes, so that we were afraid to stop the artificial respiration. With the day came hope; the attacks of opisthotonos were less frequent and severe and the patient would breathe for a considerable time without help. Between 7 A.M. and 1 P.M. artificial respiration was occasionally necessary, although the baby was frequently cyanosed.

So far the only stimulant and medicine given had been whiskey and chloral hypodermically, so great had been our fear of exciting absolute and final arrest of breathing if we introduced liquids into the mouth. At 1 P.M. the baby, being in a pitiable condition of exhaustion and malnutrition from lack of food and continual handling, we decided to make a desperate attempt to feed it by gavage. A soft catheter was pushed into the esophagus and two drams of breast milk injected into the stomach; no convulsion or stoppage of breathing occurred, possibly because the excitability of the pharyngeal reflex had

diminished—perhaps because the sensibility of the glosso-pharyngeal nerve was obtunded by the passage of the tube, and also because the food being injected into the stomach the highly complex muscular and nervous mechanism of deglutition was not employed.

The success of the procedure was complete. The baby was invigorated by the food and breast milk, and chloral was again given at 3 P.M. through the tube. The malady seemed to vanish. The baby, much revived, nursed its mother at 5 P.M. The infant was given chloral and carefully watched through the night; no recurrence of its symptoms took place.

The next day, the baby although languid and apathetic, nursed well and afterward made a rapid and complete recovery.

The duration of the illness was from twenty-four to twenty-six hours and ran its course without fever. The excessively acute symptoms when life was sustained by artificial respiration and oxygen lasted nineteen hours.

CASE II.—Burckhalter. The boy was born after a normal labor and was in vigorous health up to the morning of the seventh day of life, when he nursed but little and seemed restless and vomited once. At noon the nurse found the baby cyanosed and breathing badly; almost immediately it stiffened backwards in the attitude of opisthotonos and stopped breathing. By means of artificial respiration in a warm bath the child was made to breathe again. Nevertheless for the next two hours the baby had recurring attacks of opisthotonos, retraction of the head and trunk with shallow, irregular breathing.

I found the accoucheur making artificial respiration on a very rigid baby. After the spasm relaxed the infant was thoroughly examined. The cord was off, the umbilical wound was healthy, the child was apathetic, there was general muscular relaxation, the knee-jerks were very active; pupils dilated with no response to light; normal temperature; pulse strong and regular; respiration 30; heart and lungs, nothing found; arms and legs easily moved. During the remainder of the infant's life the attacks of opisthotonos returned every fifteen to twenty minutes.

The first symptoms were first irregular, followed by slow respiration, then an absolute arrest of breathing, the child being bent backward, the arms and legs were not stiffened, there was no trismus or twitching of the face. In fact, the principal symptom of the malady was the sudden cessation of breathing every quarter of an hour. So long did these periods of apnea last

that we were afraid to allow them to terminate spontaneously. The pulse for the first few moments of the spasm would be strong, then with the cessation of the breathing it would become irregular and weak. After witnessing several of these attacks, it became evident that the only way to keep the child alive was to make artificial respiration most of the time. Occasionally even this was unsuccessful and we resorted with some effect to mouth to mouth insufflation. To prevent the child from losing heat the room was kept very hot and the child lay in a warm bath. When natural respiration ceased, the baby was pale, only once did it become livid. Sometimes in the attacks there was frothing at the mouth, and nose bleeding. When breathing was for awhile reestablished, the rate was 30 to 36 to the minute; pulse 160 to 180; at 3 P.M. rectal temperature was 101°; between 6 and 8 P.M. oxygen was continuously given; it always had the effect of strengthening the heart. (I have since regretted it was not given longer.)

From hour to hour the infant grew weaker. Twice we attempted to give nourishment by the mouth; each time that milk or whiskey was poured into the mouth the baby would stop breathing, and so long did it remain with no effort at respiration that we did not venture to feed it again. At 2.30 A.M. the child died; no autopsy was permitted.

We were at a loss to explain the cause of the symptoms. Both meningeal-hemorrhage and tetanus neonatorum were suggested as conditions which are accompanied by respiratory disturbance and eclampsia.

DR. KEITH'S CASE.—He reports the occurrence of similar acute respiratory failure in a child eight days old. The infant had just been circumcised, had lost an unusual quantity of blood and had taken the anesthetic badly. He suffered from the same repeated stoppage of respiration and cyanosis and was apparently rescued from impending death by oxygen inhalations and artificial respiration. Dr. Keith's patient had no convulsions and the act of deglutition did not cause an arrest of breathing. One is in doubt from Dr. Keith's history as to the condition of the pharyngeal reflex. He says there was no attempt to swallow, and it was only possible to moisten the lips with brandy and milk.

The history of the case is about as follows:

August 27th the infant was circumcised.

August 28th at 3.15 A.M. the breathing was labored and the

face cyanosed; suddenly the respiration stopped and the child was apparently dead. Dr. Keith found the heart still beating, and revived the child by artificial respiration. When natural breathing was established he left the room and in a few minutes was sent for again, to find the child apparently dead again. Artificial respiration was made, and after twenty minutes natural breathing was established, only to cease again in a few minutes. The heart was very rapid and the color very bad. After this Dr. Keith made artificial respiration hour after hour. After 12.30 mid-day, oxygen inhalations were continuously used with great benefit; after fourteen and a half hours artificial respiration; the child was able to breathe entirely by its own effort; the oxygen was kept continuously playing into the child's mouth for twelve hours longer; was stopped for one and a half hours, when the baby grew livid and the oxygen was again used.

August 29th—Three A.M., temperature taken, 103.6°.

August 30th—Child feverish, with offensive stools; oxygen still continuously used; weak heart; child looked badly; Cheyne-Stokes respiration.

August 31st—One A.M., temperature 105°; tepid sponge at 1 and 4 A.M.; 6 P.M., temperature 101°; oxygen was stopped, as it was suggested that it might be the cause of the fever.

September 1st—Several attacks of cyanosis relieved by oxygen; 4.30 A.M., baby stopped breathing; brought to by artificial respiration; after this the child did well and had no more alarming symptoms.

Neither Dr. Keith nor his friends were able to give a reasonable explanation for the long cessation of breathing.

I must also confess my inability to classify my own two cases with any disease of the newly born with which I am familiar.

The three children whose history I have given all had symptoms closely resembling each other. In fact, I believe that they all suffered from the same malady.

In Dr. Keith's case the illness began on the eighth day of life. In my first case respiration failed on the fourth day. In my second, respiration failed on the seventh day. None of the children were born after a difficult labor; none were asphyxiated, had trismus, or had an infected umbilicus. Dr. Keith does not allude to any infection of the umbilicus or the circumcision wound.

All the children suddenly ceased breathing without any assignable cause. This respiratory failure recurred again and again, so that Dr. Keith and I feared that life would shortly become extinct, unless artificial respiration was continuously made. None of the children had laryngismus, as air passed easily into the larynx. Both of my cases had frequent attacks of opisthotonos often associated with the respiratory failure. My cases ran their course practically without fever. Dr. Keith's case developed fever 102° to 105° , on the third and fourth day of its illness.

DURATION OF SYMPTOMS.—Burckhalter: This baby died after the apnea and opisthotonos had lasted fourteen and a half hours.

D. W.—In this patient the acute failure of respiration and opisthotonos subsided after twenty-six hours; the most acute stage was nineteen hours.

Dr. Keith's case: The respiratory failure and cyanosis were very severe for fourteen and a half hours; superficial breathing, cyanosis with fever continued for about seventy-two hours longer.

It seems to me that the three cases with their sudden failure of respiration were afflicted with a rare and unnamed disease of the newly born. Possibly we contended with some transitory but powerful infection of the medulla upon which the toxins played for a few hours with terrific force. The cessation of breathing was due, I believe, to some powerful inhibitory stimulus upon the respiratory centers in the medulla. This bulbar theory of the malady is further strengthened by the existence of morbidly active pharyngeal reflexes, that is, the contact of liquids in the pharynx will stop breathing. It will be recalled that excitation of the glossopharyngeal nerve will cause in health a short arrest of breathing. Both the pneumogastric and the glossopharyngeal nerve have practically the same nucleus in the medulla. Thus any morbid influence acting upon the origin of the vagus would also impair the function of the glossopharyngeal nerve.

Although disturbances of breathing and opisthotonos would suggest tetanus neonatorum, yet the condition lacked the essential symptom of trismus; there was no rigidity of the jaw; no contraction of the masseters.

Convulsions of the newly born are sometimes due to the cerebral injury or meningeal hemorrhage. None of the patients

had a history of an injury to the head, and the two that survived showed no paralysis or permanent lesion of the nervous system.

As all general infections of the newly born may cause a noticeable disturbance of the rhythm of breathing it is possible I have described as a disease a symptom which may occur in any malady of early life—as, umbilical septicemia, tetanus or pneumonia.

Dr. Thompson S. Westcott records (ARCHIVES OF PEDIATRICS, October, 1897) a similar condition occurring in a four-weeks-old child suffering, with several other members of the same family, from influenza. The baby had been ill four and a half days with grippe; suddenly it became cyanotic and breathed very superficially. It was revived by heat and stimulation. A second attack of cyanosis occurred five hours later, and a third attack was excited by swallowing milk. Evidently the same increased excitability of the glossopharyngeal nerve (observed in my two cases), existed in this child. Dr. Westcott states that the attacks would develop after a period of comfortable breathing. The respiration would become shallow with increasing cyanosis. Later an absolute stoppage of breathing took place—the thorax was motionless, the limbs rigid. These attacks continued for hours with great severity and frequency, and Dr. Westcott records twenty-nine periods of more or less dangerous apnea. He seems to have worked heroically with oxygen and artificial respiration, expecting at each seizure the child would die. Gradually the attacks became fewer and less severe. After a lull of some hours the child stopped breathing again, assuming the posture of opisthotonos. After this the patient improved, was occasionally cyanotic, and later had some bronchial engorgement of short duration. The disease ended with an alternating internal strabismus continuing several weeks.

The writer believes that the attacks of apnea were due to the pressure on the medulla, the rapid clearing up pointing to congestion or slight edema. This respiratory failure exactly resembles the apnea in the three cases I have narrated, which were uncomplicated by influenza. It is, of course, possible that this same sudden failure of respiration may be produced by several forms of infection, all affecting the highly sensitive respiratory centers of early infancy.

THE FEEDING OF AN INCUBATOR BABY.*

BY CHARLES W. TOWNSEND, M.D.,

Boston.

S., a female, weighed at birth two pounds and twelve ounces, and was seventeen inches long. Considerable interest attaches to this light weight, owing to the fact that the infant was only two weeks premature, and the probable explanation lies in the fact that the placenta was found to contain numerous large and small areas of necrosis.

Dr. J. W. Williams, in his article in the *Festschrift* to Prof. Welch says "Marked infarct formation (in the placenta) is not infrequently observed and often results in the death or imperfect development of the fetus. It is usually associated with albuminuria on the part of the mother." This association existed in the present case.

The infant was wrapped in a wadded cotton and cheese cloth jacket and placed in an incubator, where the temperature was constantly maintained at 85° F., and where good ventilation was secured. The incubator, resembling that of Tarnier, consisted of a box with a glass lid through which the infant could be seen lying on a shelf. Below the infant a tank refilled at regular intervals with hot water maintained the requisite temperature of 85° F. with a variation of only two or three degrees as shown by a thermometer within the lid. Holes at the side near the bottom for the entrance and an anemometer at the other end on top for the exit of air served for ventilation. The constant revolutions of the wheel of the anemometer showed that the ventilation was satisfactory. Here she remained constantly for six weeks, and was finally weaned entirely from this abode at six and a half weeks in warm weather.

The gain of weight was from the first most satisfactory. From a birth weight of two pounds twelve ounces, the infant doubled its weight in twelve weeks, tripled it in four and a half months, and more than quadrupled it at six months, weighing then eleven pounds and three ounces. At a year she

*Read before the American Pediatric Society, Niagara Falls, N. Y., May 27, 28, 29, 1901.

weighs seventeen pounds, or more than six times her birth weight.

During the first six months the infant averaged a gain of five ounces a week, the least gain being one ounce for one week only, the greatest gain eleven ounces. The length at birth was seventeen inches, at six months, twenty-three inches, or an average gain of an inch a month.

The infant was fed at first from a Breck premature feeder, which is simply a large dropper holding an ounce, with a small nipple at the end.

The food from the first was cow's milk modified at home by a method that I have used for some years, and have found most simple and satisfactory in practice even in difficult cases. The results in this infant were certainly good, and although I have no intention of using this one case as an argument for this method of feeding, it will serve as an illustration, and at least shows that it is possible to successfully feed a very small infant on a simple home mixture.

There is nothing new about the method of feeding, except that it provides a way for easily calculating the approximate percentages of fat, sugar and albuminoids in the mixture, and although these calculations are only approximate, they are, I believe, sufficiently accurate for practical purposes. This knowledge of the percentages of the food is a great help in the feeding problem.

The rule I have worked out is this: Each ounce of 10 per cent. cream in a 20-ounce mixture represents .50 per cent. of fat, .20 per cent. of sugar and .20 per cent. of albuminoids; and each even tablespoonful of sugar of milk added to this mixture raises the percentage of sugar 2.*

Cream containing 10 per cent. of fat is obtained, not by the centrifugal process, but by pouring off the upper quarter from a bottle or can of milk after it has stood five hours. This, of course, is approximate, but I have found that the amount of variation in the cream obtained in this way is not very great, much less than the variations in commercial creams. Centrifugal creams are, in my opinion, undesirable.

The advantage of raw over sterilized or even pasteurized milk is in many cases so great that I prefer the uncooked milk, if

* See C. W. Townsend, *Boston Medical and Surgical Journal*, March 23, 1899, and October 11, 1900.

it is a possible thing. With perfectly fresh and clean milk in the present case, it was always used raw.

A very weak mixture was given the infant at the first as follows: Top milk, 1 ounce; water, 18 ounces; lime water, 1 ounce; sugar of milk, 2 tablespoonfuls, or approximately, fat, .50; sugar, 4.20; albuminoids, .20. A drachm was given every hour during the day, two drachms every two hours during the night.

In difficult cases, where the power to digest the caseinogen is slight, I often increase the amount of albuminoids in these weak mixtures by the addition of the whites of one or two eggs in the twenty ounces. The white of egg resembles lactalbumin closely and is so much easier to obtain than whey, it seems to me it is better and safer in milk modifications.

The strength of this mixture was gradually increased by adding one ounce more of top milk, and one ounce less of water until on the seventh day it was as follows: Top milk, 5 ounces; water, 14 ounces; lime water, 1 ounce; sugar of milk, 2 tablespoonfuls, or fat, 2.50; sugar, 5; albuminoids, 1. In some cases it is necessary to increase the strength more slowly by half ounces or even quarter ounces daily, an increase of only .25 per cent., or .13 per cent. of fat, and .10 per cent. or .5 per cent. of albuminoids respectively.

The infant was now taking three to four drachms every hour and a half in the day and every two hours at night. At two weeks the strength had reached: fat, 3; sugar, 5.20; albuminoids, 1.20, and the infant was taking five drachms every hour and a half. This was continued until the end of the first month when the strength was increased to: fat, 3.50; sugar, 5.40; albuminoids, 1.40, and fourteen drachms were taken at a feeding.

At three months the food was ordered as follows: Top milk, 8 ounces; water, 11 ounces; lime water, 1 ounce; sugar of milk, 2 tablespoonfuls, or approximately, fat, 4; sugar 5.60; albuminoids, 1.60. About the average strength of woman's milk.

The infant's progress was practically uninterrupted. She cut her first tooth when six months and one week old. The only other points I wish to speak of in connection with the case is as regards the use of Jersey milk and the addition of cereals. When the baby was three months old it seemed nec-

essary, in moving to the country, to use Jersey milk, and it was hoped this would be digested, as the analysis of one specimen showed only 3.85 per cent. of fat. Although the baby gained regularly on this Jersey milk an average of four ounces a week, the dejections were increased in number although generally well digested, but there was considerable wind. The milk was therefore changed to the mixed milk of Holstein and Ayrshire cows with immediate improvement in the digestion, and an increase of weekly gain in weight to ten ounces the first week, and eight ounces for each of three succeeding weeks.

From the eighth month on a cereal in the form of either barley or oatmeal water was added to the diet. Had she fallen off either in appetite, digestion or gain of weight I should have begun on a cereal before that time. I believe that most infants do better by the addition of barley or oatmeal water as a modifier when they reach the age of six to eight months, but that although the majority do not need the cereal before this age, there are some cases that do need it and do much better with it.

I have recently fed in a similar way a baby born at the seventh month or thirty-second week. Here the gain weight, after the initial loss of five ounces, averaged six ounces a week for the first three months, the birth weight of five pounds and one ounce being a little more than doubled in that time.

In conclusion I would make a plea for simplicity in infant feeding, with at the same time approximate accuracy in percentages.

DISCUSSION.

DR. CHAPIN.—I would make one criticism on the paper and that is that I do not think it possible to get 10 per cent. of cream uniformly by the method the author pursues. I have had a great many assays made and I find that when using ordinary milk with a 4 per cent. butter fat that if the first twelve ounces be taken off with a dipper from the top I get uniformly a 12 per cent. cream.

DR. MORSE.—Speaking of feeding premature babies I think it is possible to bring them up on modified milk but I do not think that is the best way to feed them. It is even more important for premature babies than for babies born at full term that they should be fed on natural breast milk.

DR. ROTCH.—I think that breast milk is preferable when you can get it and when the child can take it, but it often happens that you cannot get a breast milk to suit the particular baby. It is hard enough to make the milk of a wet nurse suit any baby, and it is still more difficult to suit the premature baby.

DR. TOWNSEND.—In answer to Dr. Chapin I would say that I have not had a great many examinations made and that in pouring off the milk we get a certain amount of the lower milk which reduces the percentage below 12 and the average is about 10. I agree with Dr. Morse that breast milk is preferable if it can be obtained, but I have found that in many cases of premature feeding the mother dislikes the action of the breast pump and this results in a changed character of the milk obtained. The percentages I gave are approximate only. Of course we cannot have the milk analyzed in every case. A certain amount of clinical experimenting is necessary, as is also the case even if we have the exact analysis.

Heart Failure from Insignificant Superficial Ulceration.

—Zuppinger (*Wiener Klin. Wochenschrift*, August 22d) states that in the three cases described a small apparently insignificant ulceration was followed by death in a few days, with symptoms of insufficiency of heart action. The patients were healthy children between one and three years of age. The autopsy of two showed pronounced myocarditis and acute nephritis, evidently due to some severe intoxication, and from the absence of all other foci, the infection must have been exclusively localized in the superficial ulceration, a phlegmon on the foot in one case, an ulceration in the inguinal region in another and bilateral abscesses in the glands of the neck in the third. There were no symptoms of sepsis, merely those of cardiac insufficiency, rapidly fatal. The parents were healthy and had other healthy children in the two cases in which an autopsy was possible.—*Journal of the American Medical Association.*

AN ANALYSIS OF THIRTY-TWO CASES OF CONGENITAL HEART DISEASE.*

BY JOHN LOVETT MORSE, A.M., M.D.,

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During the past few years I have seen thirty-two cases of congenital heart disease on which I have kept careful notes. In the hope of learning something as to the prognosis of one of them from the study of the others, I recently looked them all up. The analysis of the results, although showing nothing of importance, offers some points of interest.

CLASSIFICATION.—Although the extreme difficulty, and in many cases the impossibility, of making an accurate diagnosis of the pathological condition during life was recognized, nevertheless, an attempt was made to classify the cases in a general way. The diagnosis of patent foramen ovale was made in 6 and a defect in the ventricular septum seemed most probable in 6 others. In 17 the chief lesion was thought to be at or about the pulmonary orifice. In 5 of these patency of the ductus arteriosus seemed probable. In 3 not even a guess as to the situation of the lesion seemed justified.

ETIOLOGY.—Fifteen of the cases were in males and 17 in females, all classes, moreover, being nearly equally divided between the sexes. Two of the cases with patent foramen ovale were in premature infants. All of the others were born at full term. Prematurity seems, therefore, to be a more important factor in the etiology of patent foramen ovale than of other conditions. Other malformations were uncommon. One case had two club feet and a club hand. One was microcephalic and another developed hydrocephalus when about a year and one-half old. All of these were in cases in which the lesion was located in the region of the pulmonary orifice.

ONSET.—In 14, or 44 per cent., the cardiac condition was discovered during a routine physical examination, there having

* Read by title before the American Pediatric Society, Niagara Falls, N. Y., May 27, 28, 29, 1901.

been no symptoms pointing toward the heart and the cardiac disease being unsuspected. The diagnosis of the cardiac condition in these cases was patent foramen ovale in 1—in a total of 6; defect in septum in 2—in a total of 6; lesion at the pulmonary orifice in 10—in a total of 17; unclassified in 1—in a total of 3. The age at which the cardiac condition was discovered in these cases varied from six weeks to two and one-half years, the average being about ten and one-half months. In 4 of these no symptoms had developed at the end of two, three and one-quarter, three and one-half and four years. The symptoms for which the others were brought were cyanosis, 17; dyspnea, 6; cough, 5; convulsions, 2; edema, 1. One was brought especially on account of peculiar abdominal respiration and another for “backwardness.” The earliest symptom noted was cyanosis in 11, dyspnea in 1 and cough in 1. In the others several were noted together.

CYANOSIS.—Cyanosis was, as already stated, the most common symptom. It was present at birth in 7, 3 of which were supposed to be cases of defective ventricular septum. It developed in 12 from nine days to three years after birth; in 6 it developed in the first two months, but in 2 not until three years, in 1 of these following pertussis. In 6 cases which died it did not develop at all or only just before death. Eight who are alive at the ages of two months, seven months, two years, two years, three and one-quarter years, three and one-half years, four years and seven years, have never shown it. In 4 the cyanosis disappeared after four days, fifteen days, one year and one and one-half years.

OTHER SYMPTOMS.—Analysis of the other symptoms is impossible. Several had convulsions from time to time, which were evidently the result of cyanosis, while others had recurrent attacks of severe dyspnea without apparent exciting cause. Dyspnea was common in the older children and a number were subject to “bronchitis” and cough. Edema occurred but once. The development of 5 of the 6 cases of supposed open foramen ovale was normal at the time of writing. That of 8 of 12 of the other living cases was far below normal, several of them being very small and wizened.

PHYSICAL SIGNS.—In 2 of the cases diagnosed as patent foramen ovale nothing abnormal was detected in the heart. In

the 4 other cases classified as patent foramen ovale murmurs were present, but no cardiac enlargement or other abnormal physical signs were made out. In the 6 cases in which the lesion was supposed to be located in the ventricular septum, the cardiac area was increased in 5, the enlargement in all cases being in both directions, more to the left in 2, more to the right in 3. It developed in the first few months in all. Of the 17 cases of supposed disease at the pulmonary orifice it was increased in 7, the enlargement being almost entirely to the right and developing early. The area was normal in the 3 unclassified cases. That is, the area was increased in 12 of 26 cases in which the lesion was probably not a patent foramen ovale. The size of the heart diminished decidedly under treatment in 1 case, and in 2 others the murmur disappeared. A thrill was present in only 2 cases. The extremities were clubbed in but 6. The spleen was enlarged in 7 and the liver in 3 cases. Clubbing of the extremities and enlargement of the liver and spleen were common in the cases in which the lesion was located at the pulmonary orifice.

MORTALITY.—Five of the cases were lost sight of at the ages of one and one-half months, three and one-half months, seven months, eighteen months and two years. None of the cases diagnosed as patent foramen ovale have died. Five are living at the ages of seven months, three years, three and one-half years, four years and six and one-quarter years. Twelve of the other cases are dead. Six died of the heart disease at three, six, eight, nine, ten and twelve months; 6 of other diseases at four, six, eight, nine, nine, and twenty-four months; 10 are alive at the ages of two, and twenty months, two, two and one-half, two and three-quarters, three and one-quarter, four, five, seven and seven years.

Five of the cases have passed through measles; 2, scarlet fever, and 2, whooping-cough. None have died of contagious diseases.

CONDITION OF LIVING CASES.—George G., two and three-quarter years (pulmonary orifice). Hydrocephalic; idiotic; cyanotic; small; extremities clubbed; liver and spleen enlarged.

Margaret H., two and one-half years (unclassified). Small; cyanotic. Can walk but little because of dyspnea.

Frank McC., five years (pulmonary orifice). Small; cya-

notic. Subject to "colds." Unable to play much because of dyspnea.

Mary L., seven years (defect in septum). Small; slightly cyanotic. Goes to school. "Well." Runs and plays but gets out of breath quicker than other children. Subject to "colds."

Gertie B., seven years (defect in septum). Small; no cyanosis. Goes to school. Plays a little. Subject to "bronchitis" and dyspnea.

Louis S., three and one-quarter years (pulmonary orifice). Small; rachitic; very backward. General condition improved much in past year and size of heart much diminished. No cyanosis; no symptoms.

Esther M., two years (pulmonary orifice). Small; backward. No symptoms.

Charles D., seven months (open foramen ovale). Rather small; slight cyanosis of face. Improving. Murmur intermittent.

Mary B., two months (pulmonary orifice). Normal. No symptoms.

Harry G., four years (pulmonary orifice). Normal. No symptoms.

Dorothy B., three and one-half years (open foramen ovale). Normal. No symptoms.

In these cases the cardiac condition continued unchanged, compensation being more or less complete. In the following cases, however, recovery apparently took place:

Esther W. was first seen March 25, 1899, when four weeks old. The cardiac condition was discovered during the routine examination. On questioning, the mother said that the child had always been blue. The first sound over the whole precordia was replaced by a very high-pitched, blowing murmur which was transmitted both upward and into the axilla. There was no visible impulse. The second sound was everywhere distinct. The cardiac area was not increased. There was no cyanosis when quiet but it was marked on crying. The physical examination was otherwise negative. She was seen again November 23, 1900, when twenty-one months old. The mother said that the cyanosis on crying continued for some months and that she used to have fainting fits. For some months, however, she had been perfectly well and was able to run and play without dyspnea or discomfort. The area of the heart was

normal. The sounds were perfectly normal in every way. There was no cyanosis even when she cried vigorously.

Lena R., was born August 20, 1894, after a perfectly normal labor. She was healthy at birth. When a small baby she had trouble in breathing when she was held upright. In January, 1895, she had a "fit." She then began to have more trouble with her breathing and attacks of blueness. The condition of the heart was then discovered by the attending physician, Dr. Howe, of Newburyport. The dyspnea and cyanosis increased progressively from this time. I first saw her December 28, 1895, when she was sixteen months old. She was well developed and nourished. The anterior fontanelle was not quite closed. She had four teeth. There was a slight rosary. She was able to sit up but could not stand. Dyspnea was marked and cyanosis was marked and general. The cardiac area was normal. The impulse was in the sixth space in the anterior axillary line. There was a suspicion of a thrill at the apex. At the mitral area the first sound was roughened and continued into a short, harsh, blowing murmur. The second sound was distinct. The murmur was audible over the whole heart except at the pulmonic area. The second pulmonic sound was accentuated. The lungs were full of dry râles. There was no enlargement of the liver or spleen. The extremities were not clubbed.

In a letter dated January 16, 1901, when she was six and one-half years old, Dr. Howe states that she has had no cardiac symptoms since she was two years old. She has survived both measles and scarlet fever and is now a plump, active little girl. The heart action is somewhat irregular, but otherwise normal.

When these cases were first seen no doubt whatever was entertained as to the accuracy of the diagnosis of congenital heart disease. The second case seemed an especially severe one and an early demise was expected. In spite of the unlooked-for recovery there can be but little doubt, I think, that there really was an organic lesion in these cases. It is possible that the recovery is apparent rather than real and that the cardiac lesion still persists, the absence of symptoms and physical signs being due to an unusual amount of compensation. There seems no way of settling these questions without autopsies. Even then, however, positive answers might not be obtained, as the presence of normal conditions would not show whether or not abnormal conditions had previously existed.

John T. was born May 29, 1898, after a difficult instrumental labor. He was a full-term baby and normal in every way. He was moderately jaundiced for two days. On June 9th, when he was asleep, his mother noticed marked general cyanosis. There were no other symptoms. The doctor, who arrived soon after, found the temperature 97.2°F., but noted nothing abnormal about the heart. I saw him twenty-four hours later.

He was then but moderately cyanosed and seemed comfortable in every way. He was small and fairly nourished. The area of the heart was normal, the sounds were normal, the temperature was normal. Physical examination was otherwise normal. The diagnosis of a congenital heart lesion was made and the prognosis of that condition given.

He improved rapidly in color, the cyanosis disappearing in the course of a couple of weeks. Since that time he has been absolutely well and has had no recurrence of cyanosis or any other symptoms of heart disease. The physical examination of the heart has remained normal.

Mary C., was born May 17, 1897, after a normal labor. She was a full-term baby and normal at birth. She apparently did well until the ninth day when blueness was noted at times about the mouth as well as coldness of the extremities. This slight cyanosis and coldness of the extremities continued. On the nineteenth day, after working hard at the breast, she became blue, then pale, and ceased to breathe. With artificial respiration and stimulation she began to breathe again and gradually improved. At this time the area of the heart was normal and there were no murmurs. There was general, moderate cyanosis. The physical examination was otherwise negative. The cyanosis diminished gradually and was all gone in about ten days.

She has developed normally, has had no return of the cyanosis, and at present shows no abnormal physical signs.

In these cases also no doubt was felt at the time, either by myself or by the physicians with whom I saw them, as to the presence of an organic heart lesion. In both cases the condition was thought to be a patent foramen ovale. The rapid recovery in these cases is not inconsistent with that diagnosis, as the foramen may close even after considerable delay. This is probably what happened. It is not impossible, however, although

decidedly improbable, that the collapse and cyanosis may have been due to some other cause or causes.

The points brought out by the study of these cases which seem to me of most interest are:

1. The considerable proportion of cases in which the cardiac lesion was discovered during a routine physical examination, there having been no symptoms referable to the heart.
2. The length of time which the condition may exist without the development of any symptoms, several cases having shown no symptoms at three and four years of age.
3. The comparative mildness of the symptoms in cases of patent foramen ovale.
4. The recovery from lesions which from physical examination were apparently the same as those in cases which resulted in chronic invalidism or death.

Success of Serumtherapy in Diphtheria.—Jelnick (*Bulletin Général de Thérapeutique*, March 15, 1901) has gathered statistics from all the hospitals of the world, as well as from the practice of physicians, on the success of serumtherapy in the treatment of diphtheria. The statistics show that in Austria, in 1898, out of 16,963 patients treated without serum, 6,697, or 39.30 per cent., died; while out of 15,333 treated with serum, 2,428, or 15.83 per cent., died. In Vienna the mortality from diphtheria is only one-third of what it was before the introduction of serumtherapy in 1895. The number of deaths were 1,578 in 1892, 1,691 in 1893, 1,337 in 1894; since the employment of serum they were 695 in 1895, 611 in 1896, 568 in 1897, and 520 in 1898. It is of the greatest importance to employ the serum at the onset of the disease. Among the patients treated by serum on the first and second day, only 7.6 per cent. died; of those who were treated on the third day, the mortality was 15.56 per cent.—*American Medicine.*

APPENDICITIS IN CHILDREN OF TWO YEARS AND UNDER.*

BY J. P. CROZER GRIFFITH, M.D.,

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The following case of appendicitis occurring in an infant seems worthy of being placed on record:

Louise Budd, aged three months, colored, entered the Children's Hospital, Philadelphia, April 13, 1901. She was a well-nourished child, of whom practically no earlier history could be obtained previous to April 9th, on which date she began to suffer from diarrhea, with mucus in the stools. This continued until the next day, when fecal movements ceased, although some blood is said to have been passed upon the evening of this date. Vomiting began about the same time. Nothing at all had passed from the bowels since the 10th of the month.

On examination at the hospital, at 6 P.M. on the evening of admission, the baby was found to be clearly very ill, in a state of collapse, with a bad color, rapid and weak pulse, sunken eyes, and with the abdomen so distended with gas that palpation was unsatisfactory. No stools occurred and there were no straining efforts. A rectal examination gave negative results. With the idea that intestinal obstruction might be present, large enemata were ordered, but only a very small quantity of mucus with reddish-stained fecal matter was obtained.

The infant revived only very slightly by 10.30 P.M., and operative interference was felt to be beyond consideration. A slight amount of greenish material was vomited at 7.30 A.M. on April 14th, and the baby died a few minutes later. The temperature while in the hospital ranged from 102 to 105.5° F., generally being over 104°. The notes of the lesions formed at the autopsy furnished me by Dr. Alfred Hand, Jr., the pathologist of the hospital, read as follows:

"Considerable offensive, turbid, yellowish fluid is present in the peritoneal cavity, and scattered flakes of lymph, easily

* Read before the American Pediatric Society, Niagara Falls, N. Y., May 27, 28, 29, 1901.

removable, are seen on the parietal and visceral layers of the peritoneum. The appendix points to the left and is about 6 cm. long. The distal half is freely movable and of a blackish-red color which extends to a point of constriction at the middle of the appendix. Just beyond this constriction, towards the tip of the appendix, the organ is crossed by a band of lymph, which is attached at one end to the mesentery of the ileum, and at the other end to the peritoneal coat of the ileum. This would naturally be thought to be the cause of the gangrene were it not that the appendix is gangrenous for a distance of 2 mm. above the band, *i.e.*, towards the cecum, and that the band is not tightly adherent to the appendix.

“On releasing the appendix from the adhesion, the mesentery is found to extend practically only half way to the tip, although there is a narrow prolongation of it nearly to the tip. On both sides of the mesentery, along the proximal half of the appendix, are two bands of connective tissue like guys or accessory mesenteries, which render the proximal half of the appendix comparatively immovable while the distal half is freely movable.

“For microscopic examination the appendix was dissected into three pieces. Transverse sections were cut of the tip and of the cecal end, and longitudinal sections of the central constricted part.

“The cecal end is normal, showing tubules of healthy mucus membrane, surrounded by the normal masses of lymphoid cells. This is also seen in the longitudinal section, but as the constriction is approached, connective tissue increases to a large amount and the mucosa abruptly disappears at the constriction. In the distal part there are two processes visible, an acute and a chronic. The chronic inflammation is evidenced by an increase of connective tissue and the presence of organized blood-vessels; the acute by tremendous congestion, extravasation of blood, and a complete degeneration of the epithelial cells, a granular detritus remaining to show the former location of the tubules.

“The adhesion on section showed an aggregation of round cells, with a tendency to the formation of new connective tissue at one edge. This band was evidently of very recent formation.”

The cause of the disease in this case, as far as this can be

determined, appears to have been a kinking of the appendix, due probably to the short mesentery and to the other unusual and unusually tight bands which kept the lower half of the appendix firmly fixed while the distal half was free to move. There were no concretions or foreign bodies present in the appendix, and nothing else discoverable to account for the obstruction to the lumen and to the circulation which had evidently existed in the terminal portion of the organ. Both Monti (*Kinderheilkunde*, Bd. I., p. 497) and Sonnenburg (*Verhandlungen d. XIII. Cong. f. inner Med.*, p. 262) have called attention to a special tendency to kinking of the appendix present in children, and that inflammation of the appendix results from any cause obstructing its lumen is well known.

No lymph whatever was deposited upon the almost gangrenous distal portion of the appendix. The band of lymph described as crossing the middle of the organ was clearly not the cause of the constriction, as the narrowed portion was situated slightly nearer the cecum, as has been pointed out in the pathologist's report. It is also to be observed that this infant had clearly at some previous time suffered from an attack of appendicitis, more or less severe, as is indicated by the chronic lesions discovered.

Appendicitis may occur at any age, but is commonest in adolescence or in early adult life. I have myself been fortunate in seeing two cases in children of four and four and a half years respectively which I have reported elsewhere (*ARCHIVES OF PEDIATRICS*, August, 1898). Each of these was operated upon and pus found, but in neither could the appendix be discovered. Recently I have had the opportunity of seeing a case in a child of three years operated on in the Methodist Hospital in the service of Dr. Spellissy. Here, too, an abscess cavity was evacuated but the appendix was undiscovered.

The relative frequency of appendicitis at different ages in children may be seen from the following statistics: Brun (*Traité des Mal. de l'Enf.-Grancher.*, III., p. 106) in 45 cases in children observed by himself reports 3 from one to five years of age; 20 from five to ten years, and 22 from ten to fifteen years. Fitz (*Transac. Assoc. Amer. Phys.*, 1885, p. 106) in 228 cases of appendicitis at all ages collected by him, found 22 from twenty months to ten years and 86 from ten to twenty years. Matterstock (*Gerhard's Handb. f. Kinderkr.*, IV., 2, p. 899) in 72 col-

lected cases in children found 2 under two years (1 of seven months and 1 of twenty months), 10 from two to five years, 25 from five to ten years, and 35 from ten to fifteen years. Bamberger (quoted by Matterstock) in 73 cases in children found 2 less than two years of age and 20 from fifteen to twenty years. (I have been unable to verify the references given for this statement.) Gordon (*Thèse de Paris*, December 23, 1896) in 79 collected cases in children found 5 from two to five years, 33 from five to ten years, 35 from ten to fifteen years. Only one of the first five cases was not over two years old. Fenwick (*Lancet*, 1884, II., p. 987) in 97 collected cases, irrespective of age, found 9 below the age of ten years, half of these being under five years. Jalaguier (*Traité de Chirurgie*, IV., p. 637) in 182 personally observed cases found 4 from one to five years, 42 from five to ten years and 64 from ten to fifteen years. Barthez and Sannée (*Traité des Malad. des Enf.*, I. p. 473) have seen 23 cases in children, of which 5 were from four to seven years old. Hawkins (*Diseases of the Vermiform Appendix*, p. 62), out of 224 cases of all ages occurring in St. Thomas' Hospital, found 26 in children of from five to ten years. E. McGuire (*Virginia Medical Semi-Monthly*, 1898-9, III., p. 400), out of 104 collected cases in children, reports 3 under three years, 47 between the fourth and ninth years and 54 between the tenth and fourteenth years. Deaver (*New York Medical Journal*, 1893, LVIII., p. 342), says the youngest patient he has seen was a child of two years.

The cases in these statistics certainly duplicate each other to some extent. They show that the disease is decidedly uncommon under the age of five years, and especially so in infancy. At the age of two years or less the affection can certainly be called rare, and the younger the child the less common it appears to be. Medical literature shows very few cases indeed. The following list of the detailed cases of two years or less duplicates to a degree which cannot be determined the number included in the collective statistics given. I have arranged them according to the age, and have placed my own case in order in its proper position:

1. Pollard (*Lancet*, 1895, I., p. 1114). Boy of six weeks; hernia of the appendix into the scrotum; abscess; operation; no perforation; recovery.

2. Goyens (*Gaz. med Belge*, XII., No. 14; Abstract in ARCHIVES OF PEDIATRICS, March, 1900, p. 209). Boy of six weeks; perforated appendix discovered at autopsy.

3. Demme (XXIII. *med. Bericht. ü. d. Thätigkeit d. Jenner'schen Kindersp. in Berne*). Girl of seven weeks; appendix containing a concretion of porridge found at autopsy; no perforation.

4. Savage (*New York Medical Record*, April 23, 1898, p. 600). Boy sixty-one days old; hernia of appendix into scrotum; operation; appendix perforated; removal; death.

5. Griffith (case now reported). Girl three months; gangrenous appendix found at autopsy; general peritonitis; no perforation.

6. Elder (*Montreal Medical Journal*, March, 1901, p. 201). Boy of seven months; scrotal hernia of cecum and appendix, abscess; operation; appendix perforated; removal; recovery.

7. Betz (*Memorabilien*, 1870, XV., p. 118). Boy of seven months; perforated appendix found at autopsy. (This is the seven months' case included in Matterstock's list.)

8. Silbermann (quoted by Talamon "Appendicite et Perityphlite," 1892) saw a case of appendicitis in a child in the last period of lactation. (No reference to original found.)

9. Taylor (*Boston Medical and Surgical Journal*, May 20, 1897, p. 482). Boy of one year and three days; supposed to be intussusception; operation; perforated appendix found; death.

10. Monks (*Boston Medical and Surgical Journal*, June 5, 1890, p. 543). Boy of thirteen months; hernia of appendix into scrotum; abscess; operation; removal; no perforation; recovery.

11. Hauck (*Medical Review*, St. Louis, 1895, XXXI., p. 463). Girl of sixteen months; supposed to be intussusception; operation; appendix strangulated by coil of small intestine; no perforation; recovery.

12. Millon (*Arch. de Méd. Infant*, 1899, II., p. 285). Girl of nineteen months; appendicular abscess incised; appendix not found, but a stercoral concretion discharged later; recovery.

13. Holmes (*British-American Journal of Medical and Physiological Science*, March, 1847, p. 285). Boy of twenty months; perforated appendix found at autopsy. (This is the twenty months case of Matterstock's list.)

14. Summers (*Philadelphia Medical News*, 1891, LIX., p. 513). Boy of twenty-two months; operation; appendix perforated; recovery.

15. Gordon (*Thèse de Paris*, December 23, 1896). Boy of two years; abscess; operation; appendix perforated; recovery.

It is also stated by Powers and by Jalaguier that a case in a child of six months has been reported by Tordeus. I believe this to be an error. The only reference I have been able to discover is to one of a child of six years (*Jour. de Med. de Chirurg. et de Pharm.*, Bruxelles, 1885, LXXX., p. 220).

Doubtless there are other cases published, but those quoted include all I have been able to find after a somewhat extended search.

It is interesting to note that in 9 of the 15 cases given above the appendix was found to be perforated; that in 4 cases the appendix had descended into the scrotum; that 9 cases were operated upon with 7 recoveries; and that in 2 cases the disease had been diagnosed as intussusception.

DISCUSSION.

DR. SHAW (guest).—The case has interested me very much because early in January, 1901, I saw such a case of appendicitis in an infant seven weeks old. The condition was not diagnosed during life but was determined at autopsy. The appendix was sloughed off and lay in the midst of pus. The infant weighed only six pounds, six ounces. There did not seem to be pain on palpation of the abdomen.

Prevention of Otitis After Measles.—S. Weiss (*Wiener Med. Wochenschrift*, December 22, 1900) states that a recent extensive epidemic of measles, the number of cases complicated by otitis was reduced from 27.7 to 6.6 per cent. by measures adopted to remove the accumulations of mucus from the nose and to keep the nasal passage clear. The nose was swabbed back to the posterior wall of the pharynx with a 1 per cent. salve of yellow precipitate, or the nostrils were plugged with cotton moistened with a few drops of a 5 per cent. solution of silver nitrate, the patient lying on his back and squeezing the nostrils together for a few moments. This application was repeated four times a day.—*Journal of the American Medical Association.*

MATERNAL IMPRESSIONS—REPORT OF A CASE.*

BY B. K. RACHFORD, M.D.,

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The mother of the child, whose history I here report, is gouty. She had had three or four attacks of slight catarrhal appendicitis each year for fourteen years. These attacks usually incapacitated her for one day, and the soreness in the region of the appendix entirely disappeared on the second day. The attacks were characterized by colic, and some pain and tenderness in the region of the appendix.

Thirty-six hours before the birth of her first child, in June, 1898, she had an attack more severe than usual accompanied by a fever of 102° F. Following the birth of this child there was a marked sepsis for twelve days, which could not be accounted for by anything in the pelvis, and which in the light of later events is believed to have been due to appendicitis.

In February, 1899, when she was two and a half months pregnant with her second child, she had one of these attacks, following which the enlarged appendix was clearly mapped out. Six days later the appendix was removed. The operation was quickly and skilfully performed, and the patient went off the operating table in excellent condition. Soon after her return to consciousness, however, she commenced to vomit, which symptom continued almost uninterruptedly for forty-eight hours. This attack of vomiting was thought to be due to the anesthetic. After the vomiting ceased everything went well until the tenth day when a stitch abscess developed on the outer side, and at the top of the wound. Although the stitches had been taken out on the seventh day, sepsis gradually extended through all of the stitch wounds, producing considerable sloughing on both sides of the scar marking the line of incision. The sepsis was confined to the region of the stitch wounds. After a time the mother convalesced satisfactorily, but there now marks the site of the operation two very pronounced scars, on either side of the incision scar.

* Read before the American Pediatric Society, Niagara Falls, N. Y., May 27, 28, 29, 1901.

On September 20th a girl baby was born, weighing nine pounds, which was pronounced by the obstetrician to be a normal and well-developed child.

I saw this child professionally for the first time in November, when she was two months old. During the next two or three months, she had more or less continuous fever of low grade and obscure origin. In the early part of this attack the liver was greatly enlarged.

Throughout the winter the child continued to be imperfectly nourished, but during the summer, which was spent in Michigan, she completely recovered. On her return to the city in September, 1900, when she was one year of age, the mother noticed a mark resembling a stitch-scar located over the appendix. During the next six months three more stitch-scars appeared, four in all, located exactly in the region corresponding with the mother's scar, produced by the appendicitis operation. These markings became more pronounced, so that at the present time the appearance is such as would be produced by an operation for appendicitis, except that there is no scar marking the line of incision. The stitch-scars are, however, so pronounced that they can be seen across the room.

It is to be especially noted that the scar, as it is reproduced in the infant, resembles the appendicitis scars of the mother only in the stitch-scars and not in the scars which resulted in the incision and the lateral sloughings. Moreover these markings, while distinct, are not made of true scar tissue.

It is my belief that the maternal impressions which produced the markings on the child resulted from the strain on the stitches in the abdominal wound of the mother during the forty-eight hours of vomiting, immediately following the operation.

It is worthy of note that the markings on the child were not noticed until the child was one year of age, and for the next six months they gradually increased in distinctness. During the past four months there has been no noticeable change. It is also noteworthy that the maternal impressions which produced the markings on the child occurred about one week prior to the termination of the third month of uterogestation.

In conclusion, I wish to say, that Dr. Arthur W. Johnstone, Dr. F. Forchheimer, and Dr. W. D. Porter, are almost as familiar with this child's medical history as I am. They have watched with me from time to time the development of these

markings, and are quite prepared to testify with me that the existing circumstances were such that we could not have been deceived in the essential facts as they are here reported.

DISCUSSION.

DR. WENTWORTH.—I would like to ask Dr. Rachford whether the marks on the child were in the nature of pigmentation or of scar tissue.

DR. RACHFORD.—They are neither pigmentation nor scar tissue but depressions in the skin.

On the Diagnosis of Tuberculosis Peritonitis in Children, with a Report of 54 Cases.—Dr. A. A. Kissjel, in the conclusion of an article (*Vratch*, May 26, O. S., 1901), states that all the cases of so-called idiopathic peritoneal effusion were taken in the author's hospital to be cases of tuberculosis peritonitis, and accordingly laparotomy was performed in all instances. Cirrhosis of the liver in children is sometimes mistaken for tuberculosis peritonitis, for the ascites may be the only symptom. It must be borne in mind that tuberculosis peritonitis has been found in cases of cardio-cirrhotic ascites in children. The exudate in tuberculous peritonitis is not infrequently absorbed spontaneously under stimulating treatment, and the children recover. In most cases the onset is insidious, at first with emaciation and pallor which cannot be accounted for. The presence of a serous pleuritic exudate facilitates the diagnosis. The most valuable symptom is the thickening of the peritoneum, which can be felt by grasping the abdominal wall in the shape of a fold. The fluid in tuberculous peritonitis is rich in albumin and of high specific gravity. Often the whole peritoneum is found covered by dense tuberculous masses, although the patient's condition had been fairly satisfactory. The most difficult cases are the rare instances in which there is a tuberculous pericarditis in addition to a serous peritonitis. In rare cases the disease begins with acute symptoms.—*New York Medical Journal*.

Clinical Memoranda.

TWO CASES OF THE BULLOUS FORM OF IMPETIGO CONTAGIOSA.

BY EMELYN L. COOLIDGE, M.D.,
Babies' Hospital, New York.

These two cases are of interest because of the comparative rarity of the bullous form of impetigo contagiosa. They are the first met with in the Babies' Hospital, New York, for a period covering nine years, at the rate of 400 to 500 cases per year. The simple form is of course very common. It was also rather difficult to make a diagnosis between this form of the disease and pemphigus, especially before a second case developed.

CASE I.—James G., aged six months, family history negative, mother denying syphilis on either side; patient an only child, mother never having had any others nor any miscarriages. Child's condition at birth was normal. Up to time of admission, baby was fed on condensed milk, half a drachm to one cup of water every one and a half hours. Bowels were in good condition, child vomited occasionally and was brought to the hospital because he was steadily losing weight. Patient was admitted on June 4, 1901, put on a modified milk formula, four ounces every three hours. Temperature was normal, weight eight pounds ten ounces. The physical examination showed the baby to be rather poorly nourished, slight seborrhea of scalp, inguinal and post-cervical glands, markedly enlarged, otherwise examination was negative. Patient was in a ward containing only two other children, neither of whom had any skin lesions.

On July 4th, an eruption was seen on face and forehead, closely resembling prickly heat. The next day this eruption had assumed a distinctly vesicular form, the face, forehead and neck being covered with small white vesicles, surrounded by slight red areola. The same day a long oval bulla nearly one inch in diameter was noticed on the child's right side; this was very nearly distended with a seropurulent fluid, and before night, broke spontaneously, leaving a spot about as large

as a quarter of a dollar, with very much the appearance of an ordinary blister after it has broken. July 6th, large bullæ appeared on chin, forehead and neck, arms and fingers, all being quite fully distended with seropurulent fluid, the largest of which was about the size of a half dollar, one on the child's thumb extended over the entire finger. These bullæ continued to appear over back, chest, feet and legs for the next three days. A culture was taken from one of the blebs and showed a pure growth of staphylococcus pyogenes aureus. No new bullæ appeared after July 12th; some of the blebs broke spontaneously, while others were opened and soon began to dry up. The child was bathed with bichlorid of mercury, 1-5000, and the spots then dusted with a powder of equal parts of nosophen and subnitrate of bismuth. During all this time the baby's stools had been rather frequent, containing green feces and a very little mucus. There had been no temperature, but the child was very irritable and restless. On July 13th the patient's mother sent for him, so it was necessary to let him go home; the eruption being in a semi-dried state.

CASE II.—Lillie S., aged two and a half years, admitted to the hospital for rachitis. With the exception of this disease, she was in normal condition. This child was in the bed adjoining Case I. On July 8th, three days after bullæ appeared on first case, a bulla about one-fourth of an inch long was seen on the neck of this child. The red areola was more marked here and the bulla not quite so large or so fully distended as in Case I., but otherwise exactly resembled it. July 9th, two more bullæ appeared on neck and one on thumb. July 16th, fresh bullæ were seen every day on different parts of the child's body, and with the exception of those on the face and neck they were not very near together, nor did they coalesce. The treatment first tried on this case was simply a dusting powder of iodoform and then a wet bichlorid dressing, 1-5000. On a few spots white precipitate ointment 5 per cent. was applied. The eruption not seeming to dry up very readily, a dusting powder of equal parts nosophen and subnitrate of bismuth was used, and a marked improvement was seen very shortly. On July 22d, two weeks after the first bulla was seen, nothing remained but a few red macules. This child also showed a slight intestinal disturbance but no temperature. As the cases were promptly isolated no others developed.

INTESTINAL OBSTRUCTION FROM TYPHOID FEVER.*

BY W. F. BOGGESE, M.D.,

Professor of Medicine and Diseases of Children, etc., in the Kentucky School of Medicine, Louisville, Ky.

The case I wish to report is one I saw in consultation, of typhoid fever possibly in its third week, as near as we could get the history.

The patient was a buxom, fine, healthy-looking girl. Ten days before I saw her the doctor in attendance had given her some small doses of calomel, and she had four or five fecal evacuations the next day. Later he tried to move the bowels by enemata, but was unable to get any fecal matter from the lower bowel. This ran along for two or three days when he gave some more high enemata but did not succeed in getting fecal matter; then he tried purgatives but without result, he gave her first five and later ten grains of calomel, and at the suggestion of another physician gave a bottle of Hunyadi water and a bottle or two of citrate of magnesia, etc., without effect.

When I saw the patient she was quite tympanitic, she never had vomited, and there had been no movement of the bowels for ten days. The attending physician had called in a surgeon to discuss the possibility of there being an obstruction, either intussusception, strangulation, or even cicatricial tissue having formed, thinking possibly the disease had existed longer than three weeks, although this was the length of time the family physician had calculated the disease. The surgeon advised against even an exploratory incision, which I think was indicated. When I saw the girl she had a pulse of 160 to 170, temperature 102° F., was rather stupid mentally, but with all having a wonderfully good physiognomy considering her condition. I suggested that another surgeon be consulted to see if an exploratory incision would be indicated, but the family were opposed to it and said that even if the surgeon should advise an incision they would not consent to it. Knowing that the girl was going to die, I suggested that we try croton oil a *dernier ressort*; at intervals of two hours we gave her

* Reported to the Louisville Clinical Society.

$3\frac{1}{3}$ drops of croton oil. She lived four days after I saw her, without vomiting any fecal matter and without a movement of the bowels.

The interesting question in this case is,—What was the cause of the obstruction? Was it an intussusception or volvulus, or could it possibly be, that the girl had typhoid fever that had gone on in the second month, time enough for the cicatricial tissue to contract sufficiently to occlude the bowel, or could it have been a localized peritonitis which had formed sufficient adhesions in that length of time to obstruct the bowel? Ordinarily with the amount of cathartics she had taken we would have gotten fecal vomiting in intestinal obstruction.

The case was of extreme interest to me and I look upon it as one of paresis. We know that in appendicitis and septic conditions of the bowel, we do get a paresis of the intestine, where even without any obstruction and without attachments or adhesions, it is impossible to get the bowels to move. It is a parietic condition, and as we find it sometimes in cases of appendicitis, etc., I do not see why it may not occur in typhoid fever. I told the family physician that I thought it was a paresis of the bowel from the septic condition of the patient.

The physician in charge of this patient sent me word that there were five other cases of typhoid fever in the same family, showing additional proof of the correctness of the diagnosis.

DISCUSSION.

DR. W. K. TURNER.—I agree that this was a paresis of the intestine, probably due to a toxemia, as there was no vomiting.

DR. F. W. SAMUEL.—It is possible for a patient to have chronic intestinal obstruction for more than three weeks without the vomiting of fecal matter, as the reporter states. The onset of this trouble is not clear. It is not stated that the patient had pain. The symptoms of intestinal obstruction were well marked. Intussusception, as we know, is almost exclusively a disease of childhood, although I have operated upon a man forty-five years of age for the condition. In the case reported the trouble was more than likely due to one of the conditions cited; probably earlier in life the patient had an obstruction from bands, and it might be chronic obstruction from narrowing of the lumen of the gut. Ileus paralyticus,

which is seen in many conditions, occurs as stated by Dr. Boggess, and I have seen it in typhoid fever where the patient died from the septic condition which occurred. Just what was the matter with the patient in this case we do not know. Impaction has been known to exist for more than three weeks without vomiting, with more or less movement from the lower bowel. I have seen impaction which existed for at least twenty days without any vomiting of fecal matter. If it is chronic obstruction it must be due to some disease. Malignant disease might cause a constant narrowing of the gut and thus cause obstruction. This patient probably had typhoid fever, the intestinal ulcerations healed, contraction then occurred, followed by obstruction.

Varieties of Diphtheria Bacilli.—The diagnosis of diphtheria by the examination of cultures necessitates the recognition of the bacillus by its microscopical appearance and the treatment and isolation largely depend upon the ability of the bacteriologist to so determine the presence or absence of this organism. Variability in form and staining reaction is one of the most striking characteristics of this bacillus. The questions arise, Can we identify this organism by its morphology alone? Is there a pseudodiphtheria bacillus? Has the susceptibility of the patient any influence upon the morphology of the organism? Is there any relation between the microscopical form and virulence? Frederic P. Gorman (*Journal Medical Research*, July, 1901) attempts to answer these questions by the means of experimental research. He examined 2,375 cases of which 431 showed diphtheria-like bacilli. The cultures were made on Löffler's blood-serum incubated for 12 to 24 hours, and the organisms were stained with Löffler's methylene blue. He confirms Westbrook's statement that the granular types are most predominant at the onset of the disease; but that they give place wholly or in part to barred or solid types shortly before their disappearance. Sometimes solid types may be replaced by granular types when convalescence is established shortly before the throat is cleared of this organism. The diphtheria-like organisms are more frequent in the nose than in the throat. There are diphtheria-like organisms present in the nares and throats of a large percentage of apparently healthy individuals. The change from granular or barred to solid types seems to take place under the influence of the body fluids of a person immune or becoming so. The virulence seems to be correlated with the morphology. So-called pseudodiphtheria bacilli are morphological varieties of the diphtheria bacillus and are sometimes capable of producing clinical diphtheria, but are not usually pathogenic for guinea-pigs. We cannot tell whether the solid types are able to regain their virulence when once they have lost it, but this seems probable. Neisser's stain is of no value in differentiating barred or solid types.—*Medical News.*

ARCHIVES OF PEDIATRICS.

OCTOBER, 1901.

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SCARLET FEVER.

In the third annual report of the Hospital for Scarlet Fever and Diphtheria Patients, better known as the Minturn Hospital, New York, there are some interesting facts to be drawn from the tabulated statistics of the scarlet fever cases cared for at the hospital during the year 1900. The statistics are not based upon a large number of patients, but the order in which the figures are presented and the simple manner in which the salient features of the disease are recorded when the patients are admitted to the hospital make a good showing for the general routine of the examinations.

The statistics apply to adults as well as to children, but they are of value as showing the symptoms and complications common in early life.

One hundred and six patients with scarlet fever were in the hospital during the year. Of this number 43 were under fifteen years of age, the average being 7.06 years. There were but 2 deaths in the institution and both were children, 1 of six years who had complete suppression of urine, and 1 of three years who had a suppressive otitis media followed by pneumonia. This mortality rate is so low that even allowing for the favorable influence of hospital nursing in lessening mortality it would indicate that the prevailing type of disease was not severe.

The average period of incubation was 6.8 days. The persistence of the poison in clothing, etc., was known to be two years in one case where a child wore the clothes his brother had had on when taken ill two years before.

The most constant initial symptom was a bright redness of the throat. This was seen in every case admitted early in the disease. The throat showed other changes as follows: There was a milky exudate present in 32.3 per cent. of the cases, from which the cultures always showed some variety of the streptococcus, and follicular tonsillitis was seen in 26.5 per cent.

There was vomiting in 60.4 per cent. of the cases and a chill was noted in 30.2 per cent. The papillæ of the tongue were enlarged in 23.5 per cent. of the cases, but a strawberry tongue was seldom observed.

The rash was usually typical but there were exceptions to the usual exanthema. The eruption was hemorrhagic in 4.9 per cent. No blush at all could be found in 6 per cent. of the cases, but a well-defined miliaria was present in all of these with marked constitutional symptoms followed by pre-fuse desquamation.

Desquamation was as constant a symptom as the redness of the throat. It was observed that desquamation usually began on the edge of the ears before the eruption had faded, but in some cases the desquamation was not noted until the

skin of the palms of the hands and soles of the feet began to separate. The process required on the average forty-seven days for its completion and all efforts made to hasten desquamation failed to lessen the period.

The kidney complications were few and to judge from the report the only patient who was seriously ill with nephritis was the child of six years who died with acute suppression of urine.

Albuminuria was present in 31 per cent. of all cases, both children and adults, but in only 14.5 per cent. did it last more than two days. In no case was it present when the patient was discharged from the hospital.

This most satisfactory result was no doubt attributable to the fact that the patients were kept in bed and on a milk diet, the average time in bed being about twenty-five days for each case. The charts for the patients had noted on them the total amount of milk and water actually consumed and the amount of urine passed.

Cervical adenitis was recorded in every case of scarlet fever in which there was exudative inflammation in the nasopharynx but suppuration never occurred. There was a rapid subsidence of the swelling of the lymph nodes when the nasopharynx was irrigated and hot poultices were applied to the neck.

Indicanuria was detected in 80.6 per cent. of all cases. The indican was regarded as an indication of intestinal fermentation.

The common complications of serous otitis media and of purulent otitis media were observed in 16 per cent. and in 4.7 per cent. respectively of all cases.

Bronchitis, pneumonia, endocarditis, rheumatism and chorea were also observed as complications.

The report emphasizes the great advantage of absolute rest in bed for all patients ill with scarlet fever and the decided influence of such rest in lessening the rapid pulse. The maintenance of kidney activity is assured and the chances of nephritis diminished when a liberal milk diet is insisted upon from

the beginning of the illness until all risk of kidney congestion is past.

The physicians who see scarlet fever cases in private practice will question the statement that the period of desquamation cannot be shortened by any method known at this time, for almost all practitioners who insist upon inunctions, bathing resorcin soap and salicylic acid ointment feel that they are in some degree lessening this tedious period.

Hospital statistics are too often thrown aside because they are not contributions to the study of disease, but we have in the brief report just quoted some details that are both suggestive and helpful.

A few Words concerning Serious Head-Injuries in Children.

—Dr. L. M. Kontovt (*Vratch*, July 21, O. S., 1901) reports a number of cases of head-injuries in children. The skulls of children react differently to traumatism than those of adults. The bones are less resistant and there is a greater tendency to affect the contents of the cranium. For the same reason long, fissured fractures are less common in childhood. This is corroborated by the cases reported here. In all there were more or less severe cerebral symptoms, while the local injuries were less severe than would be supposed. In two cases the defect in the skull was closed by skin alone with good results, and without hernia, probably because the defects were small. In three years they became closed with bone. In one case the Mueller-Koenig operation was performed (the bony flap being taken from the forehead) because of a hernia. This operation cannot be employed in children of tender age, for in them the skull bones are too thin and cannot be split. In such young children celluloid plates are recommended. The prognosis in all these cases should be very cautious. In the author's nine cases there were no cerebral or nervous symptoms of any kind two or three weeks after the disappearance of the symptoms that threatened life. Subsequent observation showed perfect recovery in all but two. In one of the latter there was a retardation of growth, in the other a defective memory.—*New York Medical Journal*.

Society Reports.

SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN— LONDON.

*Meeting of May 17, 1901, at the Victoria Hospital for Children,
Chelsea, S. W.*

MR. D'ARCY POWER, CHAIRMAN.

MR. W. T. SUSMAN showed for Dr. Walter Carr a case of
ANEMIA PSEUDO-LEUKEMICA INFANTUM.

The child was admitted into the hospital on January 8, 1901. The spleen was enormously enlarged, practically reaching down to the pubes and filling the left iliac fossa. The blood showed the typical changes described by von Jaksch in 1890. The child improved to an extraordinary degree under cod-liver oil, iron, and mercury. The spleen could now be felt two inches below the costal margin.

DR. WAYLAND C. CHAFFEY inquired whether the remarkable reduction in the splenic enlargement was due to medicine or diet.

DR. EDMUND CAUTLEY thought such cases unconnected with syphilis or rickets. The prognosis was extremely favorable.

DR. SUSMAN, in reply, said beyond a "hot cross bun" skull the patient showed no sign of either syphilis or rickets. In the treatment of these cases Dr. Carr placed considerable dependence upon iron.

MR. W. T. SUSMAN showed for Dr. Montague Murray a case of
SPASTIC PARAPLEGIA WITH CEREBRAL SYMPTOMS.

The child was in ordinary health, mentally and bodily, until four years of age. No history of congenital syphilis. He had then an attack of whooping-cough and shortly afterward a severe fright. His present condition showed loss of power in the legs and, to a less extent, in the arms, a spastic gait and increased reflexes. The loss of intelligence had come on in the last three months. The pupils were widely dilated, but he had no other eye symptoms. His symptoms could not apparently be classified under any recognized disease.

DR. EDMUND CAUTLEY regarded the case as one of cerebral sclerosis, probably set up by encephalitis due to some infective

fever. It resembled, he thought, the group of cases described by Little.

MR. ALFRED H. TUBBY suggested a cerebral diplegia as cause of the symptoms. It was important to distinguish such cases from Little's disease. Prognosis was bad.

DR. BLUMFELD inquired why the pupils were dilated.

MR. SUSMAN, in reply, said nothing abnormal could be detected in the fundus oculi, and no explanation could be offered of the dilated pupils, which reacted to light and to accommodation.

THE CHAIRMAN showed a case of

SPORADIC CRETINISM,

which had been under the care of Dr. Wallis Ord in 1893. The child had been treated by thyroid extract for eight years and had shown a sustained improvement. He was passing creditably through his school life and was already in the third standard with a fair prospect of attaining the fourth standard, though his parents were wisely averse to having him pushed. He was now eleven years old.

DR. ROBERT HUTCHISON remarked that under thyroid treatment there was generally greater improvement in the bodily than in the mental condition. But the present case proved how much might be done to improve the intelligence if treatment were commenced early in life.

THE CHAIRMAN, in reply, said $4\frac{1}{2}$ grains of thyroid extract had been given *per diem*.

THE CHAIRMAN showed a boy aged nine, who had been admitted and readmitted to the hospital at various times suffering from

PAROXYSMAL HEMATURIA AND ALBUMINURIA WITH ATTACKS OF RENAL COLIC.

So long as he remained in hospital he improved, but he soon became worse on his return to school. The physicians had handed him over for surgical treatment, and the Chairman had explored his right kidney by the lumbar route, hoping to find a stone. A thorough examination with the passage of a probe along the whole length of his ureter failed to reveal any obstruction and the wound united by first intention at the end of a week. He was on the point of being discharged from the hos-

pital when his gums became spongy and he showed other evidence of scurvy. This condition yielded to the ordinary remedies and he has had no recurrence of any renal symptoms.

DR. G. A. SUTHERLAND thought that the hematuria, but not the pain, might be explained by scurvy. Was there any hemoglobinuria in the case?

DR. GEORGE CARPENTER said that hematuria was not uncommon in children and that it usually got well under hospital dietary.

DR. BLUMFELD remarked upon the fact that the child developed scurvy while in hospital.

THE CHAIRMAN, in reply, stated that there was no hemoglobinuria. The child was only a week or so in hospital before he showed signs of scurvy, which was possibly determined by loss of blood. The patient also passed mucus and blood by the bowel.

THE CHAIRMAN showed a child with a large artificial anus in the right half of the scrotum. A year ago the child was brought to the hospital when it was twelve months old on account of an irreducible hernia which was said to increase in size from time to time. He made the usual incision and found that the hernia consisted of two parts: (1) a reducible portion of small intestine lying along the inner portion of the inguinal ring. (2) The vermiform appendix and part of the cecum contained in an incomplete sac and so firmly attached to the outer part of the inguinal canal, that they could not be separated. The small intestine was returned and the ring closed so far as was possible, and the child made a good and speedy recovery. A month later, in an evil hour, he was persuaded to make a further attempt to reduce the irreducible portion, but the child proved to be in no condition to stand a prolonged operation and the operation had to be abandoned. The wound became septic on the eighth day and a fecal fistula followed, which, by dint of the most devoted nursing, has settled down into the present artificial anus.

DR. GEORGE CARPENTER read an abstract of his

INVESTIGATIONS UPON THE URINE OF AN INFANT

from the age of twenty-seven days onward. The urine was collected systematically and found to average $19\frac{1}{2}$ oz. in the twenty-four hours, the largest quantity passed at any one time being 4 oz. The specific gravity was ordinarily 1001-1002,

never above 1005; a trace of albumin was invariably present. The quantity of urea was notably small, usually from $\frac{1}{4}$ to $\frac{1}{6}$ grain per fluid ounce; the total amount passed in the twenty-four hours varied from $2\frac{1}{8}$ to $4\frac{1}{2}$ grains, averaging $3\frac{1}{2}$ grains. Dr. Carpenter gave an abstract of earlier observations on the subject, his own figures being, on the whole, considerably lower than those previously recorded. Casts were not found.

DR. G. A. SUTHERLAND inquired whether the baby was in good health and breast- or bottle-fed.

DR. CAUTLEY requested particulars as to methods adopted in estimating urea and in searching for hyaline and granular casts.

DR. ROBERT HUTCHISON inquired whether the bodily weight was noted, since that would influence the proportion of urea. He had generally found that the proportion of urea passed by babies was underestimated. It was important to guard against any fallacy on the question of bottle-feeding.

DR. GEORGE CARPENTER, in reply, said weight was not systematically recorded. The baby was bottle-fed and took 20 oz. of fluid in the twenty-four hours; urea was estimated by Southall's bromid method. Casts were sought with the microscope after the urea had been carefully centrifuged.

SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN—
LONDON.

*The Provincial Meeting of June 29, 1901, at the Medical
Institution, Liverpool.*

DR. ROBERT JONES, CHAIRMAN.

Clinical cases were demonstrated by the Chairman, Dr. Logan, Mr. R. W. Monsarrat, Dr. Macalister, Dr. Lloyd Roberts, Mr. W. Helwall Thomas, Dr. James Barr, Dr. Stopford Taylor, Dr. Nathan Raw and Mr. P. Newbolt.

DR. HENRY ASHBY (Manchester) mentioned

A CASE OF SO-CALLED FETAL RICKETS.

The mother was forty-six years of age and the infant was her fourteenth, born at term and well nourished. When seen at two weeks there was cranio-tabes, deformed chest walls, and five fractures, including both humeri, left radius, right ulna

and left femur. Three weeks later the right femur fractured. The infant, eventually, made a complete recovery. Dr. Ashby doubted if such cases were examples of true rickets, but rather resembled the osteoporosis produced by feeding puppies on food deficient in salts of lime.

DR. RICHARD CATON (Liverpool) read a paper on

THE TREATMENT OF ENDOCARDITIS

based upon about 500 cases of that disease occurring in acute rheumatism and chorea. He advocated (*a*) absolute rest in bed for several weeks; (*b*) the application of a series of small blisters in the region of the first four dorsal nerves in front followed by poulticing; (*c*) the internal administration of sodium iodid. To be of service this treatment must be commenced within the first fortnight or so.

DR. WILLIAM CATON bore testimony to the great utility of the method.

DR. A. ERNEST SANSON thought blisters a little less than worthless in endocarditis.

DR. C. J. MACALISTER advocated blistering and rest, both in endocarditis and pericarditis. Instead of a blister an ointment of the red iodid of mercury (1 in 8) might be employed.

DR. JAMES BARR spoke of the good effect obtained from blisters in the treatment of acute rheumatism.

DR. H. R. HUTTON testified to the rapid disappearance of pericarditis under blistering.

DR. CATON, in reply, said that in acute rheumatism he used the salicylate along with small blisters to the joints.

DR. GEORGE CARPENTER and MR. SYDNEY STEPHENSON read a paper upon

TUBERCULOSIS OF THE CHOROID

based upon the examination of 49 cases of the kind. The lesions were found ophthalmoscopically in 21 out of 42 cases of acute tuberculosis and tuberculous meningitis, or in exactly 50 per cent. In 119 cases of chronic tuberculosis choroidal changes were discovered in no less than 92 per cent. In quiescent tubercle they were also found. The authors described the characters of the choroidal tubercles and pointed out the great diagnostic value of the growths. The communication was illustrated by microscopical preparations and by numerous paintings of diseased eyes.

DR. WARRINGTON asked whether tubercles in the choroid were observed except in the last stage of illness.

DR. GEORGE CARPENTER, in reply, said that in the acute cases mentioned in the paper, tubercles were found in the choroid from one day to six weeks before death. Tubercle in the choroid did not necessarily warrant a grave prognosis, since some of the cases became obsolescent.

DR. D. M. HUTTON (Southport) read a note on

A CASE OF SYPHILIS TRANSMITTED TO THE THIRD GENERATION.

The grandfather produced a certificate before his marriage certifying that having had syphilis he was cured. The mother suffered from specific psoriasis. The child died of congenital syphilis at the age of five weeks.

DR. HENRY ASHBY thought the infant might have succumbed not to syphilis, but to a pseudosyphilitic process of septic origin.

DR. EDMUND CAUTLEY inquired whether there was any post-mortem evidence of syphilis in the infant.

DR. GEO. A. SUTHERLAND could not accept the psoriasis present in the mother as pathognomonic of syphilis.

DR. HUTTON, in reply, said the whole question resolved itself into one of possibilities and probabilities. Transmission in this case could not be demonstrated, but was highly probable.

MR. R. W. MONSARRAT (Liverpool) read a

NOTE ON 2 CASES OF MENINGITIS TREATED SURGICALLY BY DRAINAGE.

The results were fairly satisfactory. The choice of a route for drainage was discussed.

DR. EDMUND CAUTLEY dwelt upon the initial difficulty of distinguishing between simple basic and tuberculous meningitis. In his own cases the results of surgical interference had been uniformly unfavorable.

DR. J. R. LOGAN mentioned a case of chronic hydrocephalus where the lateral ventricle had been drained, but the child died some months later.

DR. DAMER HARRISON had passed chromocised gut into the lateral ventricles for the purpose of draining fluid into the base, but he was not inclined to proceed with the operation.

MR. MONSARRAT, in reply, thought no operation satisfactory that did not combine ventricular drainage with drainage of the subarachnoid space.

DR. JOHN H. BRYANT read notes of

A CASE OF PNEUMOCOCCAL PERITONITIS

which he had observed in a girl aged four and a half years. The abdomen was opened, general acute peritonitis was found and pneumococci were demonstrated in the effusion. At the autopsy there was no pneumonia or pericarditis, but pleurisy and peritonitis were present. He was inclined to think that so-called idiopathic peritonitis was of pneumococcal origin.

DR. JAMES BARR discussed general infection with the pneumococcus as shown by pneumonia, pleurisy, peritonitis and meningitis.

The following communications were taken as read:

MR. R. CLEMENT LUCAS, "Removal of a Nail from the Second Portion of the Duodenum."

DR. JOHN McCAW (Belfast), "Notes of a Case of Infantile Scurvy."

DR. C. J. MACALISTER (Liverpool), "Observations on Cirrhosis of the Liver and Endocarditis in Children."

DR. JAMES CARMICHAEL, "Bimanual Examination in the Diagnosis of Abdominal Disease in Children."

Congenital Elephantiasis.—J. E. Dubé, in *Union Medicale du Canada* for June, reports the delivery of the seventh child of healthy parents after repeated efforts with forceps for thirty minutes, and the right leg of the female infant was found much enlarged. It continued to grow in size, until at two and a half months the circumference of the leg from hip to ankle was much larger than that of the trunk at any point. The child is otherwise normal and well developed. Scarifications and compression have slightly improved the condition. About 100 gm. of a limpid, orange-yellow, viscous fluid, which coagulates at once, exudes after each scarification.—*The Journal of the American Medical Association*. Vol. xxxv., No. 3.

Current Literature.

DERMATOLOGY.

Ravogli, A.: A Case of Erythroderma Squamosum. (*Journal of the American Medical Association.* Vol. xxxvii., No. 2.)

The patient was a boy three years old, of healthy stock and habit. The peculiar affection of the skin from which he suffered had apparently attacked each of the other seven children in the family at some time in their lives, although at a later age and in a milder form. The entire integument, save that of the palms and soles, was red and scaly. There were no other lesions and no subjective sensations. The scales varied much in amount and character in different localities. The nails were normal. The general condition was not in the least affected as a result or accompaniment of the eruption, the urine and blood examinations being negative.

The dermatosis has already relapsed twice. Cod-liver oil inunctions were sufficient to remove completely the various scales. Microscopical examination of the skin revealed a certain amount of cellular infiltration about the blood-vessels in the papillæ and subpapillary layer, the vessels themselves being markedly enlarged. These anatomical alterations constitute the essential feature of the disease, and bring about a hardening and exfoliation of the horny layer. Only two precisely similar cases are upon record, and both occurred in adults. There are, however, other affections characterized by redness with desquamation, such as pityriasis rubra and scarlatiniform erythema.

In addition to cod-liver oil applied locally, the author used a resorcin ointment, with Fowler's solution internally.

MEDICINE.

Acker, G. N.: Cyclic Vomiting. (*The American Journal of Obstetrics.* Vol. xliii., No. 5.)

A colored girl, ten years old, had been well until a kick in the umbilical region was followed by an attack of uncontrollable vomiting lasting three weeks, accompanied by great prostration. During the following year there were four other attacks at intervals of one to five months. The urine during

one attack was scanty, high colored and contained albumin and casts. The vomit consisted of mucus and gastric juice; it was acid and large in amount. Nausea, thirst and frontal headache were marked. There was no apparent cause for any of the later attacks, which lasted from five to seven days. The treatment consisted of an ice-bag to the epigastrium, ice in the mouth, nutritive enemata, and stimulation when needed. The temperature ranged from 98.8° F. to 101° F.

For the first thirty-six hours in these cases everything should be withheld from the stomach, and the bowels should be cleared with a good enema.

The first attack must be differentiated from acute gastritis, acute indigestion and meningitis. The prognosis is good, except in very young children, who may die from exhaustion.

Cautley, E. : Acute Colitis in Children. (*The Lancet.* No. 4056. 1901.)

A small epidemic attacked 6 of 30 children, with 4 deaths. Of 13 adults 3 were ill, but recovered. The source of infection could not be traced. The onset was sudden, with vomiting, diarrhea and pyrexia. Vomiting was most pronounced; the stools were small, green, offensive and contained mucus and blood, with little or no fecal matter. There was no marked tenesmus. Restlessness and prostration were very great, and death resulted from asthenia. Autopsies in 2 cases showed a marked inflammation of the entire colon, with hemorrhages and abrasions of the mucus membrane and thickening of the walls. The only bacteria isolated from the stools were the bacillus coli communis and the bacillus enteritidis sporogenes. The indications for treatment are maintenance of the strength and stoppage of the vomiting and diarrhea.

Dolamore, W. H. : The Deciduous Dentition as a Factor in the Health of the Child. (*The Lancet.* No. 4064.)

Atypical eruptions of deciduous teeth are very commonly seen in civilized people, and these aberrations appear to be capable of causing severe reflexes (for example, a precocious eruption of the four second molars seemed to precipitate epileptiform convulsions in a child about eighteen months old.)

The temporary teeth are subject to caries, which tends to expose the pulp in time and cause death of the teeth, although less rapidly than is the case of permanent teeth. The secondary

changes are manifold and far-reaching. Stomatitis, lymphatic engorgement (possibly leading to tuberculous infection), disorders of the gastrointestinal tract, caries of the permanent teeth, and a general abeyance of nutrition may all be traced to incipient disease and lack of care of the temporary teeth. With gross neglect, and among the children of the very poor, higher degrees of disease are encountered; thus the author has seen necrosis of the lower jaw with exfoliation of nearly the entire bone, due simply to caries of the deciduous teeth.

Up to the age of ten years the nutrition of the child is due largely to the condition of its temporary teeth, for the replacement of the molars does not occur until an advanced period. Considering the rapid rate of growth of the child before the age of ten years, the part played by the temporary teeth in nutrition must be very great and anomalies of these teeth might well exert a retarding influence upon the development of the child, although this conception has never been submitted to the statistical test.

Bowles: Notes of Cases Demonstrated in the Consultation Theatres. (*The Polyclinic.* Vol. v., No. 1.)

An example of apparently cured intestinal tuberculosis was shown in a child six years of age. The patient's features are small and well-defined, the skin clear and transparent, the extremities small and neat—in other words, the marks of rickets were conspicuous by their absence.

The clinical history was one of cough, night-sweats, diarrhea and progressive emaciation. The left side of the thorax showed deficient expansion, and there were other physical signs suggestive of phthisis. After general improvement under treatment, the intestinal trouble still persisted, with offensive-smelling, loose, mucoid and occasionally blood-stained passages.

The treatment used in this case consisted only of bismuth and B. naphthol by the mouth with large enemata of solutions of nitrate of silver. Diagnosis of the exact pathological condition in this case would ordinarily have been incomplete; but since the history of two other patients, with autopsy and pathological evidence of tuberculous colitis, was exactly parallel with that of the present case, the author is convinced that he had to deal with a case of enteric tuberculosis terminating in recovery.

Abt, I. A.: The Heart Lesions of Infancy and Childhood.
(*Medicine.* Vol. vii., No. 7.)

In 22 dispensary cases mitral regurgitation alone was present in 15 of the 22 cases, mitral regurgitation plus stenosis in 4 others, mitral stenosis alone and mitral and aortic regurgitation combined in 1 case each. From the etiological standpoint, acute rheumatism occurred infrequently—but twice in 22 cases; but rheumatic pains were present in 10 patients, and rheumatoid affections were well represented (tonsillitis six times and chorea twice); finally no less than 9 cases were preceded by scarlatina. Abt does not attach too much significance to this small series of cases. He emphasizes the fact that rheumatism in childhood is often overlooked or confounded with some other affection; and states further that scarlatina was unusually prevalent during the season covered by the observation period.

In 50 cases observed in the hospital material, mitral insufficiency was noted in 11 of 50 cases, mitral insufficiency and stenosis, 18 times; myocarditis twice; acute endopericarditis, 11 times; congenital heart disease was present in 3 cases; finally, the following were recorded once each—mitral insufficiency plus exophthalmic goitre, aortic insufficiency with aortic stenosis; aortic insufficiency and mitral insufficiency, dextrocardia and mitral insufficiency, stenosis and tricuspid insufficiency. The chief comment on this series of cases is confined to surprise at the great frequency of pericarditis (11 in 50). The author confines his attention during the latter part of his article to the clinical aspects of endo- and pericarditis in childhood. He would regard these cases in practice as essentially rheumatic, and would prescribe salicylates liberally at the outset; as associate measures he countenances rest in bed, while hot applications, such as mustard poultices, are indicated if much pain is present. Aconite in small doses is of use unless some evidence of cardiac insufficiency is present, its chief indication consisting in undue excitation of the heart. Opiates may render service in the same indication. A pericardial effusion should be aspirated at once, the needle being placed in the fifth interspace, a little to the left of the sternum.

After the subsidence of the acute symptoms the indications are for rest, general regimen and cardiac stimulants, as soon as compensation fails.

Hare, H. A.: Scurvy and Rickets in Young Children. (*Medical News.* No. 1466.)

Scorbutus in infancy is distinctly a disease of the children of the well-to-do, in distinction from rickets which seems to be a disease of the poor. The former affection is rarely seen in dispensary practice. The author states that in rickets the fault is with the child itself, not with its food; while in scurvy, on the other hand, the fault lies probably rather with the diet than with the patient, for many of the children of the prosperous classes live for months at a time upon some one brand of artificial food.

Laryngospasm is not rarely associated with both scurvy and rickets. Before treating this affection with iron, bromid, etc., it would be well to make sure that it is not due to one of these constitutional conditions.

Gordon, W.: A Note on the Knee-jerk in Chorea. (*British Medical Journal.* No. 2100.)

He describes a modification of the knee-jerk found at times in chorea. With the patient recumbent, if one raises the knee, allowing the heel to rest on the couch and then tests the knee-jerk in the usual way, the foot rises more or less smartly but, instead of falling back remains suspended for a variable time and then slowly sinks back to the initial position. In the author's experience when this condition is found present it is peculiar to the disease.

Eshner, Augustus A.: The Knee-jerks in Chorea. (*The Philadelphia Medical Journal.* No. 180.)

In a small class of obscure cases of chorea the difficulty lies in deciding between chorea and spasmodic tic or athetosis.

As a phenomenon which is common, although not of universal occurrence in chorea, a peculiar modification of the knee jerk has been cited; and the peculiar quality in this reflex as seen in the choreic subject has been ascribed to choreic movements induced by testing the knee-jerk.

As a result of considerable experience, the author is enabled to corroborate the statements of Gordon who first described this induced symptom of chorea. The peculiarity in the behavior of the reflex is as follows: The patient lies on his back with the knee raised and the heel resting on the couch, the muscles of the extremities being thereby in relaxation. If

the patellar tendon is now struck, the foot rises, but in place of dropping back immediately, it remains suspended for a brief interval, then gradually sinking to the level of the bed. Several variations have been noted; thus, in some cases the interval of suspension is absent, quick ascent of the foot being followed by sluggish descent. Sometimes the inhibitory act is not manifest until the foot has begun its descent. Finally rigid extension has been noted without any descent. In one case the author saw something like general choreic movements follow the ordinary act of striking the tendon.

Glasson, Charles J.: A Case of Pemphigus Neonatorum in an Infant Three Days Old. (*Lancet.* No. 4045.)

Despite the development of large blebs on the third day of life the baby appeared to be in perfect health, but as the number of lesions increased high temperature set in. Locally the patient was treated with antiseptics, while arsenic was administered internally. Recovery followed after seven weeks, and vaccination failed to produce any recrudescence of the original affection. There was hardly a possibility of a syphilitic origin of this disease, and the etiology is quite obscure. As cases of this type usually have a grave prognosis, the author is inclined to believe that his antiseptic principle of evacuating each bulla and applying boric acid to the exposed surface may have been the means of saving the baby's life.

Ragno, F.: Anomalous Manifestations of Infantile Tuberculosis. (*Archivos de Ginecopatia, Obstetricia, y Pediatria.* Año. xiv., Num. 13.)

The author gives a clinical history of tuberculosis in a child aged fourteen months. At the onset the disease simulated whooping-cough. With this latter affection the author had had much experience, and the atypical character of the case, if regarded as one of pertussis, did not necessarily excite suspicion, for he had often noted similar departures from the classical picture of whooping-cough. But in the present instance there was a peculiar disproportion between the pulse-rate and temperature, and likewise between the bronchial lesions and respiratory frequency. Night sweats were also present, and the general condition was poor.

The author mentions the fact that in his hospital experience an ante-mortem diagnosis of whooping-cough had fre-

quently been upset by the post-mortem discovery of the lesions of pulmonary tuberculosis. The question naturally came up at the time, "Were these cases examples of simulation of pertussis by tuberculosis, or did they represent hybrid infection?"

From a study of a dozen or more cases at the time he formulated two laws for distinguishing peribronchial tuberculosis from whooping-cough. These laws were as follows: (1) Dissociation of the pulse-rate and temperature. (2) Disproportion between the dyspnea and bronchio pulmonary lesions.

Thomas, John : Note on the Peculiar Nystagmus of Spasm Nutans in Infants. (*British Medical Journal.* No. 2100.)

The author calls attention to the fact that in cases of spasm nutans the nystagmus when bilateral and horizontal is usually convergent. In rotary nystagmus of head-shaking the eye movements are more of the nature of circumduction than pure rotation of the globe about the anteroposterior axis. Nystagmus in this disorder is often unilateral, vertical or rotary, instead of horizontal and bilateral as in the ordinary type. It is at times different in the two eyes. Recovery is invariable in a certain number of months.

Buckley, Charles W. : A Rare Form of Purpura Complicating Diphtheria. (*The Lancet.* No. 4064.)

The patient, a girl aged ten years, appeared to have recovered from her diphtheria, but on the seventh day she was seized with vomiting, the vomitus as well as the stools containing some blood, and on the following day a purpuric rash was in evidence with a tendency to terminate in the production of vesicles and bullæ. Some of the joints became swollen and tender, and albuminuria developed. Evidences of a purpuric dyscrasia persisted for many days, cardiac dulness appearing at intervals, but the patient made a good recovery, after a hospital sojourn of twelve weeks.

The author thinks that the syndrome of this patient's affection agrees tolerably well with that of Henoch's purpura, rheumatism being therefore excluded. The question as to the part played by diphtheria in this case must be left open. We have to consider the possibility of the antitoxic origin of the phenomena, for a large dose of this remedy had been injected after the bacteriological diagnosis of diphtheria had been made.

Antitoxin can cause a rash with joint pains, but the author believes that the various painful phenomena in this case were due to effusion of blood.

If this case were really one of Henoch's purpura, the latter is certainly a very rare complaint. The chances of survival on the part of the patient are fair (about one death in 4 cases). The chief cause of death appeared to be acute nephritis.

Comby and Gadaud: Peritonitis Consecutive to Vulvo-Vaginitis in Little Girls. (*Gazette des Maladies Infantiles.* June 13, 1901.)

The authors report the cases of three little girls attacked with peritonitis, probably of gonorrheal origin, in whom a diagnosis of appendicitis was first made.

The first child, twelve years old, was attacked suddenly, during convalescence from typhoid fever, with abdominal pain and vomiting, laparotomy was determined upon but delayed because the consent of the parents had not been obtained. The postponement was fortunate, for next day improvement was noted and recovery followed rapidly. The absence of precise localization of the abdominal symptoms and the existence of a purulent vaginal discharge justify the belief that the peritonitis was traceable to this cause.

The two other observations are similar and show that a diagnosis of appendicitis should not be made in the case of little girls until an examination of the genitals has been made.

Bourneville and Laurens: Myxedematous Idiocy; Thyroid Treatment. (*Le Progrès Médical.* Third Series. Vol. xiii., No. 23. 1901.)

The author gives a list of publications upon the subject, embracing the period from 1880 to the present time.

The following interesting family history of a patient is given: Father, a painter, stammers, suffers from headaches, violent temper; paternal grandfather, violent and stammers; paternal grandmother, very nervous, alcoholic; paternal great-grandfather, alcoholic; paternal great-uncle, a painter, suffered from lead colic and attacks of paralysis, also alcoholic, tried to commit suicide. Several cousins were alcoholic or mentally deficient, and a paternal aunt died of convulsions. The mother is very impressionable and timid. Several other cousins died of meningitis and a brother had attacks of epilepsy.

A description of the child sums up all the symptoms of infantile myxedema.

The treatment consisted of thyroid extract, which caused considerable amelioration of the symptoms; there was a diminution of fatty infiltration and consequently reduced weight. The child grew taller, and teething took place, the anterior fontanelle became smaller, the child learned to walk and developed mentally.

Morse, John Lovett: The Diagnosis of Typhoid Fever in the Laboratory. (*Journal of the American Medical Association.* Vol. xxxvii., No. 7.)

The Widal reaction occurs under the same conditions and with the same limitations in children as in adults. There is some evidence to show that in children the reaction appears earlier, is feebler and persists for a shorter time than in adults. Owing to the comparative mildness and to the large number of atypical cases of typhoid in children, the Widal test is exceptionally important as an aid to diagnosis.

The reaction in infancy is of less diagnostic value than in adult life, as the reaction may be transmitted from the mother through the placenta or the milk. The agglutinating power may be transmitted to the infant through the placenta, not only during the course of, or convalescence from typhoid, but even when pregnancy takes place years after recovery. It is probable that it may also be transmitted through the milk after many years. When transmitted through the milk, however, it does not persist more than a week after the cessation of nursing. If the mother has had typhoid, and especially if she is nursing the infant, the presence of the Widal reaction in the latter should be viewed with suspicion, and the mother's blood and milk should be tested.

Rankin, Guthrie: . . . Disease of Heart in Children
. . . (*The Polyclinic.* Vol. iv., No. 6.)

In the course of a miscellaneous clinical lecture two children with tricuspid regurgitation were shown. Their cases were widely different. One child was pale, thin and short-breathed, while the other is of livid hue and well-nourished. The pale child has a flat thorax, poorly expansile, with indrawing of the intercostal spaces of the cardiac area during systole. The other patient has bulging of the sternum. The first case

is an example of recovery following rheumatic peri- and endocarditis, with implication of the mitral valve, while the second child has nothing but a congenital affection which has thus far given her no trouble. There are double systolic murmurs in each case, one due to the same cause in both, viz.: regurgitation through the tricuspid orifice, while the other murmur differs in each case—in the first to regurgitation through a mitral orifice and in the second to stenosis of the pulmonary artery. The blue and bulbous finger-tips of the latter patient are due to this condition.

Both cases have improved notably under treatment, consisting of rest with suitable feeding and medication. The first child, despite the crippled state of her heart, and the adherent pericardium may acquire sufficient compensatory hypertrophy to make her a useful member of society. The prognosis in her case is in fact much better as to the ultimate outcome than in the congenital case, for experience shows that this kind of a patient is short-lived, irrespective of any particular cause of death.

Fisher, Theodore: Four Cases of Primary Thrombosis of Cerebral Veins and Sinuses in Children. (*British Medical Journal.* No. 2114.)

The first case described was in a four-year-old girl who suffered originally from cirrhosis of the liver. The cerebral symptoms were ushered in by convulsions followed by hemiplegia. Death took place about three weeks later from intercurrent membranous laryngitis. Autopsy revealed thrombosis of the superior longitudinal sinus and all the tributary veins of the right side. As the ascites which accompanied the hepatic cirrhosis was undergoing absorption at the time thrombosis was taking place, he thinks that the latter process could have been caused by the entrance into the circulation of some unknown germ. The coincidence of thrombosis with fluid in the peritoneum has been thrice seen by the author.

The second patient was a child aged two years with noma of the left cheek. Symptoms of meningitis developed and death resulted in twenty-four hours. Autopsy disclosed the presence of thrombosis of the meningeal veins of both hemispheres, due in all likelihood to the specific germ which accompanies noma and which was cultivated from one of the affected veins.

The third patient was a young infant, suffering with diarrhea. Implication of the nerve centers was heralded by the advent of opisthotonos with motor disturbances of the eyes. Death resulted in a week. At the autopsy there was found a thrombotic condition of the venæ Galeni and choroid plexus. Both tympanic cavities contained mucopus.

In case fourth the original affection from which the baby suffered was bronchopneumonia. A week later cerebral implication was shown by the presence of somnolence and retraction of the head. Death, which occurred two weeks later, was evidently due to thrombosis of the middle cerebral vein, left lateral sinus and other veins and sinuses.

Nicholson, H. Oliphant: The Sphygmographic Appearances of the Pulse in Infancy—A Preliminary Note. (*The Scottish Medical and Surgical Journal.* Vol. viii., No. 5.)

The chief points are as follows: (1) The sphygmogram of the new-born child is not the simple type of curve described in standard authorities; (2) It shows a distinct percussion wave which forms a pointed summit to the curve, with presence of the secondary wave in the majority of cases; (3) It reveals all the characters of a relatively high tension pulse; (4) In very young infants the pulse tracing is comparable with that of aortic aneurism and aortic stenosis in the adult (in which conditions a high tension pulse coexists); (5) Dicrotism is present in the infantile as in any high tension pulse; (6) The summit of the pulse-curve becomes more and more pointed, and the secondary waves are accentuated during the first year of life, but the pulse still remains of moderately high tension, and (7) febrile movement in children under a year old very rarely produces dicrotism or hyperdicrotism of the pulse.

Griffith, J. P. Crozer: Symptoms of Typhoid Fever in Infancy and Childhood. (*Journal of the American Medical Association.* Vol. xxxvii., No. 7.)

Most cases of this disease when affecting the very young are of the ambulatory type. The child is hardly indisposed, although anorexia and headache are sometimes noted. In a minority of patients vomiting may usher in the disease and fever may be high at the outset.

The mortality of typhoid in childhood is not far from 3 per cent., and roughly speaking, the younger the child the better

the prognosis. Thus the mortality is less in the first than in the second quinquennium.

As in the adults the roseola is commonly but not universally present. In some cases the rash is very abundant, covering the whole integument.

Enlargement of the spleen is doubtless constantly present, although not always discoverable.

Epistaxis is often present although exact statistics are wanting.

The course of the disease is distinctly shorter in the young, and the average duration is about seventeen days.

Diarrhea is much less frequently present in the child, while on the other hand, vomiting—rare in the adult—is of common occurrence, not only as an initial phenomenon, but throughout the disease and it has even been seen as a terminal symptom in cases ending fatally. Tympanites and hemorrhage are of rare occurrence in the child, and the same may be said of perforation. The nervous phenomena are not marked in childhood.

Finally as a point of great practical significance, it should be stated that the onset of typhoid in the child may simulate meningitis, to a more characteristic extent than in the adult.

Bonnaire, E., and Decloux: Congenital Lymphadenoma in the Newly Born. (*La Presse Médicale.* July 13, 1901.)

Lymphadenomatous degeneration or lymphadenomatous tumors in new-born infants are of very rare occurrence. The only cases published are, they think, those of Siéfart, Jaksch and Sängner, reported by Parmentier in *Traité de Médecine de Brouardet et Gilbert.*

The case described is that of a male child, five months old; birth was normal, the infant weighing 1700 grammes; as it was feeble it was placed in the hospital. The infant suggested congenital syphilis; the abdomen was enormous and in marked contrast to the emaciated head and trunk; the skin was pale and livid, the features having an abnormally marked appearance; the inferior extremities were edematous and the skin covering them was discolored. On physical examination ascites was found, the liver was large and of regular form, its anterior border reaching the brim of the pelvis. In the left hypochondrium a large tumor was found resembling in every way a much hypertrophied syphilitic spleen. The diagnosis of con-

genital syphilis was made. The edema of the lower extremities was caused by pressure upon the inferior vena cava. The history of the case and examination of the mother failed to show any indication of syphilis.

One month later an eruption (pemphigus) appeared upon the dorsal and plantar surfaces of the feet and also upon the legs; this strengthened belief in the accuracy of the diagnosis. The infant failed progressively and died, examination subsequently showing that an error in diagnosis had been made.

The abdominal cavity contained clear liquid; small scattered grayish white nodules were found in the parietal and visceral pleura (one was found upon the right auricle), in the stomach, mesentery, intestines and liver; the spleen was normal but both suprarenal capsules were enlarged, the left being four times as large as normal, its substance was pulpy and hemorrhagic; the pancreas was considerably enlarged and congested.

Microscopic examination showed lymphadenomatous tumors. The left suprarenal capsule, which had been mistaken for the spleen, was almost completely replaced by lymphoid tissue, this being surrounded by the cortical zone of the adrenal.

Fischl, Rudolf: Results of a Recent Study of the Pathogenesis of Rachitis. (*Archiv. f. Kinderheilk.* Vols. v. and vi. 1901.)

The author writes an interesting article upon rachitis, enumerating the various theories of the etiology of this disease. In conclusion he writes: "I regret to state that careful inquiry into the pathogenesis of rachitis has failed to throw light upon the subject. On the contrary, theories that hitherto seemed well founded upon clinical observation and statistics have been found to be fallacious."

Fischl believes that Stölzner, who has made rachitis the subject of careful research, is right in saying: "The future theory of rachitis must be one grounded upon cellular pathology and biology."

Stone, J. S.: Rachitic Deformities of the Spine. (*Boston Medical and Surgical Journal.* Vol. clxv., No. 5.)

Kyphosis with round shoulders is the commonest form of rachitic deformity which affects the vertebral column, but other lesions are occasionally seen, including lateral deviation and

rotation; while in older and very heavy children, lumbar lordosis may develop. While the weight of the head is not without influence in the production of deformities of the spine, muscular weakness is a much more important factor. These various aspects of the rachitic spine are in a certain sense due to compensation for muscular insufficiency.

Diagnosis is usually easy because these vertebral deformities are seldom present in any but high degrees of rickets. Rachitic kyphosis, however, may be readily confounded with lumbar Potts' disease. To differentiate, the patient should be placed in recumbency upon a padded gas-pipe frame. The deformity will persist if Pott's disease is present, but if of rachitic origin, will presently disappear.

The prognosis of rachitic spine in the young child is very good under appropriate treatment, which consists as a rule of recumbency with massage and tonics and antirachitic diet. Outdoor air and sunshine must be obtained. During convalescence a light spring brace may be worn.

SURGERY.

Oddo, C.: Abscess of the Liver in a Child Caused by Contusion. (*Revue mensuelle des maladies de l'enfance.* January, 1901.)

Abscess of the liver is rare in childhood. In more than 16,000 children brought to the Dispensary for Sick Children in Marseilles since 1892, there has only been 1 case of suppurative hepatitis.

The child was thirteen and a half years old; as a result of abdominal traumatism a subdiaphragmatic abscess formed which discharged through the bronchi. Hepatic cells were formed in the pus evacuated upon incision of this subdiaphragmatic pyopneumothorax.

The author believes that there was in this case an abscess of the liver (followed by perihepatitis), which opened through the diaphragm into the bronchi, pointing under the skin in another place.

Morquio, Louis: Abscess of the Liver in a Child. (*Revue Mensuelle des Maladies de l'Enfance.* Vol. xix. June, 1901.)

The author mentions the rarity of abscess of the liver in children and notes that classical authors hardly mention the

existence of this disease in children. Bernard, 1886, and Leblond, 1892, were the first to collect several cases.

He alludes to Oddo's work upon this subject and mentions a case published by Oddo in 1901.

The causes of the condition in children are intestinal parasites, appendicitis, etc., but the most frequent cause is contusion of the abdomen; this fact has not been satisfactorily explained thus far.

There exists a form of hepatic abscess of tuberculous origin which is relatively frequent in childhood. Study of this subject is due to Professor Lannelonge.

The author refers to a case of abscess of the liver published by him in the *Revue Médicale de l'Uruguay*. The abscess was mistaken for an hydatid cyst because of absence of pain and because of the slow development of the disease and absence of fever, but operation demonstrated the presence of an intra-hepatic cold abscess, and bacteriological examination showed the bacillus of Koch.

The present case is that of a child eleven years old; etiology trauma, duration of disease twenty days. Operation with escape of 100 gr. of thick green pus revealed a cavity in the liver about the size of a nut. The liver, which was much congested and ecchymotic, was stitched to the abdominal wall and drained. Thirty-five days after operation patient discharged, completely cured.

It is noteworthy that the pulse presented a transient bradycardia which has not been described in any of the cases reported. The slowness of the arhythmia can only be explained by an infectious and toxic process exerting its action upon the cardio-bulbar centers.

Boyd, Geoffrey: A Case of Laryngeal Stenosis from Papillomata. (*The Canada Lancel*. Vol. xxxiv., No. 11.)

A child aged six years, who was suffering from papillomata of the vocal cords had his larynx curetted under chloroform. The operation was partly successful, one cord, at least, being clean. The original symptoms of cough, and inspiratory stridor returned, together with vomiting—the picture gradually assuming that of whooping-cough.

As the obstruction became sufficient to cause recession of the thoracic wall, and the laryngoscope revealed membrane,

the patient was treated for diphtheria. The Klebs-Löffler bacillus was duly found and the child went through an evident attack of diphtheria, recovering under the use of antitoxin. Convalescence, however, was still marked by cough, dyspnea, and pain in the throat. There was an acute laryngitis. Clinically the march of the case was characterized by progressive dyspnea, so severe that intubation became necessary. Tubes of increasing size were successfully introduced. This plan of treatment filled the indication, save for the fact that occasional attacks of spasmodic dyspnea supervened, requiring the added use of steam inhalations. Unfortunately, however, the patient died suddenly in the midst of one of these dyspneic paroxysms.

Autopsy revealed a marked papillomatous condition of the supraglottic region. The author thinks it conceivable that this condition was essentially congenital, and that it was aggravated by various factors, such as ordinary laryngitis, and the intercurrent attack of diphtheria. He appears to regret that simple tracheotomy, or laryngotomy with intralaryngeal extirpation of the papillomata was not used. Plain tracheotomy alone has been known to cure such cases, apparently through inducing functional rest; therefore the author clearly regards it as an error of judgment that this simple resource was not used in preference to intubation, for the latter treatment was not efficacious in forestalling the "nocturnal laryngeal spasm," which killed the patient.

Solaro, Alberto: Perityphlitis in Childhood. (*La Pediatria.* Anno ix., No. 6.)

Perityphlitis is not uncommon in childhood, 15 per cent. of all cases occur beneath the age of puberty. Operative perityphlitis is still more frequent, one child in every four submitting to operation. There appears to be some difference between the perityphlitis of childhood and the appendicitis of adult life, in that the cecum is more likely to be the seat of the malady in early life, while the appendix is the more readily involved with advancing years and development. Perforative peritonitis in childhood is more likely to proceed from a cecal lesion than in a corresponding situation in the adult. The fact remains that in the majority of cases of infantile perityphlitis the lesion really proceeds from a diseased appendix.

The appendix is not a more insignificant structure in the

child than in the adult, as elaborate measurements show that the process is relatively twice as long in the child (in proportion to the length of intestine), as it is in the adult.

The appendix has a relatively large caliber in childhood, so that calculi from stagnation do not occur up to the age of five years. The period of maximum growth occurs near the age of puberty, but calculi are equally common at any period between the ages of five and twenty years. By reason of these peculiarities, appendicular colic and perityphlitis from retention of calculi are rare in tender years. The appendix readily participates in affections of the cecum, from simple extension. The richness in the follicular structure of the appendix exposes it to infection by continuity. Generally speaking it may be said that with the exception of diminished frequency in the occurrence of the obstructive and calculous forms of appendicitis, this disease is much the same in the child as in the adult. Relapse is especially frequent in childhood. Paratyphlitis appears to be very common in tender years, the exudation filling the pelvic connective tissue with production of pelvic abscess. A traumatic origin seems to be very unusual.

Characteristic of the appendicitis of childhood is the atypical character and the absence of one or more classical symptoms. The management does not differ from that of adult life, and operation in the interval gives 100 per cent. of favorable results.

Hartwell, John A. : Empyema. (*Medical News.* No. 1487.)

The author comes to the following conclusions based upon an analysis of 52 personal cases:

1. Children are especially liable to empyema following pneumonia. Unless promptly relieved by drainage of pleura the prognosis is bad. With such relief the prognosis is good.
2. Pneumonia caused empyema in 50 per cent. of the cases here considered, and such cases were of severe type.
3. Tuberculous family history exerts little influence on empyema.
4. In about one-sixth of the cases the empyema was sacculated.
5. The pneumococcus was found in 50 per cent. of the cases where examination was made; the streptococcus in $33\frac{1}{3}$ per cent.; the staphylococcus in 8 per cent.; the tubercle bacillus in 4 per cent., and no bacterium in 16 per cent. The pneumococcus produced the most virulent infection.
6. Chloroform was the anesthetic of preference. Deep narcosis is contraindicated,

owing to the danger of pus being drawn into the other lung from a ruptured bronchus. 7. In adults with general empyema two inches of the seventh and eighth or eighth and ninth ribs in the posterior axillary line should be resected. In children the same length of the seventh rib. Simple incision, with our present knowledge, is rarely advisable. 8. Operation is indicated as soon as diagnosis is made. 9. Irrigation of the abscess cavity with bichlorid solution, 1-5000, or carbolic acid, 1-100, is indicated, unless drainage is perfect and no sepsis is present. In children the solutions may be weaker. 10. The mortality from the empyema proper was 12 per cent. We may hope to reduce it to one-half that number by earlier and more radical treatment.

Peters, George A. : Transplantation of Ureters into Rectum by an Extra Peritoneal Method for Extrophy of the Bladder and a New Operation for Procidentia Recti. (*British Medical Journal.* No. 2112.)

For the procidentia the anterior wall of the distended portion of the rectum wall was folded in vertically and held in place by silk sutures. The rectum was then sewed to the abdominal wall as far up and as near the crest of the ileum as possible. The abdominal wound was then closed, there has been no relapse for four years. The patient was two years and ten months old at the time of operation.

For the extrophy the distal end of the ureters was dissected off with a piece of bladder mucus membrane. The remaining portion of the bladder mucus membrane was removed. A catheter was stitched into the end of each ureter. The rectum was approached in front below the peritoneal fold. A pair of forceps introduced into the rectum grasped the catheter through an incision in the lateral wall. The free end of the ureter was pushed into the rectum through this opening, protruding on the rectal mucus membrane surface. This was repeated on the other side. The catheters were removed after sixty hours. There was no necessity of stitching the ureters in place. After one and one-half years the child can retain urine from two to eight or ten hours, and is in good health.

Mayer, Emil: Empyema of the Antrum of Highmore in Young Infants. (*Medical Record.* No. 1605.)

The patient attacked by this rare affection was a girl between two and three years of age. The symptoms on admission included eversion of the right lower eyelid, a fistulous

suppurating opening in the right cheek and a very penetrating odor from the right side of the nose. Six weeks before consultation the child had gone through an attack of scarlatina complicated with pneumonia with clinical diphtheria (no Klebs-Löffler bacilli found) as a sequela. The nasal symptoms during the course of the scarlatina were of a severe type. The pus discharged from the abscess of the cheek which preceded the fistula contained ordinary pyogenic cocci only.

The fistula was laid open, the antrum curetted and some necrotic bone removed. A probe was then forced through the nasal wall of the antrum, the opening was enlarged and a rubber drainage tube inserted, passed completely through the antrum, so as to drain both ways. The tube was removed on the eighteenth day and the wound allowed to heal. Two years have expired since the operation and some eversion of the lid still persists.

HYGIENE AND THERAPEUTICS.

Southworth, T. S. : The Medicinal Treatment of Summer Diarrhea. (*Medical News.* Vol. lxxix., No. 2.)

Three varieties of the gastroenteric affections common among children are considered: (*a*) Diarrhea caused by inability to digest unsuitable articles of food; (*b*) Diarrhea resulting from bacterial action in tainted milk; (*c*) Cholera infantum, probably due to milk infection.

In the first class there should be a prompt evacuation of the offending material and the use of milk should be discontinued for a time.

In the second class due to milk infection success will depend upon the promptness with which milk is withdrawn and excluded from the patient's diet and also the promptitude with which any vestiges of milk residue are withdrawn from the intestine.

For the general management of all cases of summer diarrhea in children under two years of age, milk, including breast milk, should be stopped in all cases that begin with vomiting or temperature. In its place may be used dextrinized barley water, rice water, egg albumen water, mutton broth, beef juice and a sufficiency of plain boiled water. In cases of vomiting the stomach should be allowed to rest for twelve hours.

For the medicinal treatment castor oil is of especial value

in clearing the intestine of undigested food. It is especially valuable when there is much mucus in the stools. When there are nausea and vomiting calomel in divided doses, $\frac{1}{16}$ to $\frac{1}{8}$ grain, every half hour or hour, will do well as a stomachic sedative and as an efficient laxative. It stimulates the hepatic secretions and so acts as an intestinal antiseptic.

When the case has continued some time and there is toxemia irrigation of the bowel should be done without delay. Four quarts of a normal salt solution, at a temperature that will depend upon the degree of pyrexia, should be introduced into the bowel. This procedure may be used once or twice a day. When there is blood in the stools tannic acid in the proportion of a teaspoonful to a quart of the salt solution will be useful. Vomiting which does not cease spontaneously calls for a washing out of the stomach with plain boiled water.

If the toxemia is controlled by the foregoing methods, bismuth subnitrate is the best drug for intestinal use. In 10 grain doses every hour or two it is very effective. Intestinal antiseptics may be promoted by the addition of 1 grain of salicylate of bismuth to every dose of the subnitrate.

Opium may be given for rapid peristalsis, but it should be given alone. Marked pyrexia is a contraindication to its use.

When there are frequent, profuse and watery stools and a state of threatened collapse the hypodermatic use of morphin in doses of $\frac{1}{16}$ of a grain for a child of one year is indicated. With the morphin there may be given atropin in $\frac{1}{32}$ grain doses. If the loss by the watery movements is very great high saline enemata must be resorted to or hypodermoclysis should be performed.

Pepsin and hydrochloric acid are satisfactory in restoring the tone of the alimentary tract.

Stimulants are often required during the acute stages. Brandy and liquid peptonoids are both valuable.

Return to the milk diet should be made very gradually and the condition of the digestion should be watched.

Taylor, William M.: *After-Treatment of Summer Diarrhea of Infants and Children.* (*Medical News.* No. 1487.)

The question of when to resume ordinary diet after summer diarrhea is one requiring considerable judgment. If tympanites and tenderness have disappeared, if the stools are

natural in number and character, and if the child craves ordinary diet permission may generally be given to resume the latter. The examination of the stools must not be made perfunctorily.

The diet should be light in quantity for the first week; but too often the physician is disappointed by the return of the diarrhea, despite all his pains. In very young children the diet preferred by the author consists of percentage-milk, or dextrinized barley-water, with koumyss if the preceding foods are not well borne. Fresh beef-juice may always be employed, either alone or in barley-water. Somewhat older children require, in place of the foregoing, meat-broths free from fat, finely chopped or scraped roast-beef, lean and rare, and zwibach or dry toast (liquid diastase being given at the same time). Pepsin is indicated in these cases. As fat cannot be included in the diet under the circumstances, the patient should receive inunctions of warm cod-liver oil. The tendency to constipation which exists in these patients must be managed by the free use of water, abdominal massage and enemata.

Tonics are required—iodid of iron for the very young and nux vomica for the older children. During dentition the tendency to diarrhea is met by giving sodium bromid.

Rosenthal, Edwin: The Treatment of Temperature by Drugs. (*Journal of the American Medical Association.* Vol. xxxvii., No. 7.)

The mortality of typhoid fever in children appears to be about 5 per cent. No data are accessible concerning the relationship between the plan of treatment and the results. In the young child the fever lasts from one to two weeks and the duration increases with age. The author and some of his friends have specially tested a great variety of remedies in the typhoid fever of children. While many of these substances favorably influence the temperature, no true remedy for the disease has been brought to light. The Woodbridge idea of treatment did not prove to be a success.

Of antipyretics, thermol makes a good showing and has many partisans. Quinin is inert from every point of view, and should never be employed in childhood.

We now know that the typhoid bacillus flourishes but at normal temperature. It would therefore appear that antipyret-

ics are hardly indicated in this affection. Doubtless they are contraindicated during the early stages of the febrile movement, but we must certainly endeavor to dispel a long-continued high temperature, or *very* high temperature independent of its duration.

For rational treatment the Brand method should be employed until an antitoxin is discovered.

Lathey, Walter: The Treatment of Whooping-Cough by Irrigation of the Nares. (*British Medical Journal.* No. 2116.)

The author states that the child should be rolled up in a shawl, so as to confine the arms, and laid face downwards on the nurse's lap. The end of a tube fitting the nostril (soft rubber is as good as anything) and attached to a suitable syringe, should then be introduced, and the child having been told to open its mouth, tepid water should be slowly pumped in, followed by an antiseptic solution, which should be weak at first so as to let the child get accustomed to it by degrees. As the nares may be more or less blocked by secretion, if the fluid is pumped up quickly, some of it may pass down the throat; hence the necessity of proceeding slowly, and of using only plain warm water at first. Both sides should be done.

De Rothschild, H., and Netter, L.: Nutritive Changes which Occur in Artificially Fed Infants with Reference to the Quantity of Milk Which they Should Receive. (*Le Progres Médical.* July 13, 1901.)

Among the numerous difficulties which it is necessary to surmount in the artificial feeding of infants there is one upon which Prof. Budin has recently laid much stress, namely, the quantity of milk which infants should receive in proportion to their age and weight. Mothers, and those generally who care for infants, are prone to give large quantities of milk, even physicians recommend amounts which are in excess of the nutritive needs of the infant. Budin showed that breast-fed infants can be perfectly satisfied with a quantity not exceeding 5-600 grammes daily during the first months of life, the increase in weight being normal. In bottle-fed infants the results are identical.

The authors studied the cases seen in the Polyclinic of Rothschild. A record of the weight of artificially fed infants as well as of the quantity of milk given and the amount of feces

passed was kept; it was noted that in babies taking the largest amount of nourishment the waste products weighed most; in all cases the weight was proportionate to the quantity of milk ingested.

A table is appended. It shows that nutriment was most readily assimilated in those cases where small quantities were ingested, the total azote was in general most effectually utilized when the amount given was smallest.

The authors recommend feeding young infants upon the minimal quantity of milk; the requisite quantity seems to bear a closer relation to the age of the infant than to its weight and this fact the writers expect to prove after further study and experiment.

Brooke, H. G. and Roberts, Leslie : The Action of Arsenic on the Skin as Observed in the Recent Epidemic of Arsenical Beer Poisoning. (*The British Journal of Dermatology.* No. 150.)

The authors go quite extensively into the phenomena of arsenicism in general and it is incidentally mentioned that one consequence of this form of chronic poisoning in children is hypercalcification of the bones with resulting increase in the length of the latter. Adult bones are not increased in length but become thicker and denser.

Cautley, Edmund : Infantile Scurvy. (*The Lancet.* No. 4064.)

The author relates a number of case histories which appear to show that sterilized and modified milk and patent foods may at times induce a state of scurvy, characterized by the usual symptoms. In most of the cases cited there were no evidences of rickets. The patients were often fat and well-nourished, and as a rule recovery was rapid as soon as an intelligent treatment was instituted. The latter consisted of a return to milk, uncooked, with the addition of fruit juice, meat juice and barley water.

Notwithstanding the above results the author believes in the advisability of sterilizing milk by boiling. If symptoms of scurvy chance to develop they are very easily remedied by adding to the boiled milk of the dietary a little barley water or fruit juice. In a word, the author believes the risk of bacterial contamination

from uncooked milk is so great that he would insist upon sterilization by boiling, although fully bearing in mind that this treatment of the milk injures its nutritive qualities and tends to induce a trace of scurvy in the child who subsists upon it.

Pollock, Robert: Thoughts on the Therapy of Tenia.
(*Bulletin of the Cleveland General Hospital.* Vol. iii., No. 1.)

In tenia cases the indications are perfectly apparent but the results are often disappointing. While many tenicides are known, two of these have almost a monopoly—the male fern and pomegranate. Both of these drugs are disagreeable to the patient. The active principle of the latter (pelletierin or its tannate) do not give the author the wished-for result even in large doses; while he has seen motor depression follow its use. He prefers to evaporate the decoction of pomegranate and give the residue in capsules.

The male fern is usually given in the form of the oleoresin. He prefers to combine it with castor oil. He has known the oil of aspidium to succeed in cases in which the oleoresin of male fern has failed. He is unable to account for this result, as the oleoresin is believed to represent the entire crude drug.

He gives calomel in the evening and a saline the next morning. Milk is the only food allowed during the day and after the noon hour the patient must fast. The tenicide is then given at bedtime.

Thomas, J. J.: Laboratory Feeding, with Especial Reference to the Modified Milk Fund. (*Cleveland Medical Gazette.* August, 1901.)

The "modified milk fund," of Cleveland, is a fund for supplying laboratory milk to infants of the worthy poor during July, August and September. In 1899, 50 infants were supplied with the milk. During 1900, the number was 62. Of the total of 112 children there were 8 deaths, but in 3 cases the patients were moribund before feeding commenced. The 5 infants who died despite the use of the milk succumbed respectively to tuberculosis, diarrhea and marasmus (2), and pneumonia (2).

The remainder were nearly all suffering from digestive disturbances when placed upon the milk. Great difficulties

had to be overcome in persuading mothers to bring their children for examination, and to weigh them regularly. The children were seen at several charitable institutions, in different parts of the city. The milk was supplied by the Walker-Gordon laboratory, the farm of the company being located at Wellington, forty miles from Cleveland.

Carbonell y Solés, F.: Tannates in Pediatric Practice.
(*Archivos de Ginecopatía, Obstetricia y Pediatría.* Vol. xiv., No. 16.)

The author employs three tannates, viz.: those of creosote orexin and quinin. Tannate of creosote is readily taken by children in the form of a draught, and the dose may be increased to half a gramme per diem without the least inconvenience. It is indicated in tuberculosis, in the decline of acute bronchitis, and in bronchial hypersecretion in general.

Orexin is better and causes a burning sensation in the stomach. In many children it readily provokes vomiting. Tannate of orexin is devoid of all these disagreeable properties, and is nevertheless able to increase the appetite and promote digestion in the most surprising fashion. It appears to act by augmenting the flow of gastric juice and incidentally of chlorhydric acid. Its chief indications are in primary anorexia, in the loss of appetite which occurs in various constitutional diseases, in convalescence from acute diseases, etc. Tannate of orexin is also a valuable gastric sedative, useful in the vomiting which follows chloroform anesthesia, in various forms of vomiting, which do not originate in gastric ulcer, hyperchlorhydria, or disease of the nervous centers. The drug is contraindicated in these latter maladies.

Tannate of quinin is of especial value for administration per rectum. It is also indicated in infections which threaten the parenchyma of the kidney.

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MILK-SUGAR IN INFANT FEEDING.*

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The identity of milk-sugar in woman's and in cow's milk is very doubtful, and the milk-sugar of the market is quite often impure. That alone makes it desirable or advisable to substitute cane sugar if this afford the same advantage. These four dozen years I have made this very same substitution. Part of any kind of sugar (as also dextrin, peptone and salt solutions) is absorbed in the stomach. Most of the milk-sugar of the milk is changed into lactic acid by the bacterium *lactis-aerogenes*, *bacillus acidi paralactici* (not identical with Hueppe's bacterium *acidi lactici*, Y. Kozai, *Z. Hyg.*, 31, p. 337) and perhaps twenty more different germs. Possibly, however, there is an additional source of lactic acid which appears during digestion from one-half to one hour after a meal, for it seems that this short time is not sufficient to give rise to such formidable masses of microbes as are required for the purposes of transformation. Possibly, therefore, there are several kinds of lactic acid, which differ not only in proportion to the temperature in which coagulation takes place and the composition of the nutrient soil of the bacteria. Still, all of this appears to be undecided.

Absorption of milk-sugar need not always be direct, however. Some of the milk-sugar which was not absorbed as such, is perhaps (Dastre) decomposed by microbic action or by hydrochloric acid, or by some unknown ferment, into galactose and glucose and then absorbed (Portier, in *Soc. Biol.*, April 2, 1898). When eight-tenths of 1 per cent. of the milk-sugar

* Read by title before the American Pediatric Society, Niagara Falls, N. Y., May 27, 28, 29, 1901.

contained in the whole milk in the stomach are changed into lactic acid, no more lactic acid is produced. Ordinarily this limit is reached when about one-fourth of the milk-sugar has been changed into lactic acid. If at this period, however, lactic acid be neutralized by an alkali, then more milk-sugar is changed into lactic acid. In this way the amount of lactic acid present in the digestive tract and in its various derivata, depends on accidents only, that is, mainly on the presence or absence of an alkali, and it appears that in every preparation of cow's milk selected for the use of an infant there is milk-sugar enough to supply the needs of the digestive process. Moreover, a goodly part of the milk-sugar introduced, even in woman's milk, is eliminated unchanged, for Blauberger (Studien über Säuglingsfäces, p. 55) found the nursling's desiccated feces to contain from 0.22 to 0.59 per cent. of milk-sugar. Escherich found that peptones which form in milk are destroyed by acid fermentation, and concludes that another carbohydrate should rather take the place of milk-sugar in order to avoid the excess of lactic acid.

It appears after all this that it *is easier to give too much milk-sugar than too little*, and that the careful measuring and weighing of copious quantities of milk-sugar is of doubtful value, even if you know, or believe you know, that the milk-sugar you give and the milk-sugar of woman's milk are identical. Immediate fermentation in the intestine, moreover, should be carefully avoided for other known reasons. Lately Dr. Helen Baldwin has published (*Journal of Experimental Medicine*, Vol. V.) investigations which prove the formation of oxalic acid as the result of intestinal fermentation. It appears, therefore, that my method of adding to the cow's milk mixtures destined for infants and children, not milk-sugar but cane sugar, in moderate quantities estimated rather than anxiously weighed, was correct and justified by modern research.

Similar results were obtained by Rubner, Heubner and others, while lactic acid was noticed in the feces by Wegscheider, Uffelmann and Biedert. The milk-sugar is either absorbed or passes out in the feces, or (that is, the greater part of it) is changed into lactic acid. This should not be in excess.

What I have the honor of presenting to you in these words as read formed nearly literally a part of my report to the Children's Section of the Thirteenth International Medical Congress

of 1900. The subject being of importance on account of its connection with infant feeding, than which there is no topic apparently more simple but actually more discussed, contended and overwhelmed with uncertainties and real or imaginary difficulties, I bring the question of milk-sugar again before you with the intention of rather settling a single mooted problem than to open a discussion of all the topics connected with artificial infant feeding.

When I began the practice of adding cane sugar instead of milk-sugar to the artificial food of the infant, many of the theoretical reasons for so doing were not known, and many of the experiments made for the purpose of founding artificial feeding on a scientific basis were not yet performed. But what I have always asserted, even before some of my adversaries or some of the great experimenters of to-day consented to be born, is that observations on the living babies, particularly when repeated a thousand times, are at least of the same value as those made on test tubes. Though the physiological working of ingesta cannot be watched throughout the length of the alimentary canal, by means of any physical or intellectual Röntgen ray, their effects on the health and life of the infant may be noticed.

When these effects are proven to be salutary, it always takes more or less time for chemical and bacteriological research to confirm the results and to prove them to be self-evident. As an instance of this kind I remind you of the gradual change of opinions in regard to the administration of cereal (*i.e.*, in part amylaceous) decoctions in the artificial food of the very young. Clinicians like Heubner, Keller, or Gregor are converted to beliefs which some of them had long condemned; while physiologists and chemists are adding more and more actual proofs of the digestibility of amyllum in the tract of the newly-born to the original observations of Schiffer, Zweifel and Korowin of nearly thirty years ago.*

In the same way my method of substituting cane-sugar for milk-sugar in infant feeding will find its way into practice; and, as has occurred before very frequently, the theories of the laboratory will follow the lead of a thousand practical experiences.

I can afford to wait—the babies must wait.

That is why I have been in no hurry to reply to a gently

* Compare the experiments of E. Garte, *Gazetta Botkina*, Vol. xii., No. 1, on the action of the pancreas in the fetus and newly-born.

polemical footnote which my famous friend, Prof. Heubner, of Berlin, publishes in connection with one of his very numerous but always interesting and learned articles on "Infant Feeding" (*Berlin Klin. Woch.*, April 29, 1901). In his paper, "Die Energiebilanz des Säuglings," he speaks of the great differences of foods amongst races and peoples, of the increasing modern freedom ("Bewegungsfreiheit"), in regard to the nutrition of the weak and sick, which, according to my learned friend, "is almost not at all appreciated by pediatricists," though "Rubner has discovered the law of the isodynamic mutual substitution of nutrient substances." He points to the equal and salutary results which may be obtained in behalf of infants with different articles: Liebig's soup (old), Keller's malt soup, Heubner's and Hofmann's, and Soxhlet's and Heubner's milk dilution (very, very old), pure milk, buttermilk (not new), Gärtner's milk, and he might have added to his list considerably.

He might, for instance, have quoted the many proprietary articles tried by Biedert, that most learned, cautious, and successful but least aggressive and least pompous physician and author ("Dietetic treatment of the Digestive Disorders of Children," 2d Ed., 1901). Even the teachings of Jacobi, which Hofmann ("Vorlesungen über Allgemeine Therapie," 1885, p. 224), declared to be most satisfactory thus far, might have come in for a passing notice.

According to my learned friend the possibility of nourishing a baby with results different from those of ten or twenty or thirty or two years ago is entirely due to Rubner's late writings. "When the young men will have read his modern works they will learn *wie hübsch es sich ausnimmt*," how pretty it looks "when Jacobi ventures upon giving instruction on the influence of the temperature of the atmosphere on decomposition and calorification in the organism." This influence I have acted upon and taught nearly half a century, and before Rubner was born, without claiming any priority. However, I do not believe that Rubner claims priority for the main principles underlying his researches, undertaken alone or in cooperation with Heubner. Least of all shall I ever undertake to commit—that time has gone for me these fifty years—the crime of *lèse-majesté* which consists in not ecstatically and vociferously recognizing the latest outcome of an author's experimentation or very newest magazine article, as new and *ne plus ultra*.

One more word: Dr. Heubner says that, my remarks quoted by him (piecemeal) from the *Archiv. für Kinderheilkunde*, Vol. XXXI., p. 17, leave him "absolutely cool." I suppose it is important that we should know that. I may be permitted to say that his remarks instead of leaving me "cool," warm me to the innermost of my heart. It is dozens of years that I have presented the principles extolled in Heubner's latest essay. It is true I never coined the term "balance of energy," or "quotient of energy." But I have been teaching the impropriety of limiting the feeding of infants to an unalterable formula, have refused to identify cow's and woman's milk, have denied the equivalence of the latter and cow's milk, no matter how prepared or how modified, have insisted upon the digestibility and usefulness of a certain amount of cereals, (amylacea), have asserted the beneficent latitude of nature as compared with the dictatorial utterances of our laboratory tyrants, of chemists and bacteriologists and other "authorities," have accumulated decade after decade of practical examples with my methods as first laid before European readers in the first volume of Gerhardt's "Handbuch," and taught to legions of American students and readers, have quietly stood by when I hardly ever was mentioned by the European workers in the same field, in connection with the subjects that appeared easily understood if approached in the spirit of cool, practical observation, and from the view of practical humanitarianism, and have finally found that what I practiced and taught has at last, though slowly and laboriously, in endless articles and self-styled discoveries, been recognized to be true. No less a man than Dr. Heubner has been gradually converted to my ways (*Berlin. Klin. Woch.*, 1895, No. 10, and frequently afterwards).

Indeed, so far has the balance swung in my favor that adepts of what they consider a new era, like Gregor (*Jahrb. f. Kinderh.*, Vol. XXX.) have gone too far in the direction of the active valuation of amylaceous foods in the nutrition of infants. But this excess of zeal will correct itself. For the present that excess has its many sources. It is caused by the failure of studying, or the neglect of, our own history by the over-specialization of medical practice and research which creates undue division of labor and artisans but no physicians; by the rivalry of "schools" that means nowadays the clinical laboratories of different universities bent upon swelling the outputs of the

printing presses—by the ambition of clinical teachers which tempts immature students to embark in a special little “study” in a workshop which for the time being and sometimes, for a long time to come they take to be the world, while it is their den only.

No wonder that literature is full of unripe products of priority claims, of loud cackling over the newly laid eggs. What does that hen of Claudius say:

“Erst leg 'ich meine Eier,
Dann recensir 'ich sie.”

Now, then, far from feeling “cool,” I feel warm at the turn things have begun to take. Infant diet will sometime, if not now, be a branch of medicine or rather hygiene. No longer controlled by the hundred different dicta of a hundred different dictators or interested manufacturers and stock owners, but governed by common sense and directed by a few well-understood facts, guided by the observation of the individual infant, with a due knowledge of the latitude kindly afforded by nature, and a proper regard for the physiology of the infant's alimentary tract.

One of the latest contributors to the milk-sugar literature is Joseph Prechtl.* His objection to selecting milk-sugar as an addition to the infant food is possibly based on the non-identity of the casein of cow's milk and that of woman's milk, on account of which milk-sugar must necessarily act differently on the two substances. Now casein is kept in solution by phosphate of calcium, the phosphoric acid of which is separated from the calcium by the action of lactic acid. When this is in excess and decomposes the active phosphate, casein is thrown out of its solution and loses its ready solubility.

Cow's milk contains three times as much casein as does human milk and much less milk-sugar (3 to 5, 6). In this relative proportion cow's casein remains in solution. When this proportion is disturbed by adding an undue quantity of milk-sugar to cow's milk, its casein becomes more indigestible through coagulation. It is disturbed by adding more than the quantity of sugar found in human milk, which contains so much more of it than cow's milk. It should have struck the sticklers for the action of chemical scales in preference to that of infant

* *Jahrb. f. Kind.*, 53, 1901. “Is milk-sugar a proper ('vorteilhafter') admixture to infant milk?”

bowels, that the proper quantity of sugar to go with a cow's milk mixture would be the relative quantity met in cow's milk which keeps cow's casein in solution, and not the percentage of milk-sugar as contained in woman's milk which is in excess in its relation to cow's milk casein. It is only woman's casein, that though in a percentage three times smaller than that which is contained in cow's milk is not thrown out by its larger quantity of (milk-sugar born) lactic acid.

Artificial food requires the addition of sugar. It is customary to add to cow's milk milk-sugar enough to obtain the normal percentage contained in woman's milk. Why this is doubtless a wrong procedure I have just shown. Plain water dilution, which I abhor, would require 6 per cent.; cereal decoction admixtures demand less (certainly 1 per cent. less) because of their percentage in carbohydrates. This observation should commend itself to those in whose opinion the mutual exchange of different carbohydrates is a matter of course from a chemical point of view.

Milk-sugar, being a constituent of human milk, is recommended for admixture. Some of the proprietary foods, however, contain grape sugar because the manufacturers remind us that every sugar is changed into grape sugar. Cane sugar is most accessible and serves the same purpose, is of the same composition as milk-sugar ($C_{12}H_{22}O_{11} + H_{22}O$), and is, like the rest, finally changed into lactic acid. Soxhlet, who is a chemist only, though a great one, and Heubner and Hofmann exceed the 6 per cent. considerably, intending to replace the insufficient fat by another carbohydrate,* to great advantage to the doctrinarism of the calory theory, but to the detriment of the bowels.†

Epstein, however, found that no kilo baby should have more than 12 grms. (3 drs.) of milk-sugar, always with the

* There is too much ado over the difference of the fat percentage in the two milks. It is 3.7 per cent. in cow's milk, 3.8 per cent. in woman's milk, according to reliable analyses.

† P. Zweifel ("Etiology, Prophylaxis and Therapy of Rachitis," 1900) believes he has found that the mixture of equal parts of milk and a 6 per cent. solution of milk-sugar is slightly more digestible than pure milk. In this respect, however, milk-sugar is inferior to chlorid of sodium. For the same author found that a 0.2 to 0.6 solution of salt added to an equal quantity of milk increases its digestibility to a still greater extent (p. 127).

proviso that the baby is in good health. Dyspeptic infants tolerate very much less.

In his preference of milk-sugar to any other kind of sugar Soxhlet is very eloquent. He is a chemist, and in that capacity is bound to know that most of it arrives unchanged in the small intestine where most of it is changed into lactic acid, but is not necessarily aware of the fact that it may cause diarrhea (indeed, many practitioners employ milk-sugar for its purgative effects), tympanites and colic. A chemist only, no physiologist, will calculate and assert the equivalence of carbohydrates, *i.e.*, sugar and fat, in the nutrition of infants. Where there is a purgative action there can be no nutritive effect. Besides, babies are no chemists, and not bound to be guided by chemical formulæ in their compound physiological functions.

Large quantities of milk-sugar cause diarrhea, as I, Neumeister and many others have observed. Experience taught me what I have always, more than forty years, recommended; that is, a small amount of sugar, even cane sugar, dissolved in warm water is one of the mild but effective purgatives when indicated for constipated babies.

For its purgative effect sugar is given to the newly-born in warm water or in some warm, aromatic tea. Such a medication is rarely demanded, for meconium is not often so solid or the mucus of the colon so inspissated as to require dilution. Still, there are cases with indications for a mild purgative. But A. Keller, (the accomplished assistant at Czerny's clinic, Breslau,) declares sugar to be by no means uninjurious or indifferent. That is why both these gentlemen oppose the employment of sugar in treating or feeding the newly-born, and advise—saccharin instead, "to which there can be no serious objection."* They do not deem it permissible to give anything but "tea" with saccharin the first day of life, because experiments with feeding at that time may give rise, sometimes, if not always, to "intestinal diseases." Why the latter assertion? Forsooth, because "Jansen ('Ergebnisse dev allg. Pathol. v. Lubarsch u. Ostertag,' 1897, p. 826) made experiments on newly-born

* One objection may be the excessive sweetness of saccharin. It should not be forgotten that milk-sugar is less soluble and much less sweet than cane sugar; moreover, that colostrum is less sweet than milk.

calves with boiled milk which almost always resulted in hemorrhagic diarrhea."*

Formerly (formerly only?) the question of nourishing the newly-born was treated from a different point of view. It was deemed cruel and injurious to permit the usual loss of weight; means were recommended to improve the secretion of mother's milk or substitutes were anxiously searched for. Now, however, we are told that all the observations of centuries and all the thinking of obstetricians and practitioners were for naught, because a single man's experiment on calves, instituted in 1898, resulted in hemorrhagic diarrhea—in calves. These calves have changed it all. The human new-born babies when losing weight were considered to be the victims of unfavorable circumstances, of absent or deficient milk, of ill health of the mother, etc. Now they are just where they ought to be; when a week old some outside experimenter on calves considers your baby should weigh ten or fifteen ounces less than at birth. *Risum teneatis amici.*

Woman's milk contains after the first week of lactation, more milk-sugar than cow's milk. In the first week the percentage is low. Söldner † found 2.22, 3.13 per cent. until the sixty-first hour of life. G. Edlefsen, ‡ 59 per cent. on the third day. Pfeiffer, § 3.36 at the same time. On the eighth day the percentage rises to 6, after that time very little. According to Söldner it amounts till the 170th day to 6.39, never in his experience beyond 6.87. As a matter of fact, however, it should be remembered that the milk of different women at various periods of lactation, and under varying circumstances is subject to changes. Nature is not given to fanatical doctrinarism like our omniscient chemists who regulate diet and training from behind the counters of their laboratories.

* Czerny and A. Keller, "Des Kinder Ernährung, etc., 1901, p. 7."

† Z. f. Biol., 1896, Vol. xxxiii.

‡ Münch. Med. Woch., January 1, 1901.

	Tot. Alb.	Casein.	Alb.	Fat.	Sugar.
3 days	2.695	1.810	0.885	3.225	3.590
12 "	1.875	1.160	0.715	3.035	5.150
48 "	1.000	0.440	0.560	3.640	7.000
103 "	0.843	0.375	0.468	3.415	5.835
116 "	0.835	0.310	0.525	4.105	5.950

§ Jahrb. f. Kind., xx., 1883.

It would do our Soxhlets and smaller men also, a world of good if they would see now and then an actual living baby. Said Heubner, a short year ago,* "*We have luckily advanced so far as no longer to believe in our dependence on laboratory experiments in the feeding of infants. For decades we have suffered from the fact that we were too eager to apply the experiments of laboratories in practice.*"

It is worth while to repeat that the colostrum of the first days while containing a great deal of albuminates, holds but little sugar, even less than is found in cow's milk. That is why the excess of sugar, to which the newly-born has to submit when water is given or artificial food, is not in accordance with what the newly-born has a right to expect.

If it be given milk-sugar, however, it should be taken into account that, as has been said before, the milk-sugar of human milk is probably not identical with that of the cow (A. Schlossmann, "*Unterschiede Zwischenkuh und Frauenmilch,*" Leipzig, 1898), and that the milk-sugar of the market is very often impure.

In connection with that question, E. F. Brush ("*Milk,*" 1898, p. 63) says: "In regard to the using of commercial sugar of milk as an addition to cow's milk for infant feeding, I think it is a mistake as there are undoubtedly all the other crystallizable milk-salts with the milk-sugar, and consequently we can know very imperfectly what we are feeding an infant with when we are giving milk-sugar. If the milk from which the sugar was crystallized contains improper vegetable salts, these would undoubtedly become crystallized with the sugar, and many of the proper salts would have become changed to the lactates, therefore, I think if sugar is to be used at all, although I deem it of doubtful necessity, the pure cane sugar is undoubtedly the best, because you know just what it is."

Amongst the clinicians who prefer cane sugar to milk-sugar and see "no inconvenience in so doing," is Marfan. His first reason for this choice is the frequency of adulteration of the milk-sugar in the market. In addition to the intestinal and nutritive disorders caused by an excess of lactic acid resulting

* Verein f. Inn. Med. Session of July 2, 1900. And many years before him Flügge plaintively expressed his regrets that "we have allowed ourselves to be guided by people who are neither hygienists nor physicians, but chemists, farmers or apothecaries."

from inordinate milk-sugar feeding, there are other dangers. Excess of lactic acid appears to have detrimental effects on the nutrition to such an extent that rickets has been explained by its chemical action. Like acetic, oxalic, formic acids, lactic acid has been claimed as the cause of rachitis by Ch. Heitzmann, in 1873; Tripier, in 1875; Neiss, in 1876; Siedamgrotzky and Hofmeister, in 1879, while Albarel could not verify their observations. Such differences had been noticed before. Schmidt and O. Weber had long ago met lactic acid in the bones of animals fed on that material; Marchand and Gorup-Besanez, in the urine; while Virchow and Lehmann found the bones and the blood alkaline. After all, however, it should be remembered that rachitis means more than merely excessive elimination of lime by the kidneys and intestines; its pathology is not complete without the soft swelling of the peri-epiphyseal cartilage, of the epiphyses and of the periosteum, also deformities of the bones. That is why the presence of lactic acid in the circulation should not be accused of being the cause of rachitis. But this much is certain, that by an undue presence of lactic acid the amount of phosphate of lime in the urine and in the feces, at least in one of them, is at once vastly increased, and that the bones are deprived of part of their calcium.*

*It is on account of this and its eliminative, chemical action on lime (and thereby diuretic effect), which it removes in the shape of salts, that Rumpf gives lactic acid in those cases of angina pectoris which depend on calcification of the blood-vessels, about 15.0 grms. daily for months in succession. It is self-understood that the food should be fairly free of lime. That is why the diet is as follows: 250.0 meat; 100.0 bread; 100.0 fish; 100.0 potato; 100.0 apples; (or instead: green beans, peas, or cucumbers.)

A "Bacillus Pertussis."—Jachmann and Krause (*Zeitschrift für Hygiene und Infektionskrankheiten*, Vol. xxxvi, fasc. 2; *Arte medica*, July 21st) have found in eighteen cases, with three microscopic findings, a bacillus similar to that of influenza, which flourishes exclusively in culture media containing hemoglobin, differently from like bacilli cultivated by other authors. This new bacillus they have named "Bacillus pertussis."—*New York Medical Journal*.

ADENOMA OF BOTH ADRENALS IN THE NEW-BORN,
ASSOCIATED WITH RETROGRESSIVE CHANGES
IN THE ADRENALS OF MARCHAND.

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The following case is of great interest, not only because of the great rarity of observations regarding the occurrence of adrenal tumors in the new-born, but also because of the associated findings of retrogressive changes in the adrenals of Marchand.

Male infant, four days old, born April 15, 1901, second child of American parents. The family history was negative. The first child had been lost as a result of difficult labor, and as a matter of precaution the mother had entered the University Hospital for her second labor. This was entirely normal, the delivery easy, and for three days after birth the child seemed perfectly well. On the fourth day it was noticed by the nurse in charge that the infant ceased to pass urine. After total suppression for twenty-four hours it began to show marked signs of illness; convulsive movements frequently repeated, and finally severe opisthotonos. Death occurred at 4 A.M. on April 20th, and the autopsy was performed by me at noon of the same day.

AUTOPSY PROTOCOL.—Well-formed, large, healthy male infant, 52 cms. long and weighing about 4,500 grms. Both testicles are in the scrotum. Finger nails reach to tips of fingers. Hair of head is fairly abundant, soft, silky and light-colored. Body hair abundant. On slight pressure a few drops of clear fluid can be obtained from each mammary gland.

Abdomen just above the edge of the ribs. Binder in position. On removing this the dry stump of the umbilical cord is seen. It is about 3 cms. long, firmly adherent, and appears normal. Skin and scleræ are slightly yellowish. Over the nose there are numerous sudamina whose contents are opaque and whitish. There is extensive hypostasis of a deep blue-red color all over dependent portions, and scattered mottlings of

same color over abdomen, thorax and neck. Rigor mortis is present throughout. Panniculus is well developed. There is moderate edema over lower extremities and back, slight over the thorax. Body heat is absent. (The brain and spinal cord were not examined.)

The diaphragm on the right reaches to the level of the fourth rib; same height on the left. Position of thoracic organs normal. In the mediastinal tissue there are a number of small deep blue-red lymph nodes from the size of a pin-head to that of a large mustard seed. The lungs are distended, very voluminous. There is no fluid in the pleural cavities. Pleural surfaces normal.

The thymus weighs 5 grms. presents no unusual appearance. The pericardium is not distended, contains normal amount of fluid. Heart weighs 20 grms. (Opened from the large vessels.) The foramen ovale is patent, the opening in the right auricle being much larger than in the left where it is a narrow slit. Golden yellow ante-mortem clot (bile stained?) attached to walls of right auricle; remaining portion of auricle filled with cruor. Ductus Botalli shows no sign of obliteration. Otherwise the examination of the heart is negative.

The left lung weighs 32 grms. Its surface is free. Lung is very voluminous. The upper lobe is divided into two lobes almost exactly similar to the right upper lobe, the division between the two lobes extending almost to the root of the lobe. The only difference between the two lungs is one of size. The right lung weighs 40 grms., is free and voluminous. The lower lobe is slightly hypostatic. On section both lungs appear normal. No airless areas present in either lung. The pulmonary vessels contain dark red fluid blood. The bronchi and bronchial lymph nodes are negative.

Examination of mouth and tongue is negative. The mucosa of pharynx and epiglottis is deeply injected and covered with a thick yellowish mucus. Mucosa of larynx and trachea similarly injected. The esophagus is empty, its mucosa injected. The examination of thyroid is negative. Back of this organ there are a number of small dark blue bodies, size of a pin-head to that of a small pea, the largest somewhat elongated (hemolymph nodes?). The cervical lymph nodes and other structures of neck appear normal.

There is no fluid in the peritoneal cavity. The peritoneal

surfaces are rather dry and sticky, but clear and shining. The omentum contains no fat. The small intestine is partly distended and partly collapsed. The sigmoid flexure and rectum as well as the descending colon are markedly distended, the transverse and ascending colon less so.

The examination of the umbilicus and umbilical vessels is entirely negative. The urachus is collapsed, appears normal.

The spleen weighs 6 grms. It is of normal size and shape, and of a deep blue-red color, almost black. On section the cut surface appears almost homogeneous, of a deep blue-red color. Consistence is normal. The follicles do not show distinctly.

The left adrenal is replaced by a tumor about the size of a hen's egg. The growth is almost round, slightly flattened, elastic, slightly fluctuating, but firmer in some portions than others. It is dark red in color, and is adherent to the neighboring structures so that its removal is difficult. It lies partly over the left kidney which it completely covers. The kidney is pushed backwards and downwards. (In attempting to remove the growth with the kidney it ruptured and a small quantity of thick brownish fluid escaped.) On section the tumor is found to be cystic in its central portion, the wall of the cyst being formed of tissue resembling adrenal cortex, and possessing the characteristic fatty appearance of adrenal tissue. The cyst space contains a brownish-red pultaceous material. The portion of the growth forming the immediate wall of the cyst is soft and friable, resembling the post-mortem necrosis of the adrenal medullary portion. Between the yellowish cortical layer and the necrosed central portion there is a deep brown line.

The left kidney is much smaller than normal, only about half as large as the right one. It is pressed downwards and backwards by the adrenal growth which fits into a curved depression on its upper surface. Its shape is distorted, its upper half being twisted toward the left. On section the parenchyma is pale and cloudy. The cortex is only about half as broad as that of the right kidney. The tubules of the medullary pyramids are outlined by yellowish stripes of uric acid infarction. The pelvis is larger than that of the right kidney.

The right adrenal is of normal size. In its apex there is a firm, yellowish mass about the size of a large cherry. It is sharply outlined from the remaining portion of the organ

by a brownish line. It has a fatty shine and gives a fatty smear.

The right kidney is slightly enlarged. On section the parenchyma is pale and cloudy, the cortex is swollen, and in the medullary pyramids there is a marked uric acid infarction.

The bladder is empty. Both it and the urachus appear normal. The duodenum contains bile-stained fluid. In the stomach there is a small quantity of grayish almost black mucus. The wall shows no change. The small intestine is filled with light yellow semi-fluid fecal material. The large intestine contains greenish semi-fluid fecal material. The appendix is 4 cms. long; it presents no unusual appearance.

The liver weighs 95 grms. The surface shows no change. On section the cut surface is yellowish in color with alternate areas of anemia and congestion. In the anemic areas the lobules are distinct, in the congested portions they are not clearly outlined. The surface yields a slight fatty smear. The consistency is fairly firm. The gall bladder contains greenish bile; the bile passages are patent. The examination of the portal vein is negative.

The pancreas presents no pathological changes. The mesenteric and retroperitoneal lymph nodes appear to be normal.

The genital organs show no unusual appearances. On the right spermatic vein just above the right internal ring there is a small body, size of a large yellow mustard seed, attached to the wall of the vein by a plexus of small vessels. The body is yellowish in color, resembling fat tissue, its surface is minutely beaded. It possesses a distinct capsule (adrenal of Marchand?) On pulling the left spermatic vessels and cord up out of the left internal ring a similar body, but about twice as large, more oval in shape, is found attached to the wall of the left spermatic vein by a similar plexus of vessels.

(The right knee joint was opened and the centre of ossification in the lower epiphysis of the right femur was examined. This is oval in shape, sharply outlined and measures 3 x 5 mms.)

MICROSCOPICAL EXAMINATION.—Portions of both adrenal tumors and of all the organs were taken and fixed in mercuric chlorid, Zenker's, alcohol and formalin. The two little bodies from the spermatic veins were fixed in mercuric chlorid. Paraffin was used for embedding, and the sections were stained

according to various methods; hematoxylin and eosin, Van Gieson's, Mallory's reticulum stain, polychrome methylene blue, kresyl violet, etc.

The microscopic examination of the thyroid, pancreas, stomach, intestines, bladder, urachus, lymph nodes, thymus and heart muscle was entirely negative. The lungs and spleen showed a moderate congestion, but were otherwise normal. Sections of the umbilical vessels showed the usual obliterative changes found in the new-born; no evidences of inflammation were present. The small blue-red nodes taken from the neck proved to be hemolymph nodes whose structure was similar in all respects to the lymph nodes found in the adult.

The liver presented a very marked fatty change; the cells in the peripheral portion of the lobule containing large droplets of fat, those in the central portion were filled with fine droplets. There was also a slight cloudy swelling of the liver cells. The central vein and capillaries were moderately congested.

The chief interest of the microscopic examination is centred about the adrenals, kidneys and the small bodies taken from the walls of the spermatic veins.

Left adrenal tumor.—Sections cut from the capsule to the centre of the growth show that the entire central portion of the tumor is made up of necrotic tissue. In the centre there is liquefaction necrosis with complete loss of structure, the small cystoid cavity being filled with coarse granular *debris* which stains red with eosin. A few crystals of hematoidin are found in this, but there is no evidence of any large hemorrhage in the shape of blood cells or large amount of blood pigment. None of the structures of the medullary portion of the adrenal can be recognized. Passing from the central portion to the periphery of the growth, the necrotic tissue is found to retain the outlines of adrenal structure, long columns, 2-3 cells broad, radiating toward the capsule. Between the cell columns there are radiating lines of reticulum and capillaries which contain large numbers of hematoidin crystals and granules. The majority of the cells are in a state of simple necrosis, the nuclei having either entirely lost their chromatin or staining very faintly. Large numbers of fine fat-droplets are present in the necrosing cells. The structure of the tissue is that of the fascicular portion of the adrenal cortex. As the peripheral portion of the growth is approached the nuclei are found to stain more deeply, but

there is an abrupt line marking the boundary between the necrotic tissue and the narrow peripheral zone of living adrenal tissue which has more of the structure of the zona fasciculata than of the zona glomerulosa. Between the living and dead tissues there is in many places a deep line of diffused chromatin. The necrobiotic cells near this boundary line have a brownish colored protoplasm (mercuric chlorid fixation). The living cells of the peripheral zone differ somewhat from those of normal adrenal cortex (as compared with the normal portions of the

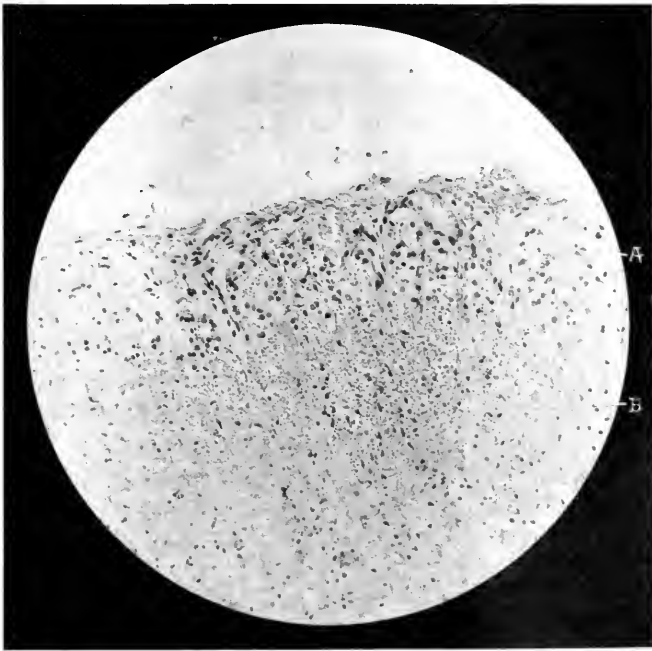


FIGURE I.—SECTION OF TUMOR OF LEFT ADRENAL.

(a) Peripheral zone of living adrenal tissue. (b) Necrotic zone (microphotograph, Leitz obj., 4; eyepiece, 2.)

right adrenal cortex) in that their nuclei are larger, more vesicular, and their chromatin more granular. The greater part of the tumor is, therefore, found to be made up of necrosing zona fasciculata which has undergone a marked hyperplasia. The growth is covered with a delicate fibrous capsule. (See Fig. I.)

Right adrenal.—The right adrenal is normal and well-preserved, except for the tumor nodule in the cortex. The medulla

shows no post-mortem change. Sections of the yellow nodule show it to be made up of columns of cells resembling those of the zona fasciculata of the normal adrenal. These contain large numbers of fat-droplets, and the greater part of the central portion of the nodule is in a state of simple necrosis, the outer living peripheral zone being rather sharply marked off from the necrosing area. The tumor nodule takes its origin from the zona fasciculata and has grown by expansion, pushing the normal adrenal tissue before it and breaking through the glomerular zone to the capsule. The medullary portion beneath it shows no change. Around the nodule the adrenal tissue is compressed and has a brownish color (mercuric chlorid fixation). The capillaries between the columns of cells in the tumor-nodule are congested; in the necrosed areas these contain disintegrating red cells and hematoidin granules.

Left kidney.—Sections of this organ show marked cloudy swelling of the cells of the convoluted tubules, atrophy and localized increase of connective tissue. The straight tubules of the medullary portion are distended with casts of uric acid and urates.

Right kidney.—Similar in all respects to the left with the exception of the atrophy and increase of connective tissue.

Small body from right spermatic vein.—The sections of the little body taken from the wall of the right spermatic vein show it to consist of adrenal tissue; the glomerular, fascicular and reticular zones being distinct, but no traces of medulla could be found. The capsule of the body is very thick in proportion to its size. It contains unstriped muscle. Numerous vessels are attached to the body, the veins are conspicuous both for number and for large size. In the connective tissue of the plexus of vessels both medullated and non-medullated nerve trunks are found. The cells of both the fascicular and reticular zones show marked fatty change. In one area near the capsule there is a deposit of lime-salts in necrotic cells of both the fascicular and glomerular zones. The lime-salts form rounded or oval masses corresponding to each individual group of cells, the reticulum and capillaries between them being preserved. At the level of its greatest diameter the calcified area equals about one-tenth of the entire area of the little body. (See Fig. II.)

Body from left spermatic vein.—The larger body found upon the left spermatic vein consists also of adrenal cortical tissue.

There is a narrow line of glomerular zone, but almost the entire body is made up of tissue having the structure of the fascicular zone. But little reticular portion is present and no medulla. All of the cells except those in the narrow glomerular zone show marked fatty change, the nuclei staining poorly, and in some sections beginning necrosis is found near the centre. The body is supplied with a plexus of large and numerous vessels and nerve trunks similar to that of the right one. (See Fig. III.)

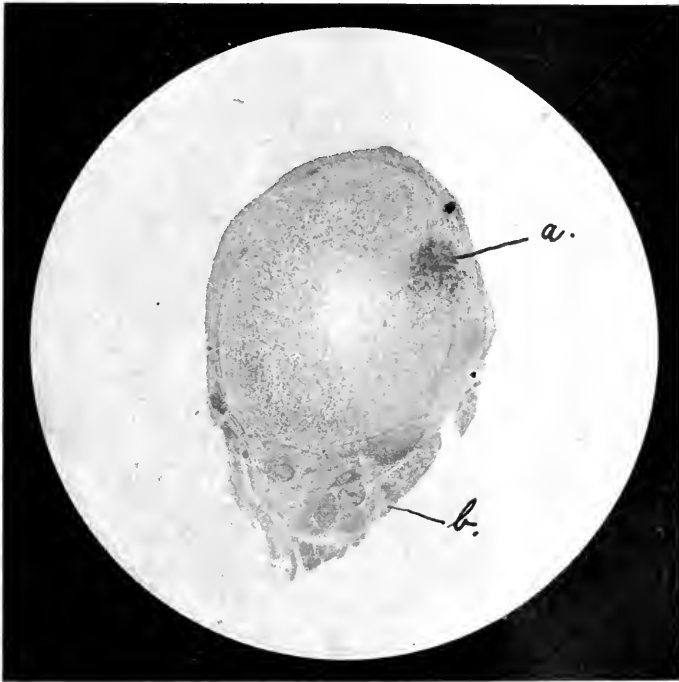


FIGURE II.—RIGHT ADRENAL OF MARCHAND.

(a) Mass of calcification. (b) Plexus of vessels and nerves. The light central area shows fatty change. (microphotograph x., 25.)

The bacteriological examination is negative.

ANATOMICAL DIAGNOSIS.—The structure of both the left and right adrenal tumors is identical; both show a hyperplasia of the fascicular zone followed by marked fatty change and necrosis. In the case of the growth in the left adrenal liquefaction of the necrosed central portion gave rise to a cystoid space filled with cell debris. From their structure both growths would be

diagnosed as adrenal adenomata arising from the fascicular zone of the cortex. As a result of pressure upon the left kidney atrophy of that organ resulted. The cloudy swelling found in both kidneys would indicate an acute parenchymatous degenerative nephritis. A similar parenchymatous change is found in the liver in connection with marked fatty degeneration. The changes in the right and left adrenals of Marchand (adrenal bodies on spermatic veins) must be regarded as being of a retrogressive nature, in the case of the left probably preceded by a hyperplasia of the fascicular portion. Combining the results of both gross and microscopical findings the pathological diagnosis would be:

Adenoma of both adrenals (arising in fascicular zone); retrogressive changes in the adrenals of Marchand; acute degenerative nephritis; fatty degeneration and cloudy swelling of liver; congestion of liver, lungs, spleen and kidneys; pressure atrophy of left kidney; anomaly of right lung.

To the little adrenal bodies found on the spermatic veins I have applied the designation *adrenal of Marchand*, in accordance with the suggestion made by Aichel. According to this observer the presence of adrenal tissue along the spermatic vessels in the male and in the broad ligament in the female is a normal occurrence; and the little adrenal organs found in these regions are to be regarded as normal structures and not as accidental misplacements, as in the case of the accessory adrenal tissue found in the neighborhood of the adrenals and kidneys. Aichel holds that the human suprarenals are embryologically homologous with the interrenal organs of the lower vertebrates, while the small adrenal organs found along the spermatic vessels and in the broad ligament correspond to the suprarenal organs of these animals. The human suprarenal is, therefore, an interrenal body; but, since the application of suprarenal to the adrenal tissue of the spermatic vessels and broad ligament is not suitable, Aichel proposed the designation of the latter by the term "*Marchandsche Nebenniere*," for the reason that Marchand was the first to observe their presence in the broad ligament.

The presence of these bodies has been observed, however, very rarely, in the case of the broad ligament adrenals only twenty-four times, those found along the spermatic vessels somewhat more frequently. It seems very probable that Aichel's view is correct, and that careful search of these regions would

show the constant presence of adrenal tissue, at least in the new-born where they would be more easily discovered. The significance and fate of these little organs have yet to be determined. That they may persist unchanged to adult life is shown by cases reported by Chiari, Dagonet, Marchand and myself (*American Journal of Obstetrics*, 1900). The increased thickness and opacity of the tissues makes their discovery in the adult very difficult.

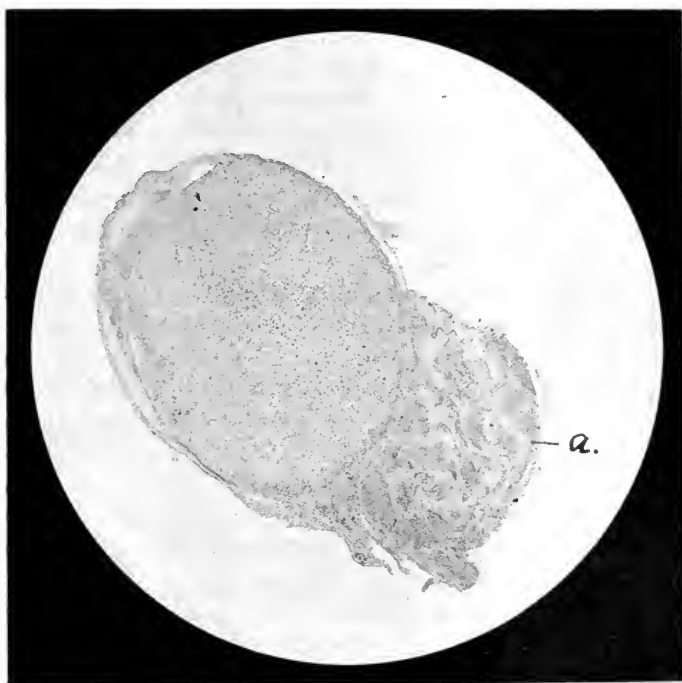


FIGURE III.—LEFT ADRENAL OF MARCHAND SHOWING EXTENSIVE FATTY CHANGE THROUGHOUT WITH THE EXCEPTION OF A NARROW PERIPHERAL ZONE.

(a) Large plexus of vessels and nerves. (Microphotograph x., 15.)

It is possible that the presence of adrenal tissue in the broad ligament and along the spermatic vessels may explain some of the obscure pathological conditions of these regions. Since adrenal tissue elsewhere, particularly accessory adrenals ("adrenal rests"), are very frequently the seat of new growths there is no reason to believe that the adrenals of Marchand would be exempt from such changes. Actual cases of such an occurrence

have as yet not been observed. Adrenal tissue has been found in the walls of cysts of the broad ligaments, but the exact relations between the two conditions could not be made out. Hyperplasia was also observed in one case by Marchand. Lockwood (*Journal of Anatomy and Physiology*, 1899) has reported a case of a small, fatty tumor found in the inguinal canal of a little boy while operating for hernia, which proved on microscopical examination to consist of adrenal tissue. He suggests that other cases of lipomata of the spermatic cord, as well as certain retroperitoneal cysts and obscure growths originating between bladder and rectum may be explained as arising from adrenal tissue. Lockwood's case is undoubtedly one of hyperplasia of an adrenal of Marchand. In the case described above the changes in the adrenal body from the left inguinal canal are of such a nature as to lead me to regard them as an early stage of adenomatous hyperplasia of the fascicular zone followed by extensive fatty change and beginning necrosis, as in the tumors found in both suprarenals. The occurrence of an adenomatous change in all three organs might be explained by the assumption of some congenital anomaly of adrenal tissue or disturbance in its development from the Wolffian body. Further, since signs of retrograde change have not been observed in these little bodies, and as such changes are of very rare occurrence in the adrenals themselves, the mass of calcification found in the body from the right spermatic vein is also of pathological significance and may be explained by the same hypothesis.

The gross appearance of the tumor from the left adrenal was such as to make it very probable that it might be mistaken for a hemorrhage. The brownish-red color, the cystoid cavity in the central portion, and the semi-fluid brownish substance found in this, altogether form a picture closely resembling that of hemorrhage. These appearances are, however, very characteristic of adrenal adenomata. In these tumors there is almost always a rapidly advancing central necrosis, the only living tumor tissue being found in a narrow zone beneath the capsule, the line of boundary between the living and necrotic tissues being usually marked by a deep brown line. The central necrosed portion may undergo partial liquefaction, and forms a cheesy or semifluid reddish-brown pultaceous mass resembling the ordinary post-mortem necrosis of the medullary portion of

the normal suprarenals. In several cases which I have seen of adrenal adenoma in the adult the growth formed a large cyst filled with brownish-red fluid, having a capsule of living adrenal tissue about half a centimeter in thickness.

Numerous cases of adrenal hemorrhage have been reported. Omitting those in still-born children in which the hemorrhage was most probably traumatic, about 30 cases of adrenal hemorrhage occurring in infants have been observed. The condition is usually unilateral, more often in the right adrenal than in the left, and in practically every case the extravasation was recent and must have occurred a very short time before death. It occurs usually before the sixth day, and is commonly attended by convulsions. The etiology is obscure, but the condition is most probably of toxic origin. It seems to me very probable from the descriptions given in some of the cases that the condition was not one of hemorrhage but was probably of the nature of adrenal adenoma or struma. Many of the cases diagnosed as adrenal hemorrhage were probably only intense hyperemias; a few undoubted cases of hemorrhage exist. Those reported by Tuley (*ARCHIVES OF PEDIATRICS*, IX., 842), Hodenpyl (*Proceedings New York Pathological Society*, 1890), and Prudden (*Ibid*, 1889) with rupture of the organ and extravasation of the surrounding tissues are beyond any question cases of pure hemorrhage.

Wainwright's case (*Transactions Pathological Society*, London, 1893) is very suggestive in its general resemblance to mine. A child, two months of age, died suddenly after 3 convulsive attacks in which the upper extremities became swollen, congested, almost black. Autopsy showed a left-sided empyema. No evidences of tuberculosis or congenital syphilis were found. Both adrenals were greatly enlarged and on section presented a cortical layer of apparently normal tissue bounded internally by a band of brownish pigment, and internal to this a caseous-looking mass. The microscopical examination showed the outer layer to consist of normal columns of cells, the central portion consisted of a reticulum enclosing necrosed cells, some masses of calcification and some pigment. In the differential diagnosis of this condition Wainwright believed that tuberculosis, syphilis and apoplexy were the only conditions to be considered. Both the former he excludes, and while admitting the presence of some hemorrhage he does not consider it of sufficient degree to explain the whole change.

Wainwright's description so closely agrees with the findings in my case that it leads me to accept his doubt as to the hemorrhagic nature of the lesion, and to consider it highly probable that both adrenals in his case were the seat of adenomatous hyperplasia with characteristic necrotic changes. His is the only case closely resembling mine that I have been able to find. In my case the microscopical appearances conclusively rule out a diagnosis of hemorrhage. There was no infiltration of blood, no escape of blood-cells; and the only remains of these were found in the capillaries between the rows of necrosed adrenal cells. No signs of organization were present, though the atrophy and distortion of the left kidney show that the process must have been progressing for some time before the birth of the child. Further, the nodule of similar structure in the cortex of the right adrenal shows the early stage of the process, and the golden-yellow appearance of this would never have suggested hemorrhage.

As differential points in the diagnosis of adrenal hemorrhage and adenoma the following characteristics of the latter may be considered:

1. The absence of evidences of hemorrhage in or about the capsule.
2. The presence of a narrow peripheral zone of apparently normal cortical tissue, beneath which there is usually a deep brown line separating the living and necrotic tissues.
3. The central portion composed of reddish brown necrotic tissue without signs of recent extravasation or of organization, and showing on microscopical examination the remains of dead cells with blood and blood-pigment in the capillaries between the cells.

The cause of death in my case must be regarded as an intoxication. The absence of signs of infection and the negative bacterial investigation by ordinary methods would indicate an auto-intoxication, though I do not consider the bacteriological examination as being entirely conclusive. The source of the intoxication may have been the result of altered adrenal function or the absorption of poisonous products from the necrosed portion of the growth. In whatever way produced the toxemia may be regarded as the cause of the fatty change in the liver and the parenchymatous degeneration found in both this organ and the kidneys. The latter was sufficient to cause complete suppression of the urine, and uremia may have been the immediate cause

of the convulsions and death. The occurrence of fatty liver in infants has been shown to be most frequently associated with acute intoxications, gastro-intestinal diseases, scarlatina, acute meningitis, measles and diphtheria. In the chronic wasting diseases, marasmus, syphilis, tuberculosis and rachitis it is said to occur less often. The great degree of fatty change, both degeneration and infiltration, present in the liver of my case would suggest an intoxication of some length of time duration.

In conclusion, the most interesting features of this case are:

1. The presence of adenomatous hyperplasia in both adrenals and probably also in the left adrenal of Marchand associated with retrograde changes in the right adrenal of Marchand would suggest a congenital anomaly or defect in the development of the adrenal anlage from the Wolffian body. (The three-lobed left lung is also evidence of anomalous development.)

2. Suppression of urine and death from uremia caused by a toxic acute parenchymatous degeneration of the kidneys.

On the Question of the Differentiation of True and False Diphtheria Bacilli.—I. A. Schwab's experiments (*Vratch*, June 30, O. S., 1901) have convinced him that in addition to morphology and to virulence in animals, the reaction of the culture medium in which the germs grow and their behavior with Neisser's stain are the most important diagnostic features of the true diphtheria bacillus. He recommends that the reaction of the medium be tested with titration, using phenolphthalein as indicator, about forty-eight hours after inoculation of the culture. The reaction of the medium must, of course, be tested quantitatively each time before the culture is made. True diphtheria bacilli produce a considerable increase in the acidity of the medium, while pseudodiphtheria bacilli produce either alkali, or very small quantities of acids. Thus the increase in acidity on the second day in cultures of Klebs-Loeffler bacilli is given as 10.8, while the increase in cultures of the false diphtheria germ under the same condition is given as 1.3 in the author's table. He emphasizes the distinction between pseudodiphtheria bacilli and the non-virulent true bacilli, the latter being, except as regards virulence, perfectly identical with the true germ. It is to the confusion of these two varieties that the deviations from the rule in the titration test and in Neisser's test-stain are attributable.—*New York Medical Journal*.

INFANTILE SCURVY AND MARASMUS.*

BY FRANCIS HUBER, M.D.,

New York.

In presenting an isolated case of infantile scurvy to the notice of this Society, which, through the Collective Investigation Committee, has done so much to add to our knowledge of the condition, an explanation and apology are necessary. The two photographs (Figs. I. and II. herewith shown) will serve both purposes.

The history briefly is as follows (that of the family not being reliable or important is omitted).

Anton Z., thirteen months old, was admitted to the "Jacobi Ward" Roosevelt Hospital, August 8, 1900. The patient, born in New York, is the seventh child and was as far as we could make out, of normal or average weight and development until about three months old. Then he is reported to have lost flesh and strength and as he did not improve, he was taken from the breast. It was claimed that the mother's milk was poor in quality, deficient, etc. At the age of four months he was fed on condensed milk; this plan was continued for two and one-half months. During the past two months he was given cream and water. The exact proportions or quantity could not be determined. The only other material fact elicited was that in spite of more or less gastroenteritis, nourishment was always taken eagerly. No other positive or reliable details could be obtained, though the mother was closely and carefully cross examined. The present illness is supposed to date back about three weeks before admission. About this time a number of hemorrhagic spots were observed upon the abdominal wall at the lower part. The gums began to bleed about a week before he was admitted to the hospital and at the same time spongy swellings were observed.

The appearance of the baby on admission was deplorable. The photograph presented, (Fig. I.) shows more plainly than

*Read by title before the American Pediatric Society, Niagara Falls, N. Y., May 27, 28, 29, 1901.

any attempt at description, the evidences of criminal neglect and the lesions of the extensive integumental ecchymoses. Emaciation was extreme and prostration marked. When the patient was stripped, the sunken eyes, the retracted abdomen, the partly closed lids, the immobility, the extensive black and blue discoloration of the body, and the marked emaciation in general, reminded the observer of the corpse of an infant who had died of marasmus, undergoing the process of decomposition. The realistic impression was increased by the cadaveric odor.

The temperature, 95.4° F.; pulse, 93 and hardly perceptible; respirations, 20, shallow and weak. Cry feeble; gums swollen, spongy and bleeding readily; tongue and buccal mucous membrane raw and congested; belly retracted; fonta-

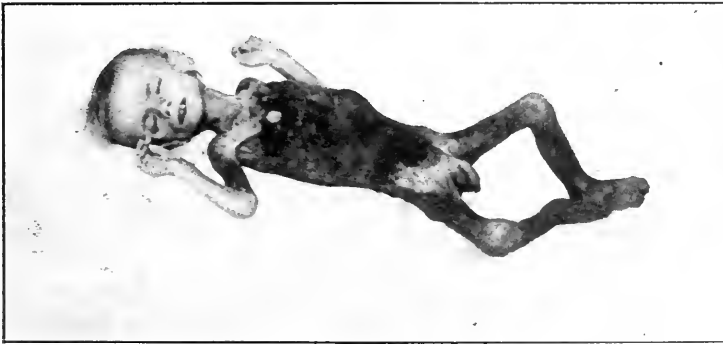


FIGURE I.—CONDITION OF THE BABY ON ADMISSION TO THE HOSPITAL.

nelle depressed; pulse very weak and hardly perceptible. High degree of anemia with sallow complexion. Moderate degree of rickets present.

The anterior aspect of chest and abdomen was covered with large hemorrhagic infiltrations, principally integumental, although a few implicated the subcutaneous tissues. Smaller hemorrhages were found scattered over the rest of the body. There were bed sores over the spinous processes and the sacrum. There were hemorrhages into and ulceration of the lobe of the ear. The right knee was somewhat swollen, with the swelling above the joint involving lower third of femur. The general appearance is excellently portrayed in a photograph (see Fig. II.) taken by one of the house staff, a few days after admission when the

little one's condition had somewhat improved. Urine was pale, turbid, and neutral, with a specific gravity of 1,003; a trace of albumin; no sugar was found; triple phosphates were present.

Physical examination, negative; weight 8 pounds 1 ounce.

Blood examination August 15th. Considerable variation in size and color of red cells; white not materially affected. Red cells, 3,740,000; white, 6,700; hemoglobin 46 per cent.

TREATMENT.—Orange juice, whiskey in small amounts; water internally and salt solution per rectum to fill the blood-vessels and supply the necessary fluids. Milk (boiled) and bar-



FIGURE II.—SHOWING THE IMPROVEMENT IN THE BABY'S CONDITION.

ley water (1-4) in small quantity hourly, gradually increased. Later mutton broth with rice or barley water, soft boiled egg and scraped meat or a piece of steak to suck.

After the first few days, though the child was improving in every way, raw milk was tried. It was refused by the patient, though every other food was ravenously and eagerly taken. Furthermore, in view of the very hot weather, it was not considered wise to force the use of raw milk.

The precarious condition necessitated great care in feeding in the beginning. Milk with barley water was given in one drachm doses at first, later on two tablespoonfuls were given every hour. The orange juice was continued. Improvement

was rapid and in a little over two weeks the increase in weight was nearly five pounds. The appetite was excellent and as the child cried a good deal and did not appear to be satisfied, eggs, broths of various kinds, scraped meat and steak to suck were allowed. Diarrhea of varying amount, occurred off and on and caused some loss of weight, which, however, was readily regained, when the bowels were under control. More or less elevation of temperature characterized these attacks.

In spite of the extremely hot weather and the diarrhea referred to, the appetite remained excellent, in fact, the child was always hungry, and took the food with the greatest relish. To omit details, it may be stated that the bad symptoms disappeared, the general condition improved, the hemorrhages gradually became less and all traces of the infiltration vanished. About five or six weeks after admission, the child was practically well, weighing 13 pounds 1 ounce.

A few general remarks regarding the care and the treatment following may be in order:

Ordinarily when a case is presented with depressed fontanelle, weak pulse and general loss of fluids in the tissues of the body, the tendency is to supply the fluid by means of subcutaneous injections of sterile salt solution. Vargas (*Jacobi Festschrift*) has written a short article and presented photographs of patients suffering from marasmus, who were greatly improved by the subcutaneous use of artificial serum. The plan has been extensively employed in this city for several years. In the case before us, though the indication to supply water to the system was self-evident, the plan referred to was not feasible and was contra-indicated by the fragile condition of the blood-vessels and the numerous hemorrhagic infiltrations. No difficulty, however, was experienced in gradually introducing a sufficient amount of fluids by mouth and per rectum.

The benefit of fresh orange juice was quickly shown in our patient, a point noted by numerous other observers in their own cases. As a question of facts in mild cases, the therapeutic test of giving fresh fruits frequently clears up a suspected case.

The use of raw milk so generally advised and usually so very efficient could not be carried out, for though the child would take everything else in a ravenous manner, if raw milk were added to the rice or barley water the little patient would

persistently refuse the bottle and continue to scream until something else was substituted.

Though the case for the first few days did not appear to promise much, the use of orange juice, boiled milk and barley water, and later of scraped meat and broth, quickly conquered the vicious disturbance of metabolism and, in spite of the hot weather and a gastroenteritis, a cure was established.

209 EAST SEVENTEENTH STREET.

Strangulation of the Testis.—Scudder reports (*Annals of Surgery*, Vol. xxxiv., No. 2) a case occurring in a boy of sixteen, who was hit in the testicle while playing ball. He had considerable pain, some fever and moderate swelling of the testicle on the left side following the injury. These symptoms gradually subsided, and four days later he was allowed to go about. For two weeks he required no medical attention. Then after severe exertion in playing he complained of severe pain on the left side of the scrotum. The pain, swelling, tenderness and fever which were present immediately after the injury returned, and in addition the boy had a chill. Four days later an operation was done for what appeared to be an abscess of the scrotum connected with the testicle. The testicle was removed and an uneventful recovery followed. At the operation the tunica vaginalis was found distended with blood clot and liquid blood; the overlying tissues were edematous and infiltrated with blood; the testicle was bluish black and the cord was twisted two and a half times above the epididymis. A thorough discussion of the literature of this subject is given and abstracts of the cases which have previously been reported are given. Scudder finds that forty-seven per cent. of all the cases of strangulation from torsion of the cord are involved with undescended testicle, which he believes is an important etiologic factor. In sixteen per cent. of the cases a hernia was present on the same side. In eighty-eight per cent. of all the cases the testicle became gangrenous. In all of the thirty-two cases which have been reported the patients recovered, but the testicle either sloughed or atrophied in every case. If the injury is seen immediately after the onset of pain and a diagnosis can be made, untwisting a twist in the cord may be tried. If seen later, orchidectomy is usually indicated.—*American Medicine.*

AN UNUSUAL CASE OF SPASMUS NUTANS.

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On the 17th of June a case of spasmus nutans came under observation at the Johns Hopkins Dispensary which presented some unusual clinical features.

John M., five months of age, was brought because of a shaking of the head. The family history of the mother's side is good. A sister of the father, fifteen years of age, is subject to nervous spells and had to leave school on account of nervousness. A two years and eleven months old brother of the patient was frightened by a shooting cracker on the 4th of July; he lost consciousness, had convulsions and died the following night. The birth of this patient was normal. He is exclusively breast-fed, the bowels move regularly and the appetite is good. The baby has had once in a while a slight cold but never any serious trouble.

Four days ago the mother noticed a twitching of the eyes and shaking and nodding movements of the head, particularly when sitting up. The movements of the head occur in irregular intervals but very frequently. When frightened—and the infant gets easily frightened—the head moves incessantly. The movements do not stop when he sleeps, and frequently waken him up. When taken up the baby rests somewhat better than when lying down. The mother has not noticed any movements of arms or legs. Patient takes the breast very well.

PRESENT STATE.—The well-nourished infant weighs 15 lbs. and has a good color. The anterior fontanelle is rather wide open and the ribs show a slight but distinct beading. There are no other pathological manifestations.

The head is moving constantly. Rotary movements to both sides are prevalent, but these are interrupted by less frequent nodding and shaking movements. The number of the jerky movements is about 80 to the minute. The existing blepharospasm relaxes at intervals for some time. When the eyes are open the upper lids show a slight twitching. The

conjunctivæ are not injected. There is no oscillation of the pupils. The eyeballs make nystagmic movements of a mixed character. When the baby is put upon his back twitching movements of the muscles of arms and legs of both sides are observed, but these do not occur so frequently as the movements of the head, which are hardly diminished when lying down. The nystagmus is still more pronounced when the head is fixed. The treatment consisted in the administration of sodium-bromid.

June 18th.—The child rested somewhat better. The electrical examination does not show an increased irritability of muscles or nerves with faradic or galvanic current. Trousseau's sign is not present nor the facial phenomenon.

June 20th.—The blepharospasm is very much less frequent and less pronounced; it becomes stronger when the infant gets excited. Although the infant rests better, the head movements do not entirely cease during sleep. The pupils react promptly to light and accommodation. The bandaging of both eyes quieted the head movements distinctly, but they did not stop entirely: bandaging of one eye is of no influence. Chloralhydrate is added to the sodium-bromid.

During the end of June the baby passed through a slight bronchitis which cleared up in a few days.

July 9th.—There are no movements of the head any more during sleep. The twitching of the muscles of the limbs is not noticed any more. The movements of the head persist, but they occur in larger intervals and last for a shorter time. Nystagmus is only seen when the baby fixes some object or when he gets excited, which he does easily. The head movements too, seem to be more or less dependent upon fixation. This is more distinct when the infant's attention is called to an object by sound. He begins to look around for the source of the noise, when the eyes fix themselves upon this object the nystagmus starts in and then the head begins to move. Both eye-grounds are normal.

July 19th.—The movements were only observed at fixation.

August 15th.—Neither head movements nor nystagmus can be produced by making the baby fix objects. Holding the head does not produce nystagmus; medication stopped.

The infant was seen at his home on the 19th of September.

The mother had not noticed any more movements of head or eyes. He has not yet cut any teeth.

The main features of the disease in question, after Henoch,* Hadden,† and Randnitz,‡ are shaking or nodding or rotatory movements of the head, separately or combined, in otherwise healthy children from about six months to three years of age. An acquired nystagmus of one or both eyes is only exceptionally missed throughout the whole course of the disease. The media of refraction and the fundus are normal. A relation exists between fixation and the movements of eyes and head. Spasmodic movements of the eyelids are frequently observed, while shedding of tears is rare. During sleep the movements cease. The affection has no deteriorating influence upon the intellectual life. The disease runs a variable course, lasting from a few weeks to several months and ends in recovery.¶

The large majority of all the cases reported in literature, as far as it was accessible to me, keeps well within these limits. Three cases breaking through these limits are of a particular interest to us. The first case of Hadden's second series, takes an exceptional standpoint, inasmuch that the thirteen months old intelligent girl had "occasional seizures, in which she seemed to lose herself, and sometimes the hands would twitch in these attacks"; and further, "sometimes she was convulsed in her sleep, the hands chiefly being affected." The child died of measles following bronchitis more than a year later. "Ap-

* Henoch.—Vorlesungen über Kinderkrankheiten, 1892.

† Hadden.—Lancet, 1890, Vol. I., 1293, etc., and St. Thomas's Hospital Reports, Vol. XX.

‡ Jahrbuch für Kinderheilkunde, Vol. XLV., p. 145, etc.

¶ In 8 cases of Hadden there was a history of occasional attacks in which consciousness was in abeyance. Two of these were verified by Mr. Gunn and himself. Of one of these cases, where later on the mentality was impaired, it may be doubtful if it belongs to the disease in question. In the other cases, Miller takes the loss of consciousness as an incidental occurrence and not as an essential part of the affection. Randnitz calls attention to the circumstance, that children affected with spasmus nutans may be seen gazing vacantly with peculiar positions of head and eyes to avoid fixation, and that this may be mistaken for unconsciousness. Randnitz establishes a close analogy between the nystagmus of the coal-miners and spasmus nutans; and here a remark of Dickson (*Lancet*, 1895, Vol. II., p. 845) is of interest: "In miners' nystagmus head movements occasionally occur in bad cases and attacks of petit mal have been recorded. (Oglesby, 'Brain,' 1881, p. 160, Vol. III.)" That these epileptoid attacks have anything to do with real epilepsy is very doubtful.

parently there had been complete recovery from the head movements, the nystagmus and the attacks of temporary loss of consciousness." The second case is reported by Taylor,* and is of interest, as the head movements did not altogether cease during sleep. The little girl, otherwise healthy, was six months of age, had rotatory head movements and nystagmus and recovered entirely in a short time.

When the seven months old girl, which is reported as the fourth of Ausch's¹ cases, was lying upon her back the forearms were bent in the elbow joints, and made trembling movements. Ausch sees in these trembling movements an expression of the child's vexation at lying down. After recovery of the nodding and rotatory movements of the head, a strabismus convergens alternans remained. A nystagmus of the left eye of short duration was noted only once. In our case two of the clinical features are exceptional. The head movements did not cease during sleep, although they were, as we had occasion to observe, less pronounced. Besides this, the muscles of the limbs made twitching movements when the child was in a recumbent position. It is to be noted that these contractions of the muscles resulted in hardly perceptible excursions of the arms and legs. The two exceptional features in our case certainly do not offer sufficient reason to exclude it from the peculiar neurosis designated as spasmus nutans. Several authors do not find this appellation satisfactory, but with Abt² we consider it as the most convenient. Taylor's, together with our case, shows that the cessation of the head movements during sleep is not an absolutely necessary characteristic, although it certainly holds good for the vast majority of cases. The movements of the forearms in Ausch's case and those of the limbs in our case tend to show that Randnitz goes too far when he wants to exclude positively any participation of the muscles of the body. Hadden's observation is unique: head movements ceased during sleep (p. 213, speaking of head movements, "they invariably cease during sleep"), while the hands were said to have twitched occasionally and the child was said to be convulsed in sleep at times.

All these irregularities in the picture of the disease make it clear that, as in other diseases, the whole clinical picture must be taken into consideration, while we must allow a certain latitude for the single symptoms. So Hadden mentions an obser-

* Sajous' Annual, Vol. VI., p. 160, 1900.

vation where he thinks the disorder was represented by nystagmus only; two similar observations are cited by Randnitz (cases of Hoor and Magnus, p. 453). In other rare instances nystagmus was not observed. Furthermore the nystagmus may occur only very rarely, as in the case of Ausch, while in one observation of Hadden nystagmus only existed for a year, and at a later date there were occasional slight movements of the head. Randnitz calls attention to the fact that at different periods of the disease the nystagmus either had not started in or had already disappeared.

To judge from the number of reported cases, the disorder seems to be infrequent. Miller collected 84 cases as the result of a very thorough search of the available literature. To these may be added 1 case of Taylor, 1 of Lange,³ and 3 of Meyer.⁴ The number of cases reported by Schonberg⁵ is not given in the reference. The reports of some children's hospitals, as given by Randnitz, speak against the frequency of the affection (Budapest 52,213, with 14 cases of spasmus nutans; Basel 6,154, with 2 cases; Vienna, Annenkinderspital, 1890, among 27,091 apparently no cases of spasmus nutans). On the other side, Hensch and Jacobi⁶ claim to have seen numerous cases; and in the discussion of Miller's⁷ paper Koplik states that one of his assistants collected quite a number of cases of rotary spasms associated with nystagmus.

Of those factors, which are claimed to play a role in the etiology, we have in our case rachitis, but of a slight degree. The lodgings could not be inspected because the people moved soon after the disease had started, and so we are not in a position to verify the conclusions of Randnitz. These are, that the main external etiological factor is to be seen in dark tenements, where the child is so situated that the fixation of the only source of light (window, lamp, etc.) causes of necessity a strain to the eye muscles. The over fatigue of the eye muscle apparatus forms the important part in the starting of the disease. Besides these external conditions he recognizes internal ones in so far as they produce a local (eye) and general muscular weakness, as for instance rachitis and other debilitating diseases. Dentition is more and more discarded as an etiological factor and does not enter into consideration in our case, nor was there any history of trauma. Of other weakening influences we have

no record. A predisposition to nervous disorders may be deduced from the family history.

Miller sums up what is known as to the nature of the disease, to the following effect: It is generally recognized as a functional disorder probably due to an exhaustion or irritation, induced by various causes, of the nervous centres governing the innervation of the affected muscles.

NOTE.—While this paper was in point a second case of spasmus nutans in a two-year-old colored baby came under observation. The rotatory head-movements did not occur frequently. By holding the head a fine horizontal nystagmus of both eyes was produced. Fixation with maximal abduction to the left had the same result. The mother said that the head-movements began at an age of two months. The infant was seen only once.

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Vaccination as a Therapeutic Measure in Whooping Cough.—D. Lofruscio says that (*Semena Medica*, April 4, 1901) children were vaccinated for the first time in 121 cases and re-vaccinated in 31 out of the 152 cases of whooping cough, complicated with bronchitis or pneumonia in many instances, which Lofruscio had occasion to treat last year. He is convinced that vaccination solves the therapeutic problem of whooping cough. Five typical cases are described in detail; in most of them pneumonia and the convulsions ceased as if by magic after the vaccination and although the cough persisted for a few weeks in some cases, it was merely as an ordinary catarrhal cough.

A CASE OF SEVERE SECONDARY ANEMIA IN A CHILD OF TWO YEARS.*

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This case is reported by the courtesy of Dr. L. Emmett Holt, as the child was among his private patients at the Polyclinic. The physical examination was made by Dr. Holt, the blood and urine examinations by myself. Consideration of the case is asked, not because it is peculiar nor very severe, but because it represents the most frequent form of anemia in infancy, and illustrates the rapid improvement resulting from proper though simple treatment. There are so many types of anemia in the young that especial emphasis should be laid upon the ordinary cases, lest one assume because of confusing symptoms that his own case belongs among the peculiar forms of the disease.

The child, a little girl of two years, was sent from Kentucky for treatment, the diagnosis having been pernicious anemia and the prognosis bad. The history obtained March 12, 1900, is that the child had never been nursed, that it was at first fed on diluted cow's milk, and did well for six months, the weight at that time being seventeen pounds. All the while, however, the child was very pale, notwithstanding that she was constantly out of doors. During the summer of 1898 she had bronchitis and cholera infantum, being ill for several months, and she became "marbly white." During the winter of 1898-'99 she was fed mainly on undiluted cow's milk, and she was quite well until the summer of 1899, when there was another diarrheal attack and she lost weight rapidly. Diluted condensed milk was used from August until December, 1899, and during this time the weight increased to twenty-five pounds. Notwithstanding the continual administration of iron throughout the case there was apparently an increase in the anemia, and dropsy

* Read before the Section on Pediatrics, the New York Academy of Medicine, October 10, 1901.

of the feet developed. Moreover, the child lost completely the power of standing, and there seemed to be some pain in the legs. In December, soup, meat to suck, cow's milk and cereals were added to the dietary.

About Christmas, 1899, there was an acute attack of vomiting and fever; on January 1, 1900, there occurred the first "holding-breath spell," and others on January 3d and March 9th. In these attacks the spasm was tonic and the whole body became cyanotic. After the December attack of indigestion the appetite became very poor and exceedingly capricious; the child would not eat during the day nor sleep at night. The bowels were always regular—never any constipation. The child became so spoiled that the greatest difficulty was experienced in management or feeding, and the parents were in constant dread of the "holding-breath spells," as these seemed to be brought on by temper. Aside from the marble pallor and the attacks of cyanosis, the symptoms at the time the child came under observation were loss of appetite, marked general weakness with inability to stand, and fitful sleep and excessive irritability.

THE PHYSICAL EXAMINATION on March 13, 1900, had to be made under chloroform to be satisfactory. The child was found to have plenty of adipose but to be excessively pale, lemonish-yellow, with waxy ears and face. There was some edema of the feet. There were signs of slight bronchitis with enlarged tubes posteriorly, faint cardiac murmur at base, moderate enlargement of liver and spleen, both about one inch below ribs; no abdominal distension or tumor, no lymph node enlargement, no signs of rickets.

The Blood Examination showed hemoglobin, 30 per cent.; *red cells*, 210,000; no malarial organisms; rouleaux formation and fibrin formation normal; no poikilocytosis; cells pale but stain evenly; no macrocytes nor nucleated red cells; *white cells*, 13,200. The differential count gave small lymphocytes, 40 per cent.; large lymphocytes, 5 per cent.; polymorphonuclears, 53 per cent.; eosinophiles, 2 per cent.; no myelocytes.

Urine examination.—Amber, slightly acid, 1,010; albumin, 0; sugar, 0; moderate amount of indican sediment negative.

Treatment was begun at once, the night feedings being reduced from five to three, and day feedings being made every four hours; no change in diet and no drugs.

March 19th.—Improvement is already marked; for sake of

discipline the child is put under a trained nurse. Fowler's solution, one drop in half-teaspoonful of pepto-mangan, was ordered three times a day.

March 21st.—For past two nights child has slept seven hours without any night feeding. Takes 8 ozs. milk each meal, with cereal or meat, beef juice or broth. The dropsy has disappeared, but face and body are still waxy.

March 29th.—Blood examination showed hemoglobin, 35 per cent.; specific gravity, 1,039; red cells, 3,200,000; no poikilocytosis nor nucleation; white cells, 11,500, of which 43.5 per cent. were small lymphocytes; 3 per cent. large lymphocytes; 51 per cent. polymorphonuclears, and 2.5 per cent. eosinophiles.

April 11th.—Has been standing for one week, and walking with assistance of one finger for four days; eating well; blood examination gave hemoglobin, 40 per cent.; specific gravity, 1,038; blood flows more freely; red cells number 3,200,000; white cells, 12,250.

April 19th.—Child now walks without assistance; appearance decidedly improved, though still very anemic; blood examination: hemoglobin, 42 per cent.; red cells, 3,560,000.

June 14, 1900.—Child has been in Louisville for one month; family physician reports: "Doing very well; cheeks, palms and feet are quite pink; is eating and sleeping well."

October 25th.—"Looks very well; takes plenty of exercise and is gaining steadily in weight." This is the report.

October 1, 1901.—The latest letter from family physician says that the child is in perfect physical condition.

This case shows that:

1. No matter what the symptoms, without a blood examination diagnosis and prognosis are guesswork.

2. A strict *regime* for hours of feeding and sleep is fully as important, in certain cases, as the character of the diet or medication.

REPORT OF A CASE OF SO-CALLED VON JAKSCH
ANEMIA.*

BY CHARLES HERRMAN, M.D.,
New York.

The subject of the following report was a female infant one and a half years old of whom this history was recorded.

FAMILY HISTORY.—Both parents are healthy; neither gives a history pointing to tuberculosis, syphilis or malaria. The mother has had six children. The first and second were still-births; one child died of pneumonia. The two remaining children are healthy. The conditions under which the family live are not particularly bad.

PATIENT'S HISTORY.—The delivery was normal; no hemorrhage from the cord; the baby never had any disease, infectious or otherwise. She was breast-fed during the first five months, then she was given diluted boiled milk. There have been no gastrointestinal disturbances. The first teeth (upper incisors) appeared at the thirteenth month. The baby has always been pale.

The patient was seen for the first time on May 10, 1901. She was then seventeen months old. During the previous three or four weeks the mother had noticed that the baby was becoming paler, thinner and weaker, and that the abdomen was growing larger. The appetite was not so good as it had been.

EXAMINATION shows a small, ill-nourished, markedly rachitic infant. The muscular tissue is very flabby. The head is large and square with prominent frontal and parietal protuberances, forming a groove anteroposteriorly and another transversely. Large, open anterior fontanelle; there are four incisor teeth; enlarged cervical and occipital lymph nodes; the chest shows rachitic rosary, Harrison's groove, retraction of the lower ribs on inspiration, and rachitic kyphosis of the spine; the axillary lymph nodes on the right side are enlarged.

Lungs negative; heart boundaries normal; no murmur.

* Read before the Section on Pediatrics, the New York Academy of Medicine, October 10, 1901.

The abdomen is large. The greater part of the left side is occupied by a splenic tumor, which is somewhat movable. It extends from the eighth intercostal space above to the crest of the ilium below and to the left sternal line anteriorly. It measures 15 cms. in length and $11\frac{1}{2}$ in width.

The liver is palpable below the free border of the ribs, 4 cms. in the mammillary, 5 cms. in the axillary line. Its surface is smooth. Posteriorly the liver dulness extends upward to $2\frac{1}{2}$ cms. below the angle of the scapula.

The inguinal lymph nodes are enlarged; epiphyseal enlargement at the ends of the radius and tibia. No albumin nor sugar in the urine.

The bowels are regular; no fever present.

EXAMINATION OF THE BLOOD on May 14th showed: red blood cells, 2,800,000; hemoglobin, 35 per cent.; white blood cells, 26,400. Moderate poikilocytosis; microcytes, megalocytes, nucleated red cells in moderate number, two showing mitosis; white cells of many different forms and sizes, the majority being mononuclear; a few large mononuclear cells with neutrophilic granules, probably myelocytes.

June 1st.—A purpuric eruption appeared on the face, arms and legs.

June 20th.—A few subscrepitant râles over the left lung anteriorly; slight cough; no fever.

June 27th.—The case was admitted into the Mount Sinai Hospital. Through the courtesy of Dr. Koplík I am enabled to give some of the most important items from the hospital record of the case.

In addition to the data already given, there was found a dulness over the upper part of the sternum, apparently due to an enlarged thymus. Adenoid vegetations were present in the pharynx.

An examination of the blood a few days after admission gave: hemoglobin, 30 per cent.; red blood cells, 2,660,000; white blood cells, 29,200; specific gravity, 1.038; normoblasts, microcytes, megalocytes.

A differential count of the white cells showed: polymorphonuclear leucocytes, 30.3 per cent.; large lymphocytes, 29 per cent.; small lymphocytes, 31 per cent.; eosinophiles, 2.1 per cent.

July 3d.—Areas of consolidation in the right and left lung, with the accompanying symptoms of pneumonia.

July 8th.—These areas had cleared up almost entirely.

July 10th.—Hemoglobin, 40 per cent.; red blood cells, 2,044,000; white blood cells, 21,000; normoblasts; 1 megaloblast. A differential count of the white cells gave: polymorphonuclear leucocytes, 32 per cent.; large lymphocytes, 27.5 per cent.; small lymphocytes, 38 per cent.; eosinophiles, 2.5 per cent.

July 24th.—Red blood cells, 1,440,000; white blood cells, 37,600.

August 6th.—A purpuric eruption on the arms and forearms.

August 8th.—Areas of consolidation at the base of the left lung, which cleared up during the course of the next week. Examination of a blood spread on the same day gave: normoblasts, numerous microcytes, a few megalocytes, poikilocytosis. A differential count of the white cells gave: polymorphonuclear leucocytes, 34 per cent.; large lymphocytes, 40 per cent.; small lymphocytes, 24 per cent.; eosinophiles, 2 per cent.

August 17th.—A vesicular eruption with hemorrhage into some of the vesicles. From this time on the patient grew steadily worse and died on September 1st, apparently of general weakness. To recapitulate the principal symptoms they were: 1. Marked enlargement of the spleen. 2. Moderate enlargement of the liver and lymph nodes. 3. Red blood cells, 2,800,000—1,400,000; hemoglobin, 40 per cent.—30 per cent.; white blood cells, 21,000—37,000. Mononuclear leucocytes about twice as numerous as the polynuclear. At first, the small lymphocytes in the majority, later the large. A few myelocytes. Microcytes, megalocytes, moderate poikilocytosis, and nucleated red blood cells in moderate number.

In 1889 Von Jaksch described what he considered a form of anemia peculiar to infants. "Anemia infantum pseudo-leucemia;" which did not correspond to any of the forms previously described, though it had some features in common with pernicious anemia and leucemia. Important diagnostic points were: 1. A marked reduction in the number of red blood cells and the percentage of hemoglobin. 2. An increase in the white blood cells. 3. Variation in the form, size and staining of the white blood cells. 4. Deformed, degenerated and nucleated red blood cells. 5. Clinically, marked enlargement of the spleen,

with moderate enlargement of the liver and lymph nodes. 6. Post-mortem absence of the pathological changes characteristic of leucemia. At that time he laid stress upon the fact that the diagnosis could not be made from the examination of the blood alone; but that the clinical features of the case must also be considered.

At present the majority of pediatricians are in favor of putting these cases in the group of severe secondary anemias, and of not considering them as constituting a distinct and separate disease.

Many of the reported cases could be classed under pernicious anemia or leucemia, still some would hardly fit into any of the recognized groups. If they are secondary it is often very difficult to find out to what they are secondary.

In the discussion of a case of pernicious anemia presented by Rotch at the last meeting of the American Pediatric Society, Wentworth, Koplik and Morse held, that in the present state of our knowledge of the pathology of the blood of infants, we were not justified in making a definite diagnosis in such cases and that at present it is better to group these cases of so-called Von Jaksch anemia under the grave secondary anemias. I believe that represents the opinion of the majority.

As to the etiology. In this case there was no history of syphilis, tuberculosis, malaria, intestinal catarrh or intestinal parasites. As in almost all the reported cases rickets was present. Can this be considered as an important etiological factor, or do the same conditions favor the development of both diseases? Cases of marked rickets are not at all uncommon, and though this form of anemia is not so rare as the small number of reported cases would indicate, still it is not so common as we should expect if the one disease was dependent upon the other.

These cases do not respond so favorably to anti-rachitical treatment as do cases of simple rickets. Rickets pure and simple does not give *all* these clinical symptoms and blood changes.

Unfortunately in this case no post-mortem examination was allowed. In the few cases in which autopsies have been made the pathological changes characteristic of pernicious anemia and leucemia were absent. Ewing mentions an autopsy

on one case, in which he found a peculiar grouping of the nucleated red blood cells and the leucocytes in the capillaries of the liver, which he thinks may be characteristic.

In this case antirachitical treatment, the regulation of the diet and the administration of phosphorus and iron had no effect. Abroad these cases have been treated with bone marrow in teaspoonful doses. Arsenic and quinin have been recommended. Where there is a suspicion of syphilis, antisyphilitic treatment would be indicated. In the case of pernicious anemia reported by Rotch, already referred to, good results were obtained from the daily administration of oxygen for several weeks. It might also be tried in these cases.

27 WEST 115TH STREET.

The Tenacity of the Scarletinal Contagium.—F. Lommel (*Münchener Med. Woch.*, July 16, 1901) reports a case which demonstrates the extraordinary longevity of this virus with almost the accuracy of a physiological experiment. One of the inmates in an institution for deaf children contracted scarlatina, was kept overnight in the isolating room, and then sent to a hospital for treatment, whence he returned in due time and resumed his intercourse with the other children without the occurrence of further cases. The isolating room, after superficial formalin disinfection, was occupied by a sixteen-year-old girl for 133 days, when a child of nine was allowed to sleep in it for several nights. Twelve days later, this child came down with scarlatina, but no other children were affected. Inasmuch as the inmates of the institution did not come at all into contact with the outside world, the only conclusion possible is that the contagious principle had remained active in the room during the whole period since its former occupancy by the diseased child. The fact that the young girl who afterwards used it came into daily contact with the children without harm is a further proof of the slight risk of a third person's spreading the disease.—*Medical Record.*

ARCHIVES OF PEDIATRICS.

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EDITED BY

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CERTIFIED MILK IN NEW YORK.

During the past two years considerable work has been done by a committee appointed by the Medical Society of the County of New York to improve the milk supply of New York. After the preliminary meeting of the committee the milk dealers of the city were invited to attend a conference so that any suggestions made for an improvement in the milk supply should give consideration, in addition to the scientific views of the subject, to the practical and commercial advantages of furnishing a pure milk. The milk dealers accepted the offer and from the first showed themselves alive to the advantages offered in the proposal to certify milk of a standard to be fixed by

the committee. The dairy rules of the United States Department of Agriculture, with detailed instruction for feeding and caring for cattle, were given in a circular that was widely distributed and a tentative standard was established so that the milk-dealers could feel that the work had a definite basis. The standard was that the acidity should not be higher than 2 per cent., and that the number of bacteria should not be more than 30,000 per c.cms.

Owing to the opportune formation of the Rockefeller Institute for Medical Research, which furnished the funds for the investigations on the farms and the bacteriological work in the laboratories, the committee was able to carry out in a thorough manner the plan that it had inaugurated for a periodical inspection of the dairies and milk of the dealers who were willing to co-operate to secure a clean, fresh milk.

Acting on suggestions made by Dr. Chapin, the Chairman of the Committee, and Dr. Park, of the Department of Health, Dr. Belcher, working as the expert and representative of the Rockefeller Institute, studied the following factors: (1) The condition of the barn; (2) the condition of the cows; (3) the milkers; (4) the condition of the utensils; (5) the processes of cooling; (6) transportation; and (7) the condition of cans or bottles when returned from the city.

It was observed that the milk from a cow milked in a dirty barn showed 120,000 bacteria to c.c., while another cow of the same herd milked in a pasture gave milk with only 26,000. A cow standing near a pile of dry feed had 1,000,000 bacteria per c.c., while the milk of other cows had a low bacterial count.

Dirty cows gave a much higher count of bacteria than clean ones. Clean cows in a herd gave an average of 2,000 bacteria as against 90,000 in the milk of the dirty cows.

The milker was frequently found to be dirty, and the milk from some milkers always gave a high bacterial count.

With the utensils it was sometimes difficult to find which factor was at fault. The ordinary strainer was, however, a prolific

source of bacteria. With a sterile pail and a sterilized cotton or cheese-cloth strainer the bacteria would fall in numbers. Aeration, by requiring more complicated apparatus, increased the danger of contamination. This was particularly so if aeration was carried out in a dirty barn or without regard to strict cleanliness.

The process of rapid cooling is one of the most important factors in the production of uncontaminated milk. The cooling of milk in springs is seldom sufficient, as the temperature of the water in summer was found to vary from 45° to 70° F., whereas the milk should be brought below 45° F. to insure few bacteria. Ice is absolutely necessary for the farmer who handles milk.

In transportation the milk should be kept at a low temperature. More attention should be paid to the transportation of milk in refrigerator cars. Much contamination can be avoided if bottles are properly cleansed before being returned to be refilled. Where there is a contagious disease in a house the bottles should be broken and thrown away. Sterilization of all bottles is an important matter, and too often farmers are not able to carry it out.

Following out recommendations made by the committee and acting in hearty co-operation, eight milk dealers are now bottling milk that bears the label of the Medical Society of the County of New York. The work has been educational, and the dealers agree with the members of the committee that when the people of New York know the advantages of securing a good, clean milk they will be willing to pay the extra price incident to the care necessary to keep the milk free of bacteria.

The London Society for the study of Diseases in Children has over two hundred members and is a very active organization.

Bibliography.

Contribution à l'Étude de la Hernie Publique chez le Nouveau-né et chez l'Enfant, avec Considération Spéciale sur le Traitement de Cette Affection aux Différents Ages. Par le Docteur A. Walravens. Bruxelles: Henri Lamertin. 1902. Pp. 81.

By umbilical hernia the author understands "every deformity of the umbilical region, whether due to congenital malformation or to relaxation of the cicatrix, followed by the prolapse of one or more viscera, forming a tumor of smaller or larger size on the anterior of the abdomen." There are two groups: umbilical hernia of the embryonal period, due to a malformation; and the true umbilical hernia, due to relaxation or lack of consolidation of the cicatricial tissue of the umbilicus. The latter may be congenital (fetal) or acquired. The fetal variety is rare, and is often confounded with the funicular embryonal kind.

All the embryonal cases (78) reported between 1881 and 1901 are tabulated, as are 50 cases of true hernia cured by operation at the *Hospice des Enfants-Assistés* and the *Hôpital Saint-Pierre* during the past four years. In the embryonal cases operation should be done as early as possible, the first twenty-four hours, giving 80 per cent. of cures, and the second only $33\frac{1}{3}$ per cent. The presence of the liver in the hernial sac makes the prognosis more grave. In the case of the other variety, operation should be done early, and is followed by excellent results even in the youngest children. The bibliography is appended.

The paper of the book is very good, the print excellent, and the five illustrations clear and satisfactory.

Progressive Medicine, Vols. II.-III., 1901. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in Jefferson Medical College of Philadelphia. Vol. ii., pp. 460, 81 engravings and one full-page plate. Vol. iii., pp. 428, 16 illustrations. Philadelphia and New York: Lea Brothers & Co. Issued quarterly. Price, \$10.00 per year.

These two volumes are of more interest to the general practitioner than to the specialist in diseases of children, but the

plan of the work is so comprehensive that each quarterly issue has some features bearing on pediatric subjects.

Coley describes the technique of the various operations for the radical care of hernia and the congenital umbilical variety is treated in full.

Stengel gives an important chapter on the blood. There are full descriptions of the various blood changes observed in splenic anemia, scurvy and other diseases incident to childhood.

The most recent views on pneumonia, tuberculosis and other diseases of the respiratory tract are presented by Dr. Ewart and he has gone over the literature so thoroughly that this chapter is a complete exposition of our present knowledge of these diseases and the best means for their treatment.

Gottheil's section on dermatology and syphilis is written in his usual clear style and the illustrations are most satisfactory pictures of the dermatoses he describes.

Progressive Medicine deserves well of the profession because it is progressive and the editors have made the volumes something more than a mere compilation of names of authors and journals.

Foreign Body in the Trachea Removed by Tracheotomy.—

P. Haglund (*Upsalo Läkareförueings Förhandluiger*, November 8, 1901) performed a low tracheotomy on a boy aged two and three-quarter years, who three and one-half hours before coming into the hospital had swallowed a pea. The initial attack of dyspnea had already been recovered from and the patient was suffering no discomfort, but the operation seemed indicated, as palpation of the trachea and larynx gave an impression as if a foreign body were moving within. Two days later, upon reintroducing the tube which had been temporarily removed, the pea was expelled unaltered, and rapid recovery followed. In discussing the case, the author emphasized the euphoria which is characteristic for foreign bodies in the trachea, and advocated early tracheotomy not only in cases with a positive diagnosis, but also when the presence of the foreign body in the trachea can only be suspected. The incision should be free, and it is better to desist from attempts at extraction, for when the opening is ample spontaneous expulsion usually takes place.—*Medical Record*.

Society Reports.

THE NEW YORK ACADEMY OF MEDICINE—SECTION ON PEDIATRICS.

Stated Meeting, October 10, 1901.

WILLIAM L. STOWELL, M.D., CHAIRMAN.

AMAUROTIC FAMILY IDIOCY.

DR. SARA WELT-KAKELS presented a case of this kind occurring in a child one year old, born of healthy parents. There were four children in the family, and, with the exception of this one and the first, which was said to have had hydrocephalus, they were normal. The child presented was well nourished, and had been born after a normal labor. It has a vacant stare and is unable to move the limbs or hold its head up. The pupils react sluggishly to light. Dr. H. Knapp, who had examined the interior of the child's eyes, reported that the optic nerves were pale and the area around the fovea distinctly opaque. These were the only changes noted in the fundus.

THE MODERN TECHNIQUE OF BLOOD EXAMINATIONS.

DR. F. C. WOOD briefly discussed this subject. He stated that the Fleischl hemoglobinometer was an instrument ill adapted for use by the clinician, and that consequently it was not often seen outside of laboratories. A method which was peculiarly serviceable in ordinary clinical work was that which makes use of a book of filter paper and a scale of colors. The outfit is published in the form of a book, which can easily be carried in the pocket. To use it, the blood is placed on a piece of filter paper torn from the pads of which the book is composed. After the blood has soaked in sufficiently to remove the glazed appearance of the paper, the spot is examined by daylight and compared with the color scale. In this way it was not difficult to estimate within a few minutes the percentage of hemoglobin present in a given case, and that, too, with no greater error than 10 per cent. Unfortunately there was no known method by which the blood cells could be quickly enumerated. The task was, however, made easier if one made use of a Zeiss apochromatic objective of 8 mm. and a high-power eyepiece, thus securing the advantages of a large field and well-defined lines.

In making smears, he recommended the use of two glass slides instead of cover glasses. The drop of blood is put on one slide, and it is then quickly spread by drawing the edge of the other slide over it. A simple, rapid and thoroughly practical mode of staining was by using the Jenner stain, a solution of methylene blue in methyl alcohol. It has the great advantage of staining and fixing the preparation at the same time. All that is necessary is to drop the smear into this staining fluid, and after it has remained there for one minute, to wash it in water. This stain is not, however, well suited for staining the malarial organisms, and for this purpose it is better to use some compound stain, such as carbol-thionin. Another admirable stain for the latter purpose was that devised by Goldhorn. The same arrangement of objective and eyepiece already recommended would be found the best when making the differential blood count, and for the same reasons. It was well to remember, when testing for the Widal reaction, that one can obtain from 20 to 30 per cent. more positive results if serum is used instead of the dried blood. The speaker mentioned incidentally that he had discovered that a number of the Thoma-Zeiss blood-counting chambers were very inaccurate, and that the error seemed to have arisen from the softening effect of our climate upon the cement used in the construction of the chamber.

THE PECULIARITIES OF THE BLOOD IN INFANCY AND CHILDHOOD.

DR. GERTRUDE M. LIGHT was the author of this paper. She pointed out that in infancy there is a constant tendency to revert to the embryonal character, and that leucocytosis was apt to be pronounced. The red count diminishes to the end of the third year, after which it rises to the twelfth year. The adult balance is then established. In cases of chronic gastrointestinal disorder with resultant anemia, a moderate leucocytosis was the rule. In childhood, as in the adult, typhoid and la grippe are characterized by an impoverished blood count, and, except where inflammatory complications are present, there is an absence of leucocytosis. In pneumonia the significance of leucocytosis is the same as in the adult. Tuberculosis without the formation of cavities is not associated with leucocytosis. In scarlatina, however, leucocytosis is usually present, and eosinophilia is constant, thus enabling one to distinguish it from measles, in which leucocytosis is present only in connection with a severe complicating bronchitis. True leukemia is rare in childhood.

When it does occur, the onset is sudden and the prognosis most grave. A blood examination is essential to differentiate it from certain forms of purpura.

A CASE OF SEVERE SECONDARY ANEMIA IN A CHILD OF TWO YEARS.

DR. L. E. LA FETRA read a paper giving a report of this case. (See page 837.)

A CASE OF SO-CALLED VON JAKSCH'S ANEMIA.

DR. C. HERRMAN reported this case. (See page 840.)

A CASE OF SPLENOMYELOGENOUS LEUKEMIA IN A CHILD OF EIGHT YEARS.

DR. H. HEIMAN reported this case. He declared that there were only two types of true leukemia in childhood—the lymphatic and the splenomyelogenic—and each of these he believed were demonstrable clinically as distinct diseases. The child, whose case is here reported, had been born after a normal labor. She was emaciated and presented a very large splenic tumor. The heart, lungs and kidneys were normal. A number of blood examinations had been made during the eight months prior to death that the case had been under his observation. In the pseudoleukemia of von Jaksch the blood examination showed some of the features both of true leukemia and of pernicious anemia; hence it apparently occupied a position intermediate between secondary anemia and leukemia. The blood findings in Hodgkin's pseudoleukemia were those of simple leukemia.

CASES OF LEUKEMIA.

DR. THEODORE C. JANEWAY presented one case of leukemia and reported two others. The former had been ill now for about eighteen months. Under a vigorous course of arsenical treatment the spleen had greatly diminished in size. In one of the other cases reported the skin had been of a lemon-yellow hue, the spleen and liver had been enlarged and the lymph nodes had also been enlarged. A week before death vomiting and hemorrhages had set in, and with this the abdomen and lymph nodes had so rapidly reduced in size that those who had seen the case for the first time at autopsy had doubted the diagnosis of leukemia. This diagnosis had, however, been confirmed by microscopical examination. In another case, that of a child of six years, there had been general enlargement of the

liver and of the lymph nodes, together with hemorrhages into the retina and throughout the body. The differential blood count gave about 98 per cent. of the white cell lymphocytes. Clinically the case was one of chronic leukemia, though the blood picture corresponded with that of a case of acute leukemia.

DR. HENRY DWIGHT CHAPIN said that while he had been deeply interested in the various communications that had been presented, he could not help feeling that much of the accuracy of these blood examinations was apparent rather than real. He based this statement on personal experience and observation with the hemoglobinometer, an instrument which he had known to yield widely different results according to the individual making the examination.

DR. DAVID BOVAIRD commended the Jenner stain to clinicians for its simplicity, and remarked that it could not be denied that students of pediatrics had not been as fully alive to the researches into the blood changes taking place in children as had those engaged in general medical practice.

DR. C. G. KERLEY said that most of the anemias met with in children were classified as secondary, and by far the larger number of them were secondary to disorders of the intestinal tract. He had not found medicinal treatment of much avail; the secret of success in these cases lay in attention to hygiene and a proper regulation of the diet.

DR. H. HEIMAN said that the Jenner stain was objectionable, because it did not give the red color to the red cell, and it produced a copious precipitation very much like Gram's stain. As to the secondary anemias of children, he did not believe iron was indicated or of value, for the state of the blood was very different from that existing in the disease in which iron had achieved its greatest successes, *i.e.*, chlorosis.

On the Tenacity of the Poison of Scarlet Fever.—As an illustration of the tenacity of the scarlet fever poison, Lommel reports (*Münch. Med. Woch.*, July 16, 1901,) a case of the disease acquired in a room in which a case of scarlet fever had been 133 days before.—*American Medicine.*

Current Literature.

DERMATOLOGY.

Bowen, John T.: Six Cases of Bullous Dermatitis Following Vaccination and Resembling Dermatitis Herpetiformis. (*Journal of Cutaneous and Genito-urinary Diseases*. Vol. xix., No. 9.)

These cases all occurred in children between the ages of four and ten years. All but one of the patients were boys. The eruption was most marked about the mouth, nose and ears, the backs of the hands and wrists, and the ankles and feet; and was least in evidence upon the trunk. The individual lesions were either vesicles or bullæ, although in some cases the initial lesion was an erythematous ring or disk which either persisted as such or underwent a change into the vesicles or bullæ. Itching was never a prominent symptom and was frequently absent. In two of the cases in which a blood-examination was made, marked eosinophilia was present, as was to have been expected in a bullous dermatitis.

All the cases followed vaccination. The duration of the disease was from a few months to several years. The resemblance to Duhring's disease (dermatitis herpetiformis) was quite marked, for in the affection under consideration the course exhibited the same tendency to recurrence after apparent recovery, and other points of similarity are sufficiently obvious. But unlike Duhring's disease the present malady exhibited uniformity and not multiformity, and its localization was very different from that seen in dermatitis herpetiformis. The questions of exact diagnosis and of etiology including relationship to vaccination are left open by the author.

Schmidt, L. E.: Report of a Case of Epidermolysis Bullosa Hereditaria. (*Journal of the American Medical Association*. Vol. xxxvii., No. 9.)

Despite the title of this paper the case described was not actually inherited, although agreeing with the previously reported observations in most respects. The patient, a boy nine years old, seemed to be perfectly healthy at birth, and the first bullæ appeared at the end of the second week on the soles of the feet. Several weeks later the hands began to be affected.

When the child began to walk, lesions appeared as high up as the knees and elbows, and the dorsal surfaces of the feet were simultaneously implicated in the process. The affection continued to occupy the above-mentioned localities up to the time of the observation period, but bullæ or vesicles also appeared in the most varied localities from time to time. The nails suffered during the malady. Bullæ continued to appear as usual when the surface was carefully protected from irritation, and the author was unable to produce lesions by any known form of irritation. The fluid in the lesions was sometimes hemorrhagic and infection of the raw surfaces was often indicated by the presence of adenopathy in the groins and axillæ. Atrophy of the skin was present, so that this case belongs to the dystrophic type of the disease. The affection persisted despite all treatment.

MEDICINE.

Abt, Isaac A.: Hepatic Cirrhosis; Congenital Idiocy; Sporadic Cretinism. A Clinical Lecture Delivered at the Cook County Hospital, Chicago. (*The Clinical Review.* Vol. xiv., No. 5.)

The case of hepatic cirrhosis was in a twelve-year-old Russian boy. Two years ago when first seen, the abdomen was very prominent, and the liver and spleen were enlarged. This has persisted to the present day. The liver now extends $3\frac{1}{2}$ inches below the costal arch, but presents no nodulation. The spleen is likewise greatly enlarged. The diagnosis is by no means readily made because enlarged liver and spleen occur in a certain type of leukemia; the same organs are increased in size in some cardiac diseases, while certain specific affections—syphilis, malaria and tubercle—are all able to produce organic disease in these viscera. Finally amyloid degeneration and Hodgkin's disease must be excluded.

Leukemia is readily excluded by the blood-examination, while the latter resource aids in the exclusion of malaria as well; furthermore, there is no history of the latter affection. In a syphilitic liver we should expect to find nodositus. Tuberculosis does not attack the liver in childhood, and Hodgkin's disease may be excluded by the absence of enlarged glands. Organic heart disease is absent, and there is no history of any condition which would produce amyloid degeneration of the

viscera. If hepatic cirrhosis is diagnosed by exclusion we still have to determine which type is present. The lecturer appears to regard the case as one of the infective or Hanot type and a sequel of an attack of Asiatic cholera from which the boy had once suffered.

The prognosis is bad; the child should be placed on a milk diet and saline cathartics. Some authorities counsel the use of iodide of potash or chloride of ammonia as alteratives. The new surgical operation of forming a fresh collateral circulation for the portal blood holds out some hope for radical cure.

Besides the case above quoted, the lecturer spoke of two cases, one of congenital idiocy and the other of sporadic cretinism.

Plá y Armengol, R., and Gimiso, Manuel. Transitory Hysteria; Attempts at Suicide by Drowning; Recovery. (*La Medicina de los Niños.* Vol. ii., No. 20).

A boy aged ten years entered the pediatric clinic of the University of Barcelona on March 21, 1901. A year before some comrades had suspended him by a rope attached to his waist, and the resulting compression caused him to cry for help as he felt himself about to die. His comrades hastened to his relief and found him speechless, breathing hard, his face distorted with fear.

The results of this fright disappeared in several days. Some three months later he made his first attempt at suicide. Whenever he passed along the river he felt an impulse to throw himself in the water. Soon afterward he began to suffer from hysterical convulsions. He required constant watching to keep him from the river. Aside from the hysterical phenomena the boy appeared to be in perfect health.

It was found that both parents were markedly neuropathic. The father was subject to attacks of paresis which lasted from twelve to fourteen hours, and the mother was an ordinary hysteric. There was no history of pellagra.

Examination revealed neither stigmata of degeneration nor of hysteria. The morbidity consisted only of his desire to drown and of the convulsive attacks.

The diagnosis of hysteria was made by exclusion. The family history and the fright sustained appeared to justify the assumption of this affection, probably of a transient type.

The boy was separated from his family, and treated by

general hygiene and moral repose. He was given glycerophosphate of lime and arsenious acid. In the space of two months he was discharged cured and there has been no tendency to a recurrence of the trouble.

Eichhorst: Gangrene of the Arms and Legs After Scarlet Fever and Other Infectious Diseases. (*Deut. Archiv. für Klin. Med.* Vol. lxx., No. 5 and 6.)

A girl four years old had an unusually severe attack of scarlet fever. At the end of the third week signs of embolism appeared suddenly in the left foot and leg. Dry gangrene progressed until the line of demarcation was sharply marked above the lower half of the leg. After amputation the child made a good recovery. The left popliteal artery showed evidence of endarteritis, and contained a thrombus 1 cm., above its bifurcation extending for the same distance into both the anterior and posterior tibial branches. Pure cultures of the streptococcus pyogenes were obtained from the pus of a left-sided otitis media and from a furuncle on the forehead.

A search through the literature proved that only 2 other cases of gangrene following scarlet fever have been reported. These occurred in boys aged four and nine years respectively, and involved both lower extremities.

Altogether 166 cases of gangrene in infectious diseases were collected, of these the greater number followed typhus (42), typhoid (40) and influenza (19); while 10 occurred with pneumonia, 5 with measles, 1 with varicella and 1 with diphtheria.

Weill and Péhn: Occlusion of the Small Intestine in the Newly-Born due to Congenital Malformation. (*La Presse Médicale.* No. 66. 1901.)

The authors observed the case of a full-term male child who died when nine days old. Vomiting of milk began the day after birth and continued about every two hours (after feeding) for two days, when a substance like meconium appeared in the vomitus. Lavage of the stomach brought away a considerable quantity of meconium, and was followed by a cessation of the vomiting. Milk was eagerly taken and retained. The abdomen was greatly distended, and there was no stool at any time. Two days before death vomiting began again, and consisted of curdled milk and bile. The urine contained albumin, red blood

cells and urates. The temperature was subnormal. An operation to establish an artificial anus in the right iliac fossa was done, but the child died the following night. At the autopsy the duodenum and jejunum were found to be much dilated. The ileum ended in a cul-de-sac 15 cm. above the cecum, and from this came a fibrous cord 2 cm. in length seemingly a thickened piece of mesentery, which ended in a very narrowed portion of ileum twisted upon itself several times. The cecum and colon were normal, there was no Meckel's diverticulum. None of the other viscera showed any abnormality.

Lobligeois, M. F.: Note on the Diazo Reaction in Diphtheria; Its Diagnostic Value. (*Gaz. des Mal. Infantiles.* Vol. iii., No. 21.)

The diazo reaction of Ehrlich is absolutely the exception in diphtheria, and was obtained but five times in 118 cases examined. Of these five, four could be attributed to causes other than diphtheria.

Ravogli, A.: A Case of Dermatitis Exfoliativa Neonatorum (Ritter). (*Cleveland Medical Gazette.* Vol. xvi., No. 10.)

His patient was born at full term and in good condition. The dermatitis began three days later. Erythema was noted at the side of the chest, and exfoliation followed, suggestive of the formation of a blister. The erythematous and exfoliative condition then spread over the entire surface. Death occurred on the fourth day of the disease.

The parents of the infant were healthy, and it was thought that the midwife had carried some infection. It was claimed that the midwife had recently cared for a child with the same disease and that at the time of the confinement she had a "run-round" on her finger. This theory is not as preposterous as it might at first sight appear, for Ritter himself regarded the disease as epidemic and of pyogenic origin.

The author's case strikingly resembled a burn of the first two degrees. The epidermis came away *en masse*, and in some localities large blebs could be seen filled with milky serum. The denuded surface was of an intense brownish-red color. The temperature was subnormal during the observation period. The only treatment consisted in anointing the child with borated vaselin and enveloping it in a warm blanket.

Attempts were made to nourish it. Despite the unfavorable issue of this case the prognosis is not hopeless as a rule for many recoveries from the disease are upon record.

Ausset and Dorion: Acute, Primary, Pharyngeal Amygdalitis in Children. (*Arch. de Méd. des Enf.* Vol. iv., No. 8.)

An acute, primary inflammation of the pharyngeal tonsil may occur without any previous hypertrophy of that tonsil. The affection is more frequent than is commonly supposed. Its onset is usually abrupt in a previously healthy child. The symptoms are fever, coryza, otalgia, dry cough and more or less prostration. The posterior wall of the pharynx is red and covered with mucus. Upon exploration with the finger (with antiseptic precautions), a hard mass is felt, contrasting strongly with the softness so characteristic of adenoid vegetations. The course is usually benign, lasting three or four days, and ending in complete recovery. Or, the tonsil may remain permanently hypertrophied and adenoids result. Suppurative cervical adenitis and otitis media may occur as complications. Irrigations with 1 per cent. mentholated oil, three times a day, suffice to effect a cure.

Carrière, G.: Multiple Paramyoclonus. (*La Presse Médicale.* No. 63. 1901.)

A nervous, sensitive child of ten years received a punch in the stomach from a playmate. During the following night he awoke with intense pain in the abdomen, which lasted about two hours. Three weeks later the pains returned and were repeated daily. Involuntary movements also began after the injury was received. The inco-ordinated motions seemed to be accentuated in paroxysms occurring every four or five minutes, and were accompanied by fibrillary twitchings of the muscles of the neck, trunk and extremities. The electrical reaction was normal, and sensibility was unimpaired. The cutaneous and patellar reflexes were exaggerated, so that tapping the tendon three times in succession caused tetanization. Physical examination showed the absence of any organic lesion.

By exclusion a diagnosis of paramyoclonus multiplex (described by Friedreich in 1881) was made. This affection occurs at any age and in either sex; usually there is a neuropathic family history. The movements are rapid, explosive in character and cease during sleep. They may also disappear during

voluntary motion, but in that case the muscles that are not in use show exaggerated twitchings. Neither trophic nor psychic disturbances occur. Recovery is the rule, but relapses are frequent. The condition may last for years (from five to twenty-nine). It is due to a functional hyperexcitability of the motor neurons, due to an anatomical lesion in connection with neurosthenia, or, more often, with hysteria. Treatment by suggestion is of great value. Thus in the case here reported the boy was chloroformed and a thick layer of collodion was applied to the abdomen. Upon waking he was told that he was cured. Neither pains nor twitchings have appeared since.

Wassermann, M.: **On an Epidemic, Septic, Navel Infection in the Newly-Born; A Proof of the Pathogenic Action of the Bacillus Pyocyaneus in Man.** (*Virchow's Archiv.* Vol. clxv., No. 2.)

Within a period of six weeks 11 newly-born infants died of sepsis originating in the umbilical arteries and came to autopsy. In every case there was an umbilical arteritis, with softened thrombi and fluid pus in the vessel throughout its entire length. The umbilical vein was normal. The lungs showed areas of septic pneumonia, with hemorrhages, necrosis and abscess formation; fibrinous pleurisy was common, and a fibrin-purulent pericarditis was found in 2 cases. Bacteriological examination proved that the bacillus pyocyaneus was present in pure culture in the umbilical pus, lungs and heart's blood; it was also found in sections made from the lungs. The cultures were very virulent for rabbits and guinea-pigs when injected vibra-venously, and also when inoculated into the wounded umbilicus of guinea-pigs one day old.

Thus there is proof that the bacillus pyocyaneus can occasionally assume the rôle of a disease producing micro-organism in man.

Castex, A.: **The Causes of Deaf-Mutism.** (*Arch. de Méd. des Enf.* Vol. iv., No. 9.)

Deaf-mutism is congenital at least as often as it is acquired. Consanguinity of the parents occurred in 8.49 per cent. of the cases examined. It may be the only etiological factor in the congenital cases, or it may act in conjunction with other causes, like alcoholism, syphilis or tuberculosis of the parents. Various accidents during pregnancy may have a causative effect. Deaf-

mute parents very rarely have children similarly afflicted. The principal causes of the acquired cases are: meningitis, convulsions and cerebral fevers. Both clinical and post-mortem observations establish the fact that deaf-mutism is the result of developmental or pathological changes in the auditory apparatus. The eyes and teeth are often defective in these patients, and the general health requires treatment by means of gymnastics, hydrotherapy, etc. Obligatory instruction of deaf-mutes is greatly to be desired.

Blackader, A. D.: **On the Acute Dilatations of the Heart Met With During Childhood and Adolescence.** (*The Montreal Medical Journal.* Vol. xxx., No. 7.)

Dilatation from anemia, neurasthenia and especially from toxemia is discussed. We see acute dilatation in the course of influenza, diphtheria, typhoid and rheumatic fevers. A case of the latter is cited in which a boy aged fourteen years was admitted with acute polyarticular rheumatism, cyanosis, increased area of cardiac dulness, feeble pulse and systolic murmurs loudest at apex. This condition yielded under anti-rheumatic treatment. Dilatation in the latter affection is of relatively good prognosis. Acute dilatation of the heart may also occur independently of diseased states as a result of severe or prolonged exercise, whether undertaken for sport or professional duties, such as the excessive stair-climbing of young servant girls.

A tendency to fainting and a desire on the part of children to lie down after hard play should lead to an examination of the heart.

The treatment comprises rest in the recumbent position and prevention of flatulence and over-distention of the stomach. Digitalis and strychnia are indicated as principle remedies, with either ammonia or alcohol in very acute symptoms.

Packard, Francis R.: **Two Cases of Suppuration of the Parotid Gland, with Pus in the External Auditory Meatus.** (*Journal of the American Medical Association.* Vol. xxxvii., No. 7.)

Two cases are reported, chiefly because of the fact that this affection is not readily differentiated from suppurative otitis media. The presence of pus in the external ear must be explained by infiltration through the incisuræ Santorini. Doubtless many general practitioners are quite unaware of this source

of pus in the external auditory canal, and it is most natural to attribute such suppuration to the presence of otitis media.

The first patient was a boy aged nine months known to be a hereditary syphilitic. The parotid of one side was the seat of an extensive gummatous infiltration which also involved the tissues about the auricle. The external auditory meatus was filled with pus, but when this had been evacuated the drum-head was found to be healthy. The case readily recovered after evacuation of the abscess and a course of specific treatment.

The second patient was a boy two years old who had been through a case of measles complicated by bronchopneumonia. During the evolution of the latter malady the right parotid and left submaxillary glands were found to be infiltrated. A few days later pus appeared in the right ear, while the abscess of the submaxillary region was found to be "pointing." After cleansing the ear the drum-head was found to be healthy. The case ended fatally, the temperature having been very much elevated. Pus was escaping by the mouth while the patient was moribund.

Friedenwald, Julius: Acute Dilatation of the Stomach.
(*American Medicine.* Vol: ii., No. 6.)

One case is reported which occurred in a girl aged fourteen years, who had always been healthy and free from digestive disturbances. Five hours after eating sausage she began to complain of distension and flatulence with nausea and pain. These symptoms persisted for three days with intermittent relief from paregoric; the only nutriment taken was a little milk. Vomiting then set in, and the constipation which had developed gave way to profuse diarrhea. The author now saw the patient for the first time and found her collapsed, with a temperature of 103°. The abdomen was greatly distended and tender, and the lower margin of the stomach was three finger breadths below the umbilicus. The stomach was thoroughly washed, and upon standing the first washings presented the three layers which are characteristic of dilatation. The acidity was 80, free chlorohydric acid, .21 per cent. Sarcinæ were present in abundance.

The patient was placed upon small quantities of fluid nourishment, with lavage at intervals, and her symptoms slowly

improved. Her recovery was incomplete, however, as the acidity continued high, and care in diet became essential. The remains of sausage vomited or washed from the stomach appeared to show evidence of tainting, and the author believes that acute indigestion was first set up, and that acute dilatation followed from some unknown cause.

Bowes, T. Armstrong: A Case of Spontaneous Gangrene in an Infant. (*The Lancet.* No. 4070.)

The child was born healthy at term and remained well for sixteen days, when he refused the breast and soon afterwards the appearance of a vesico-pustule in the lumbar region announced the onset of the affection under consideration. The lesion, which became gangrenous within two days, was not traceable to any form of traumatism.

The gangrene spread rapidly over the dorsal aspect of the trunk, and the child sank gradually, dying on the fourth day after the vesicle was first observed. No autopsy was held.

The gangrenous process was not multiple, nor was it connected with any cachectic malady. It was unaccompanied by any elevation of temperature. The case cannot be classed with any of the recognized types of infantile gangrene. The author finds 2 or 3 atypical cases in literature not unlike his own.

Abt, Isaac A.: A Case of Multiple Gangrene Associated with Cholangitis and Adenoma of the Liver Complicating Typhoid Fever. (*Journal of the American Medical Association.* Vol. xxxvii., No. 7.)

The patient was a female child aged twenty-one months, and was seen on the fourth day of an attack of typhoid fever. Diagnosis was made by the Widal reaction, other evidence being dubious. The face and extremities became swollen, but without dropsical pitting. Tympanites and enlarged liver were present. The temperature remained high throughout.

About the fifth day after admission and ninth day of the disease the various symptoms began to improve and the patient appeared to be doing well. A peculiar eruption, however, developed upon the back, neck and extremities; at first papular, it quickly became pustular, and then gangrenous. Death occurred at about the seventeenth day of the disease. Autopsy revealed enlarged spleen and cholangitis with adenoma of the liver.

Gangrene as a result of typhoid fever is very rare, but this sequela is occasionally observed. The same is true of cholangitis in connection with typhoid fever. It is believed that this complication is due to direct invasion of the biliary radicles by the typhoid bacillus.

Adenoma of the liver in children is also an accident of rare occurrence under any circumstance.

Ashby, Henry: A Case of So-called "Fetal (or Congenital) Rickets." (*Lancet.* No. 4068.)

Many reported cases alleged to be rickets are doubtless examples of achondroplasia. The author reports an observation of a new-born child with multiple fracture of some of the long bones of the upper extremity. There was no history of violence. The patient also presented marked craniotabes and slight beading of the ribs. Other common evidences of rickets failed entirely. The fractures healed readily and the baby evidently soon outgrew his congenital softness of the bones.

This case agrees in all essentials with two others which have been reported in America by Mason and Townsend respectively (see ARCHIVES OF PEDIATRICS, September and October, 1894.) The 3 cases are certainly not examples of osteomalacia, fragilitas ossium, or osseous syphilis. As for rickets, but a few of the symptoms found in that affection were present, and those few are not pathognomonic. Moreover, the general nutrition of the child was excellent.

In the absence of an autopsy or of histological study of the softened bone it is impossible to arrive at definite conclusions as to the nature of this malady.

Huddleston, John H.: Generalized Vaccinia. (*Medical News.* No. 1495.)

Fifty cases have been collected from miscellaneous literature. In the majority of them this generalized vaccinia appears to have followed vaccination with humanized lymph. In 20 per cent. of the cases the virus was received into the body of the patient in some abnormal fashion, chiefly by so-called accidental vaccination. Once the poison was swallowed with the food; this paradoxical and unique occurrence can be brought about experimentally in animals.

None of the 50 observations were personal. The following case is a type of this class of post-vaccinal eruption which sim-

ulates generalized vaccinia, but does not respond to the inoculation-test. A boy aged eleven months was vaccinated by a representative of the New York City Health Department, and the vaccinia pursued a normal course. By the fifth day a general eruption of discrete vesicles was in evidence. The lesions were seated upon an erythematous base, were from 1-16 to $\frac{3}{8}$ inch in diameter, and tense from the contained serum. The mucosæ were not involved. The face, neck, arms, legs and trunk were occupied alike by the vesicles, which were most numerous over the loins. Some of the vaccinators regarded the case as a vaccinal eruption, others as chicken-pox. By the eighth day many vesicles had become pustular. Umbilication did not develop. New lesions continued to appear until the twenty-second day after vaccination. The inoculation test upon three other children in the family who had never been vaccinated nor had varicella was conspicuously unsuccessful.

Crombie, A.: *Maladies of European Children in Hot Climates.* (*British Medical Journal.* No. 2124.)

Statistics of the morbidity and mortality among white children in hot countries contain a number of surprises. Thus measles is considerably more fatal than in cold countries. While chest diseases are much less common than in the North pneumonia is nevertheless one of the most deadly of all affections encountered in the tropics, every other child who contracts this malady succumbing to it.

It is a common belief that the respiratory localization of disease in the colder climates is largely replaced by a tropical tendency to gastrointestinal affections. This is an error, for as with pneumonia it is not their frequency but their severity which makes these disorders so conspicuous, the mortality being four times that of temperate climates. Dysentery, of course, like cholera, is notably more prevalent in warm latitudes. Cases of alleged dysentery which recover so readily under ipecac and salines are not to be classed as true dysentery. Abscess of the liver does not follow the dysenteric affections observed in childhood.

Ricketts appears to be rare in India, excepting possibly in famine years. The simple, continued fever which prevails in hot climates has not been shown to be synonymous with typhoid; for Widal's reaction has not as yet come into general

use. The author believes that the figures of this affection should be added to those of typhoid to give a correct idea of the prevalence of the latter.

Scrofula and tabes mesenterica appear to be extremely uncommon from the statistical point of view, and the same statement holds good in part for other varieties of tuberculosis; pulmonary phthisis is frequently recorded clinically, but the death-rate is surprisingly low for such a disease.

Premature births, or congenitally weak children are encountered over twice as often in India as in Great Britain, and prematurity appears to be very fatal.

The greater fatality of a number of diseases in the tropics may be explained in part by such factors as humidity, insect plagues, prickly-heat, etc., which favor insomnia.

Peirson, Edward L.: Infantile Scurvy. (*Boston Medical and Surgical Journal.* Vol. cxlv., No. 14.)

Two cases are given in detail: they are fairly representative of the disease which is of obscure nature. In the author's experience the affection occurs chiefly in the native-born and artificially fed, although some of the infants were in the receipt of plenty of fresh, uncooked milk.

The earliest and most common symptom is swelling of the lower end of the diaphysis of the femur.

This affection is doubtless often confounded with rheumatism; but infantile scurvy is a disease of the first two years of life—a period at which rheumatism is seldom encountered. In some cases there is of course a possibility of unsuspected trauma, but the patient should always be treated for scurvy.

Treatment is summed up in two particulars, viz: plenty of uncooked milk, and orange (or lemon) juice.

Morse, John Lovett: Infantile Atrophy. (*Medical News.* No. 1496.)

The synonymous terms, infantile atrophy, athrepsia and marasmus should be applied to a primary condition only. The latter is characterized by extreme wasting without the coincidence of demonstrable lesions.

It is pre-eminently an affection of nurslings and occurs most frequently in the first six months of life. It may be styled a disease of the urban poor and of the bottle-fed. Prematurity and general malhygiene may be important factors in its genesis.

There must, however, still be an unknown x in the etiology, for all the preceding factors may occur without the presence of marasmus.

Upon autopsy we find evidences of a disappearance of the fats and fluids of the economy. The muscles and some of the viscera exhibit involution, as does the gastroenteric mucosa. Bronchial and intestinal catarrh develop sooner or later, and may either disappear or persist until death.

The most characteristic phenomena encountered clinically are the sunken fontanelle, the lax, dry, desquamating skin, the sunken, lax abdomen and the general feebleness and apathy. As the symptoms advance the extremities become cold and cyanotic and pulmonary atelectasis develops.

In making a diagnosis all other wasting diseases must be excluded. These comprise simple inanition (which might arise from some congenital deformity), malnutrition incidental to gastroenteritis, congenital syphilis and diffuse tuberculosis. Differentiation is easy save in the case of the latter malady, when it is not only difficult but often impossible.

The prognosis is very bad and our therapeutic resources scanty. General hygiene is all-important. These children do badly upon fats, including cod-liver oil. Proteids are much better borne, but the difficulty lies in finding a preparation to suit the individual case. The author speaks well of somatose and of diffusible stimulants.

Strasser, August Adrian: Infantile Typhoid Fever. (*Medical Record.* No. 1607.)

After a report of 2 cases of typhoid in children under two years of age, the author makes numerous comments upon them. One child was apparently infected from drinking surface-water and the other from a drinking-cup in a department store. In both cases the disease began as a bronchitis. The continued high temperature appears to have been the first suspicious sign; convulsions were caused or threatened thereby and cold baths were required. With the progress of the cases, evidence of their true nature became manifold. Despite the extreme youth of the patients the picture of the disease did not differ materially from the typhoid of adults.

The ideal management of the disease is found in a combination of the Brand and Woodbridge principles. By the former

the temperature and nervous phenomena can be controlled almost at will. By the latter the resulting intestinal antiseptics tends to antagonize toxemia, perforation and other accidents. This composite plan of treatment, while it does not abort the disease, will cut its natural duration in two.

The precise indications for bathing are a temperature as high as 103°; nervous irritability threatening convulsions and severe headache. The tub-bath being often impracticable in the child, it is best to wrap the trunk in muslin cloths wrung out in water at 50° or 60° F., then enveloping the child in a blanket. The bath should be repeated every five minutes until the temperature is lowered. Danger of collapse should be combated by whisky inwardly, with heat to the extremities. This course of packs should be repeated in three hours.

Wolbarst, Abraham: Gonorrhoea in Boys. (*Journal American Medical Association.* Vol. xxxvii., No. 13.)

Within the past two years he has seen 22 cases of gonorrhoea in boys under the age of twelve years. The gonococcus was present in every case.

Investigation of the antecedents of these patients led to the conclusion that infection could not always have been accidental, and that it was often of the strictly venereal type. Some of the boys were infected by pederasty.

After eliminating these venereal methods of infection, there remained a number in which the transmission of the disease had doubtless been accidental; the children had slept in the same bed with infected fathers and brothers.

In these cases of gonorrhoea in very young boys pain is often a marked feature; while in some cases the exact reverse is noted. The presence of the long foreskin of childhood aggravates the severity of these cases immensely and is an argument for circumcision. Prostatitis and epididymitis readily occur in childhood; but the termination in gleet is very rare and gonorrhoeal rheumatism is practically unknown.

In many cases the tight prepuce exacts the need of constant cleansing of the glands and sulcus. In an anterior urethritis protargol gives excellent results. When the posterior urethra is involved, weak permanganate solution (1-6000) is indicated as an irrigation. Inwardly the author recommends oil of wintergreen, 5 to 10 minims three times a day.

Beasley, H. C.: A Case of Relapsing Diphtheria. (*The Lancet.* No. 4070.)

The seven year old patient had undergone an attack of typical diphtheria of the fauces and nasal mucosa. Antitoxin appeared to control the affection in a measure but did not prevent its extension into the larynx. Tracheotomy having been performed, the child made a good recovery. Ten days after the final removal of the tube, the temperature ran up to 103° and new membrane appeared in the throat. The disease appeared to be a reinfection rather than a relapse. Rapid recovery occurred under antitoxin. No bacteriological examinations were made at any time.

Wingrave, Wyatt: Tonsillotomy Rash. (*The Lancet.* No. 4070.)

"Surgical rash" has not been much noted in connection with operations upon the tonsils and adenoids. That it frequently follows such operation is attested by the author's personal series of 34 cases which were recorded in the course of seven years. The various ages of the patients are not stated, but the oldest was but twenty-three years old, so that many of the tonsillotomies were doubtless performed on children.

The rash begins from the first to the sixth day after operation, attacks by preference the neck, chest and abdomen, and is erythematous, roseolar or papular in type.

As to the nature of the eruption, it doubtless varies with the case. The raw surfaces left by the operation favor the absorption of toxic matter. Some of the cases might have been due to drug idiosyncrasy.

McCrae, J.: Sporadic Cretinism in Canada. (*The Montreal Medical Journal.* Vol. xxx., No. 8.)

Notes of 13 cases, from nineteen months to fifty-eight years of age, are given. The thyroid was found to be atrophied or absent in 4, hypertrophied in 4 and normal in 2. Marked myxedema was present in 4 cases only. Many of these cases are goitrous, and a fair percentage are the offspring of goitrous parents. In treating with thyroid extract the commercial products are safer than the raw gland, and the dose for young children varies from 1 grain upward. Any long-continued lapse of treatment will be found to be detrimental to the patient's cure.

The author knows of 27 other cases in Canada, irrespective

of those occurring in institutions, and calls attention to the fact that the disease occurs with greater frequency than is generally supposed.

Cambridge, P. J.: **A Case of Cystinuria in which Cadaverin was Found in the Urine.** (*The Lancet.* No. 4070.)

The patient was a girl aged twelve years. Cystin was accidentally found in the urine which was otherwise normal. Tests were at once made for diamins, and a small quantity (0.024 gms.) of what was undoubtedly cadaverin was thereby obtained.

This is the 111th case of cystinuria to be placed upon record, and the 31st to be noted in the female sex. In 6 preceding cases of cystinuria, cadaverin has been found in the urine.

Buist, R. C.: **Hemorrhage into the Pons Varolii in an Infant.** (*Yale Medical Journal.* Vol. viii., No. 3.)

An infant eight days old presented symptoms simulating opium poisoning, pin-point pupils, cyanosis and respiratory difficulty relieved by artificial respiration. Vomiting was absent, the heart beat well, but swallowing was so seriously interfered with that it brought on interruption of the breathing. At the time of death the temperature was 106.2° F. These symptoms with the small pupils give a classical picture of bleeding into the pons and are opposed to the supposition of poisoning.

At autopsy the heart proved to be normal, and the lungs congested. A hemorrhage the size of a pea was found in the upper part of the right half of the pons varolii.

Solomon, L. L.: **Mitral Regurgitation Produced by the Efforts at Resuscitation in a Partially Asphyxiated New-Born Babe; Report of a Case.** (*The American Practitioner and News.* Vol. xxxii., No. 35.)

The child was born almost completely asphyxiated, because of a prolapsed cord and a tedious labor. The heart sounds were absent but were restored by "heart massage," hot and cold water dashed on the thorax, and swinging the infant by the feet. The Sylvester method of artificial respiration was used, but breathing was not established until air was blown into the mouth of the infant and forced out by external pressure. After a few such efforts an apex bruit, diagnosed as due to mitral regurgitation, appeared. The murmur disappeared as

soon as the efforts to blow into the lungs ceased and reappeared when air was forced into the lung.

The author finds a probable explanation for the production of the murmur in the over-distension of the lungs, mechanically interfering with the proper action of the heart and closure of the left ventricle. Two other explanations suggest themselves: faulty innervation due to accelerated circulation produced by the artificial respiration; and inability of the mitral valve to close because of the large amount of blood in the left auricle in consequence of the stimulus to circulation given by the efforts at establishing respiration.

Dercum, F. X.: A Large Subcortical Tumor of the Occipital Lobe Producing Right-Sided Hemiparesis and Right Homonymous Hemianopsia, Together with Wernicke's Pupillary Inaction Sign as a Distance Symptom. (*The Journal of Mental and Nervous Diseases.* Vol. xxviii., No. 8.)

The patient was a colored boy, twelve years old, of tuberculous family history. At the age of nine he had a sudden attack during which he lost the power of speech and the power to move the right arm for a few minutes. Nothing further was noted for two years, when he began to complain of his eyes, and headache. Glasses corrected his vision, but the headaches continued. The right hand became weak, and soon afterward he began to drag the right foot. Then it was noticed that he spoke less plainly. Examination a year later showed the right arm to be spastic; reflexes on the right side exaggerated; no sensory losses and perfect mental clearness; but the child was tearful and emotional. There was paresis of the lower half of the right side of the face. Optic neuritis was not found, but a right homonymous hemianopsia. About three weeks later there was decided ataxia in the movements of the right arm and leg, a slight hypesthesia of the entire right side, and Wernicke's symptom was present.

A diagnosis of deep subcortical brain tumor in the left occipital lobe was made. Death occurred from progressive weakness, and was not preceded by convulsions.

At autopsy a tumor 7.4 cm. long and 3.5 cm. wide was found in the left hemisphere, 1.2 cm. below the lateral surface, 3 cm. from the apex of the occipital lobe, from 1.4 to 3.5 cm. below the mesial surface, and 3.5 cm. from the basal surface.

It had evidently destroyed the fibers of the optic radiation, but did not involve the optic thalamus nor the quadrigeminal bodies. These structures were probably influenced by pressure, however. It is extremely probable that the Wernicke's symptom observed in this case was a pressure symptom. The fact that it had not been observed at an earlier observation is of significance in this respect. The hemihyperesthesia and hemiparesis of the right side were evidently due to slight involvement and pressure upon the posterior limb of the internal capsule.

A microscopical examination of the tumor revealed it to be a tuberculoma.

White, F. W.: **An Apparent Case of Diphtherial Infection from Well Persons Carrying Diphtheria Bacilli.** (*Boston Medical and Surgical Journal.* Vol. cxlv., No. 9.)

A child two years old recovered from a mild attack of diphtheria treated with antitoxin. Cultures from his throat showed that diphtheria bacilli continued to be present and virulent for eighty-five days. Of the 4 persons associated with the patient, 2, aged four and eighteen years respectively, had virulent bacilli in their throats nearly three months after the onset of the boy's diphtheria, although neither person was ill and the rooms had been fumigated twice. The other associates, aged six months and twenty-five years, did not have any diphtheria bacilli in the throat. Two healthy children were exposed for a day or two to the children having the bacilli in the throat, after the patients had been released from isolation and the place fumigated because one culture had been found negative. Subsequent cultures showed that the bacilli had not all disappeared, and one of the exposed children developed a mild case of diphtheria from which she recovered.

It might prove of advantage to make a rule that not only the diphtheria patient himself, but all persons associated with him must show two negative throat cultures before being allowed to mingle with healthy persons.

Abbott, F. C.: **Intrauterine Rickets.** (*British Medical Journal.* No. 2123.)

The patient was one of twins. Its fellow undoubtedly suffered from the same affection in a less degree, but was not under observation. The increased intrauterine pressure of twin gestation is thought by the writer to have been responsible for

the yielding of the soft fetal bones which caused permanent deformity of the latter.

The curves of the bones are those of ordinary extrauterine rickets, which are held to be due usually to gravity and muscular contraction; the author suggests, from the similarity of the two conditions, that ordinary rickets may have its inception in utero.

The patient was not seen until fourteen months of age. She exhibited many of the ordinary evidences of rickets, although the case was not typical. The bones were soft and malleable, and nearly all of them could be bent. The mother stated that the child's condition had undergone no change since birth. The curves of the bones were of such a character that they corresponded exactly to those of the intrauterine position.

The patient lived but a few weeks after first coming under observation. Microscopical study of the bones revealed the presence of typical rachitic changes.

SURGERY.

Le Guen: Dermoid Cyst with Torsion in a Child of Eleven and One-half Years. (*Gaz. des Mal. Inf.* Vol. iii., No. 21.)

The little girl had always been well until a sudden attack of abdominal pain simulating appendicitis about three months before admission. The present seizure was severe and accompanied by vomiting. Appendicitis was diagnosed and she was brought to the Hospital for Sick Children, Paris. The temperature was 38.5° C., and the abdominal pain chiefly on the right side. At operation the appendix was found to be perfectly healthy, but the pelvic cavity was occupied by two dermoid cysts. The one on the right side had become twisted and was as large as a fetal head. The left one was the size of a hen's egg. Hair was found in the cysts which was removed. Recovery was complete.

Jepson, William: Congenital Cystic Kidney. (*Journal American Medical Association.* Vol. xxxvii., No. 13.)

The baby a female, was born healthy, and her condition appeared to be perfect for the first four months and fourteen days, at the expiration of which time she was seized with vomiting and suppression of stools. The abdomen became

irregularly swollen, and fluctuation in the right side showed the presence of an accumulation of fluid. A provision diagnosis was made of cyst of the urachus. Aspiration of the mass brought away a highly albuminous fluid. Control examination of the urine showed that the abnormal fluid did not represent the urinary secretion. The diagnosis now lay between ovarian cystoma, cystic kidney, cyst of the liver or pancreas, retention cyst of the gall-bladder and obstruction of Winslow's foramen. Laparotomy was done. The cyst adherent in front was at once liberated; it nearly filled the abdominal cavity and its origin could not be determined off-hand. Some of the fluid was drawn off and it then became possible to ascertain that the mass originated in the right upper abdominal region. The renal origin of the cyst was established by exclusion, the uterus, ovaries, liver and gall-bladder having been found normal on palpation.

The baby made a rapid recovery from the intervention and was in perfect health at the time of writing.

Congenital cyst of the kidney is usually bilateral and found in association with other congenital anomalies; this type may in fact be due to retention of urine from absence of ureters, etc. The present case appears to have been of a different class, its rationale being obscure. From the practical point of view, the case constitutes a record for nephrectomy from the standpoint of the youth of the patient.

Bradford, E. H.: Congenital Dislocation of the Hip.
(*St. Louis Courier of Medicine.* Vol. xxv., No. 2.)

The author considers the alteration in the capsule the chief obstacle to permanent reduction. Reduction without incision may be performed when the narrowed portion of the capsule near the acetabulum will allow of passage of the head of the femur. When this is not the case incision is to be advised. Permanency of cure depends on the following conditions: That the head be well placed in the acetabulum; that the acetabulum be sufficiently deep to hold the head; that no fold of the capsule interpose between the head and the bottom of the acetabulum; that no contracted band of the capsule remain, causing a dislocation if the limb be adducted or extended; that the head be placed in its normal position and kept there sufficiently long for the capsule to be firmly contracted about it, with the re-established muscular tonicity holding the head well in place.

Much stress is laid upon the position of the limb during the after treatment. After giving a list of cases reported by other authors the conclusion is drawn that not over half the cases can be permanently cured by the bloodless method, and that three-quarters of the unilateral cases may be cured by operative reduction with incision. Sixteen cases are reported from one and one-half to thirteen years. Manipulative reduction was successfully employed and subsequent incision to give greater firmness.

In 14 cases the capsular construction over the entrance of the head was smaller than the head. In the two youngest the acetabulum was not well formed.

Wherry, George: **A Case of Intestinal Obstruction and Peritonitis from Gangrenous Meckel's Diverticulum: Recovery.** (*The Lancet.* No. 4070.)

A boy of fourteen years of age entered the hospital with the clinical picture and history of intestinal obstruction. Laparotomy was immediately performed. The construction was found to be due to a Meckel's diverticulum. This was clamped near the bowel and removed. The orifice was then stitched up. The peritoneal cavity was sponged and a drain left in the wound. Recovery was rapid. A fecal fistula formed but closed spontaneously.

The diverticulum was $3\frac{1}{2}$ inches and firmly adherent by its distal extremity with the mesentery. The small intestine became incarcerated in the loop. The resulting strangulation had caused gangrene in the diverticulum, as well as severe intestinal obstruction.

Bellids, J. M.: **Left-sided, Streptococcic Empyema of Armaling Severity: Emergency-operation: Recovery.** (*La Medicina de las Ninos.* Vol. ii., No 10.)

A pale, cachectic boy aged four years presented himself at the Pediatric Clinic, Barcelona, with very frequent and forced respiration and dry cough. The extremities were edematous.

Physical examination revealed the presence of a very large left-sided latent empyema; diagnosis confirmed by results of exploratory puncture. The affection appeared to be a sequela of an attack of measles four months earlier.

As the patient seemed to be nearly moribund, he was immediately subjected to thoracotomy and a litre of pus was

thereby evacuated. Syncope resulted from the sudden change of position of the heart, requiring caffen hypodermics and artificial respiration. No attempt was made to irrigate the pleural cavity. The boy made a good recovery.

Hinds, Frank: Laceration of the Inferior Vena Cava: Death After Four Hours. (*British Medical Journal.* No. 2121.)

A six year old boy was run over by a rubber-tired cab and was brought to a hospital collapsed, reviving somewhat under warmth and stimulants. The picture then became that of intra-peritoneal hemorrhage, and intravenous injection of saline solution was practiced. The pulse having improved, laparotomy was performed and a considerable amount of clots and fluid blood was removed. Hemorrhage had ceased and the source of the blood could not be detected. While palpating the posterior border of the liver a tear was encountered and a fatal gush of blood occurred. Autopsy revealed the fact that the inferior vena cava had been torn half way through its circumference.

The case is of interest as showing the length of time a patient may live after this accident. The survival was four hours and would doubtless have been longer had no operation been performed.

Ewart, William, and Dickinson, Wm. Lee: Two Cases of Chronic Hydrocephalus in Infants Treated by Tapping and by the Introduction of Aseptic Air in the Place of the Fluid. (*British Medical Journal.* No. 2123.)

The introduction of air into the space left after evacuation of the fluid in chronic hydrocephalus is termed by the authors the "introduction of artificial pneumocephalus."

Simple tapping had been practised by one of the authors for many years without much benefit. The bulk of the fluid cannot be withdrawn by this resource alone, and the expedient about to be described was finally devised.

Two trochar openings were made in the fontanelle, one for the escape of the fluid and the other for the introduction of air. A small screw-clip was used on the escape-tube to prevent the too rapid evacuation of the hydrocephalus. The operation as such succeeded perfectly. A large quantity of fluid was forced out and the size of the head was much reduced with coincident disappearance of pressure phenomena.

At the present time the authors have operated upon two children, the first patient having been tapped eight times. In the second case the operation was performed but once, as the patient was in good health, and there was no indication for resorting to the operation again. The first case was therefore the source of their knowledge of the new operation. Thus far they have removed about eleven pints of fluid, to the great relief and benefit of the patient. His brain will have a fair chance to develop if theappings are continued. The general nutrition has markedly improved since the operations were first undertaken.

In regard to operative accidents, the too rapid escape of fluid was followed by collapse on the occasion of the first tapping. The possibility of this accident has been done away with by the use of the clip in regulating the escape of the fluid. Other temporary phenomena (paresis of some of the cranial nerves, muscular rigidity, etc.), appear to have been due to meningeal irritation.

The authors conclude that their operation is safe; that one tapping may suffice in cases of moderate degree; that the timely repetition of the operation in severe cases may enable the infant to bear the weight of its head and perhaps to develop a healthy brain. After introduction of air within the skull we may obtain a tympanic percussion-note and splashing sounds.

In discussion Stiles announced that he had used the above method in three cases with unfavorable results, all the children dying of the disease, or possibly, in one case, from the intervention.

HYGIENE AND THERAPEUTICS.

Saint-Philippe, R. : Iodate of Arsenic in Emphysematous Bronchitis of Children ; Termed Chronic Bronchitis. (*Gaz. des Mal. Infantiles.* Vol. iii., No. 21.)

True asthma in children is very rare; authentic cases are seldom reported and text-books on pathology do not discuss the subject.

Simple bronchitis in children is hardly ever chronic in the true sense of the word. Bronchitis in the case of some children recurs frequently and the attacks are prolonged, but this condition cannot be compared with chronic bronchitis in adults.

One frequently sees in rachitic or lymphatic children an emphysematous bronchitis, and this affection presents special and very interesting characteristics.

In the growing child the lungs are supple and possess an elasticity which is only lost with advancing years. The emphysema occurs suddenly and usually disappears together with the bronchitis which induced it.

Most children suffering from repeated attacks of bronchitis are of lymphatic or scrofulous temperament; they are flabby and apathetic and frequently have moist eczema of the face, blepharitis, coryza, etc.

Therefore, the author believes that iodate of arsenic will be found of great value. A series of careful observations during several years enable him to confidently recommend this very active and powerful salt. Mixed with food it is easily digested and well supported, being almost without taste. It should be prescribed as follows: Iodate of arsenic, 30 cgms.; distilled water, 30 cgms.; dissolve in the cold. Begin with 5 drops at each meal, and increase 1 drop morning and evening until 15 are given or even 20. Continue this maximum dose for about one month, then reduce in a similar manner until 5 drops are given; cease eight to ten days, recommencing as before.

Escherich: The Treatment of Thrush by Means of the Cotton Tampon Prepared with Boric Acid. (*La Revue Méd. du Canada.* Vol. iv., No. 50.)

Excellent results are obtained by allowing the infant to suck a cotton tampon covered with finely pulverized boric acid to which a little saccharin has been added. The tampon is placed in a silk or batiste bag and sterilized before being given to the child. In recent cases the inflammation disappears in twenty-four hours, and the treatment fails only in moribund children who are too weak to suck. A fresh tampon should be prepared daily.

Rille, J. H.: On the Use of Epicarine in the Treatment of Skin Diseases. (*Heilkunde.* No. 12. 1900.)

In order to judge of the curative effects of the treatment, the author advises using it for hospital patients rather than for dispensary cases.

In 5 cases of psoriasis of moderate gravity a 20 per cent. ointment cured large psoriatic patches upon various parts of the

body without producing any irritation of the skin. The same treatment, however, produced no effect on much inflamed and infiltrated areas, particularly those located in the lumbar region and upon the elbows, knees and legs. Epicarine ointment is indicated only in mild cases.

In 18 cases of scabies epicarine was used with success. One application, or at the most two, almost always sufficed. The pruritus ceased and the furrows of the ascarus disappeared completely; but the eczematous eruption was not modified and did not disappear until renewed applications had been made. The author thinks it would be well to double the proportion of epicarine. No symptoms of serious irritation nor of renal inflammation were observed.

Bézy and Stoianoff: Thyroid Treatment in Myxedema.
(*La Presse Médicale.* No. 64. 1901.)

The five-year-old patient was well at birth, and remained so until the age of thirteen months. Her family history was good. After an attack of measles the walk and speech became difficult and the general intelligence suffered. At two years there seemed to be an amelioration of all the symptoms, but after a short time the improvement ceased and both physical and intellectual development were arrested completely. The child was short and fat with rachitic deformity of the extremities, an hypertrophied tongue, normal skin and a temperature of 35.8° C. The voice was rough; no thyroid body could be demonstrated. Treatment was begun with fresh thyroid gland from the sheep, the dose being increased from one-half to one and a half grms. per day. Within two months marked improvement was noted in the physical and mental condition of the child; and after nine months of treatment the child walked without assistance, was intelligent, and began to talk.

It is interesting that the symptoms appeared one month after an attack of measles. This is not the first case in which measles is noted as the beginning of an infectious thyroiditis.

Borts, M.: Dosimetric Medication in Pediatric Practice.
(*Cleveland Medical Gazette.* Vol. xvi., No. 10.)

The beginner in general practice is often disappointed in finding that his very young patients have been unable to swallow his medicine, even when he had taken especial pains to render it palatable. Bulky remedies often fail unaccountably to

produce the desired result, and sometimes produce undesirable consequences. These drawbacks are all offset by the use of alkaloids in minimal doses—the so-called “dosimetric system.” The author, however, deplors any tendency to make of this resource an exclusive system of medicine. He would simply regard it as an improvement in prescribing and therefore a worthy adjunct to practice. The doses of the alkaloids are so minute that the remedies may be administered at extremely brief intervals. The granule contains too little of the active substance to be tasted, and hence are admirable for children. We also obtain absolute accuracy in dosage. It is true that alkaloids might be given after the same fashion in solution, but the granule is the handiest form of unit.

Kerley, Charles Gilmore: Suggestions in Infant Feeding.
(*Medical Record.* No. 1608.)

In case of inability to digest the casein of cow's milk, the author believes in curdling the milk with rennet or pepsin and removing the curd. To the whey which contains 1 per cent. fat and 1 per cent. lactalbumin to 4 per cent. of sugar, a certain amount of cream should be added.

Excess of any of the chief ingredients should be recognized by the appearance of certain symptoms. Thus too much fat causes active peristalsis and colic with diarrhea; while excess of proteids (casein) also causes colic, but the latter is associated with constipation. Excess of sugar of milk on the other hand does not give rise to symptoms.

In the typical case of protracted indigestion from miscellaneous hand-feeding such as occurs with great frequency in dispensary practice, the stomach should be washed out without further ado, and no ingesta given during the first day beyond dextrinized barley. After a few days milk is cautiously added by fifths at a time, or whey is substituted for the barley water. The stomach washing may need repetition daily.

In very rare cases we may encounter complete idiosyncrasy toward milk. This distressing condition may be outgrown; but in the meantime the patient must depend upon barley water and chicken-broth.

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Original Communications.

PRIMARY INTESTINAL TUBERCULOSIS IN CHILDREN; ITS FREQUENCY AND THE EVIDENCE OF ITS RELATION TO BOVINE TUBERCULOSIS.*

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The question of the relation between human and bovine tuberculosis has been brought so prominently before the world by the recent address of Prof. Koch, that it has seemed to me it might be of interest to present to the section certain relevant data which I have been collecting for several years.

The problem of the identity or non-identity of the bacilli of human and bovine tuberculosis is so strictly a question to be determined by bacteriologists that I shall not attempt to discuss it. Evidently bacteriologists are not at all agreed as to the solution of the problem, and its definite determination must be left to the future. Meanwhile it seems not unfitting to discuss the possibility of the transmission of tuberculosis from cattle to man and the evidence that may be adduced therefore.

The frequency of tuberculosis among cattle is generally admitted. Without going into details (for which anyone can refer to Nocard's excellent little work, "Animal Tuberculosis," or Eber's⁴⁶ statistics) the percentage of tuberculous cattle found by inspection in abattoirs varies in different places and in different years from 12 to 18 under ordinary conditions, increasing in certain towns to as high as 30, and in certain herds in the anciently infected cow-houses of London even reaching 60 or 70 per cent.

Ostertag contends that more careful examination would greatly increase the per cent. of tuberculous cattle, saying that

* Read before the Section on Pediatrics, the New York Academy of Medicine, November 14, 1901.

in one day he examined 43 fat beasts in an abattoir and found tuberculosis of the bronchial glands in 21.

For the United States Osler¹ gives the following data: Of 5,297 cattle slaughtered in Maryland only 159 (3 per cent.) were tuberculous (A. W. Clement). Of 15,506 slaughtered at the Brighton abattoir, Boston, only 29 were tuberculous, less than .2 per cent. The tuberculin test has shown in some places a percentage of from 15 to 30. The contrast between these figures and those from the continent is very striking. Osgood⁴⁷ found some herds entirely free; some showing 80 per cent. to 90 per cent. of tuberculosis.

The frequency of tuberculosis among cattle being admitted (leaving out of account the rare instances of direct inoculation of wounds), it is evident that the disease might be transmitted to man by the consumption of the meat or milk of affected animals.

So far as the danger from meat is concerned, I will content myself with quoting a paragraph of an official order of the German Government, dated March 26, 1892, to wit: "The very numerous experiments made at Berlin and in a great number of German universities prove that, with the exception of the very rare cases in which tuberculous nodules are found in the muscles, the ingestion of meat from tuberculous animals is powerless to transmit tuberculosis." We, therefore, come to the question of most immediate interest and concern—the danger from the milk of tuberculous cattle. It at once appears that not all tuberculous cattle are sources of danger in this regard. In fact the doctrine is fairly well established that only such as have tuberculous lesions of the udder are really dangerous, *i.e.*, show tubercle bacilli in their milk.

Adami² has recently made a very candid and valuable contribution to this subject. He reports a number of cases in which the milk of cattle proved virulent even when the most careful examination of the udder, both macro- and microscopically, failed to show udder disease. He cites also the report of Rabinovitch and Kempner to the Congress for Study of Tuberculosis, in which, of 15 cows tested by inoculation, the milk of 10 gave positive results (produced tuberculosis) although only 1 of 10 showed clinical tuberculosis of the udder. He, however, agrees that the great source of danger is the disease of the udder. In this country Ernst,³ examining the milk of tuberculous cows in which the udder was apparently not in-

volved, found the tubercle bacillus in 7 out of 14 samples. Nocard⁴ calls attention to the fact that the test of virulence generally employed in these cases has been the intraperitoneal injection of the milk in susceptible animals, such as the guinea-pig, and asserts that milk thus proven virulent may be very harmless when ingested. He firmly believes that the milk of cattle free from udder disease is safe food. Nocard also emphasizes the fact that tuberculous lesions of the udder are comparatively rare even in the tuberculous cattle. Out of 54 cows seized for general tuberculosis he found that only 3 had tuberculosis of the udder. Bang,⁵ at Copenhagen, estimated the proportion of udder disease in tuberculous cattle at less than 3 per cent. Nocard's conclusions on the danger from the milk of tuberculous cattle are as follows:

1. That the milk of a tuberculous cow is only virulent when the udder is the seat of tuberculous lesions.

2. That the ingestion of a virulent milk is only dangerous when the milk contains a great number of bacilli and is ingested in considerable quantity.

3. That practically the danger from the ingestion of raw milk exists only for persons who use it as their sole or principal food, that is to say, young children and certain invalids.

4. That to avoid all danger, it is sufficient to bring the milk to a boil, before it is consumed.

Admitting that from 15 to 20 per cent. of all cattle are tuberculous, and at the same time that the danger to children, practically at least, lies in milk contaminated or infected from tuberculous lesions of the udder, and that such udder disease is limited to from 3 to 5 per cent. of tuberculous cattle, simple arithmetic would show that the milk of at most 1 per cent. of all cows is capable of producing tuberculosis. But it is to be remembered that the milk supply of a family is ordinarily not the milk of one cow but a part of the mixed milk of a herd. A single tuberculous cow in a herd may evidently contaminate the product of a whole herd.

A number of interesting reports bearing upon this subject has recently been made.

Kanthack and Sladen⁷, on examination of the Cambridge milk supply, found that more than half the samples tested (9 in 16) proved infective, while of the 90 guinea-pigs inoculated

during the course of the experiments no less than 23 (25 per cent.) developed tuberculosis.

Sladen⁴⁴ found in the Liverpool milk supply that samples coming from the city stables which were under close scrutiny showed less tuberculosis than those from the country. Thus

Source	No. of samples.	No. showing bacilli.
Town	144	4 or 2.8 per cent.
Country	24	7 or .29 per cent.
Town	228	12 or 5.2 per cent.
Country	67	9 or 13.4 per cent.

E. W. Hope⁴⁹ notes the same fact.

Town	422	5 or 1.2 per cent.
Country	490	20 or 4 per cent.

Delepine⁶ found 17.6 per cent. of the samples of mixed milk gathered at the railway stations of Liverpool and Manchester virulent by inoculation.

Hope says that after finding in 93 samples of milk, supplied Manchester from the country, 17 containing tubercle bacilli, the city veterinarian visited 16 farms from which the milk came and on 14 found at least 1 cow with tubercle bacilli in her milk.

It does not, however, follow that all the milk containing tubercle bacilli is capable of producing tuberculosis either in man or animals. If it were, evidently few indeed would escape. Undoubtedly the action of the digestive fluids is sufficient to protect from infection by milk, unless the milk contains large numbers of bacilli, or the protection normally afforded by the gastric juice is annulled. Nocard quotes Peuch to the effect that a young pig was able to drink with impunity $4\frac{1}{2}$ litres of a tuberculous milk, a few cubic centimetres of which injected into the peritoneal cavity of a rabbit killed it in a few weeks. Bang has shown that highly tuberculous milk, heated to 70° for five minutes, still kills with certainty rabbits and guinea-pigs when inoculated under the skin or into the peritoneal cavity, but can be drunk in considerable quantities without any danger by animals of the same species. Bollinger⁸ and Gebhardt have shown that if the milk of a tuberculous cow is given as the principal or sole nourishment to guinea-pigs, rabbits or cats, all those which take it become tuberculous; but if it is given them diluted in 50 to 100 times its bulk of normal milk, they may consume the mixture for entire weeks with impunity.

In view of the evidence above given it must be admitted that the milk of tuberculous cattle is capable, when ingested, of producing tuberculosis in susceptible animals. It must, however, be recognized that tubercle bacilli in a milk, if the number be few, do not necessarily provoke tuberculosis in animals fed upon it.

When we come to inquire what evidence there is that tuberculous milk has produced tuberculosis in children, one is surprised at the scantiness of the evidence available. After a careful search of medical literature for the past fifteen years, the following are the only cases of direct evidence of such infection that I have been able to find.

1. Lydtin's case.⁹ Dr. Stang, of Amorback, was asked to treat a boy, five years old, well-developed, and born of healthy parents, whose family on both sides was free from hereditary taint. The child died some weeks later of miliary tuberculosis of the lungs with enormous hypertrophy of the mesenteric glands. While the post-mortem was being made it was ascertained that, a short time previously, the parents had had a cow slaughtered, which was found by the veterinary surgeon at the abattoir to have phthisis pommelière. This cow had been a good milker and for a long time the boy had been in the habit of drinking its milk directly after the milking.

2-5. Demme,¹⁰ physician-in-chief of the Hôpital Jeuner, Berne, has published reports of the cases of 4 children, offspring of healthy parents, whose families were free from tuberculosis, who died of intestinal and mesenteric tuberculosis after having taken for a variable time the raw milk of tuberculous cattle. Out of 2,000 tuberculous children he had treated in twenty years, these are the only cases in which he had been able to eliminate with certainty every other cause of the disease.

6. Gosse,¹¹ of Geneva, reports the case of his own daughter, who died at the age of seventeen. Up to the end of 1892 she was in perfect health and had never exhibited the slightest sign of tuberculosis. During the early months of 1893 she began to waste away and for ten months all the doctors of Geneva examined her and were unable to discover the cause of the wasting. Finally she died. Dr. Gosse had the courage to make a post-mortem examination, and found tuberculosis of the intestine and mesentery. The disease was evidently of alimentary origin. In seeking the source of it Dr. Gosse bethought him that the

family had been accustomed to spend Sunday on a small estate and one of the delights of his daughter had been to drink milk fresh from the cows. The cows were tested with tuberculin. Four out of five reacted. They were immediately slaughtered, and two were found to have tuberculous disease of the udder.

Law¹² relates the case of a strong, vigorous boy of one-and-a-half years, who for a week drank the milk of a cow which was shortly afterward condemned and killed in a state of generalized tuberculosis. In six weeks the child was noticeably falling off and in three months died, a mere skeleton, with tuberculosis of the abdomen. The father could trace no tuberculosis in his near ancestors, but the mother's father and uncle had died of it. She herself was in perfect health.

Ollivier¹³ reports 13 cases of tuberculosis, 4 of them primary in intestine, in a school supplied with milk from a tuberculous cow.

Brouardel¹⁴ reported that in a boarding-school in which there were 14 girls, 5 contracted tuberculosis from drinking the milk of a tuberculous cow.

Ebers⁴⁶ reports 6 cases in which tuberculosis in children was attributed to the consumption of the milk of tuberculous cows. Four of these, collected by Baum, were reported by Hermsdorp, Leonhardt and Sonntag. The remaining 2 were reported by Johne and Prümers.

These 22 cases comprise the sum total of cases in which the relation between the milk and the tuberculosis of the child is fairly clear. Considering the attention given to the question of tuberculosis in cattle and the oft-repeated warnings of the dangers of drinking the milk of tuberculous cattle, the number is astonishingly small.

It may, however, be contended that many children die of tuberculosis caused by drinking infected milk without its being possible to convict the guilty agent. This possibility must be admitted, but it may be met by inquiry as to the number of reported cases of tuberculosis in children in which the primary infection was either intestinal or mesenteric.

Reports of single cases are exceedingly rare. Senn¹⁵ reports the case of a boy of sixteen years (the limit of age that we may possibly include in childhood) whom he operated upon for intestinal obstruction. Miliary tubercles were found in both layers of the peritoneum with a circular stricture of part of the

small intestine. A resection was done and the boy recovered. No trace of tuberculosis in any other organ could be found.

Northrup¹⁷ has reported a case in an infant of fifteen months.

Wyss¹⁶ records a case in a girl of five and three-quarter years. He found a small node in the ileum with a tubercular node close by. The bacilli were found in the lesions. He also reports 2 other cases but from the details given, it must be regarded as very doubtful whether the diagnosis can stand. The most valuable contributions to this subject are found in the tabular reports of pathologists who, making autopsies on considerable numbers of tuberculous children, have taken pains to note the seat of the primary lesion. In many cases the tuberculous lesions are so widely distributed and so advanced as to render it impossible to determine which was primary. In nearly all the determinable cases the primary lesion is found either in the respiratory or alimentary tracts.

The cases of congenital tuberculosis, transmitted by the fetal circulation, are so rare as to be of no importance from the numerical standpoint. The same is true of tuberculosis transmitted by infection of wounds of the surface of the body.

The problem is, therefore, practically simplified to a decision as to whether the tubercle bacillus made its entry into the body by way of the lungs and bronchial lymph nodes, or by the intestine and mesenteric nodes. In a small number of the cases the tuberculous lesions are found limited to one or the other tract; these are easily placed. In the great majority lesions are found in both tracts. The problem is then, if possible, to determine in which tract the older and more advanced lesions lie, and assign the case accordingly. A degree of confusion has been introduced into this subject by the contention of certain writers that extensive tuberculous disease of the lungs and bronchial glands may be produced by bacilli admitted through the intestinal tract. It is true that Cornil and Dobroklonski⁴⁵ have shown that tubercle bacilli can penetrate the intestine without producing demonstrable lesions; but these observers regularly found the bacilli in such cases in the mesenteric nodes, and the writer has found no evidence, either experimental or clinical, to disprove the proposition that the oldest and most advanced lesions will be found in the lymphatic tract in which the bacilli were

first admitted. The reports made upon the basis indicated above are briefly summarized, as follows:

	Total No. of Cases.	Intestinal.
Spengler, ¹⁹ - - -	6	0
“ quotes cases where entry of bacilli in cases of tub. men- ingitis was sought:		
Bertalot, - - -	24	1
Reimer, - - -	42	0
Hench, - - -	20	3
Kossel, ²⁰ - - -	36	5
Pizzini, ²¹ - - -	19	0
Bulius, ²² - - -	27	0
Steffen, ²³ - - -	62	0
Haushalter, ²⁴ - - -	94	0
Comby, ²⁵ - - -	34	0
Woodhead, ²⁸ - - -	127	14
Carr, ²⁶ - - -	120	20
Guthrie, ²⁷ - - -	77	19
Still, ²⁸ - - -	269	63
Ashby, ²⁹ - - -	155	20
Northrup, ³⁰ - - -	125	3
Holt, ³¹ - - -	119	0
Bovaird, ³² - - -	125	2
	1,481	150

	Total.	Intestinal.	
German,	236	9	= 4 per cent.
French,	128	0	0
English,	748	136	18 per cent.
American,	369	5	1 per cent.

In his address Prof. Koch gave the following figures: Ten cases of primary tuberculosis of the intestine occurred in five years among 933 cases of tuberculosis in children at Emperor and Empress Frederick's Hospital for Children. Baginsky never found tuberculosis of the intestines without a simultaneous affection of the lungs and bronchial glands. Among 3,104 post-mortem examinations of tuberculous children, Biedert observed only 16 cases of primary tuberculosis of the intestine.

I am in doubt as to the correctness of the report of the latter data. Biedert's table, as given by Cornet in 1899, in Nothnagel's "Special Pathology and Therapy," includes only 1,346 cases, and, while giving the frequency of involvement of various viscera, it does not clearly state how many of the cases were considered primarily intestinal infections.

The above reports are cited because they are stated in such form as to make them available. Many reports, such as the often-quoted one of Woodhead, are somewhat indefinite. In 127 autopsies he found the mesenteric lymph nodes involved in 100, or 79 per cent.; in 69 the bronchial glands also were affected; in 27 the bronchial lymph nodes were affected without involvement of the mesenteric; in 14 the mesenteric alone. Woodhead believes intestinal infection in these cases very common, but from the form which he has given his statistics it is impossible to determine the numbers beyond those given for involvement of the mesenteric lymph nodes alone. The German and French reports quoted are typical of all those to be found in those languages. To a man, Widerhofer,³⁴ Heubner,³⁵ D'Espine,³⁶ Aviragnet,³⁷ Küss,³⁸ Cnopf,³⁹ they support the proposition that in almost all cases of tuberculosis in children the infection enters by the respiratory tract. In fact, in many reports seen no allusion is made to the possibility of primary intestinal infection. Wyss, after three years' search, had found what he reports as 3 cases of the latter class, but as above noted the diagnosis in 2 of the 3 is very questionable.

The three American reports—a total of 369 cases, all from New York City or its environs—give 5 cases of infection by the intestine, a little more than 1 per cent. How striking a contrast the English reports present! Out of a total of 748 cases, 136, or 18 per cent., were cases of primary intestinal infection! And yet Sydney Martin⁴² contends that these reports do not adequately represent the number of cases of tuberculosis in which the infection is primarily intestinal! It would be waste of time to undertake to reconcile such divergent views. It is to be noted that, with one exception, the English reports come from London hospitals; and we may recall the statement of Nocard that in many of the stables in and about the city 50, 60, and even 70 per cent. of the cattle were found tuberculous; but even then we do not find the explanation satisfactory, for there is no evidence that Germany or France is so much less

afflicted in this way as to explain the preponderance shown by the English statistics. The writer confesses his inability to understand or explain the difference.

The question at issue is a very important one. In some way it has come to be the accepted belief that primary intestinal infection in tuberculosis is common and that milk is usually the carrying agent. Thus E. O. Shakespeare attributes one-fifth of all deaths in infants and young children feeding on milk in certain districts to tuberculosis usually commencing in some part of the digestive organs. Statements like this are constantly in use as arguments for the extermination of all tuberculous cattle. One wonders whence they have been derived. Possibly they are based upon such misleading statistics as those of deaths from tuberculous diseases registered in London in 1897, quoted by Delepine.⁶ These give a total of 989 deaths from tabes mesenterica during that year; 841 of them in children under five years of age.

Such figures would, if correct, constitute a strong argument indeed for intestinal infection. Widerhofer's²⁴ statement that the diagnosis of this affection (tabes mesenterica), once a daily occurrence, is to-day (1886), rarely heard evidently does not apply to London. However, we have the authority of Carr⁶ and Guthrie,²⁷ both pathologists in London hospitals, for the fact that tabes mesenterica as a cause of death is practically unknown. The statistics unhappily perpetuate in a wieldable form a colossal error. The only reliable evidence on this question is that of the post-mortem room as above given. An argument based upon clinical diagnoses or death certificates is a house built upon sand.

In conclusion allow me to call your attention more particularly to the figures derived from the autopsies made at the Foundling Hospital. This institution has regularly in its care about 2,000 children. Of these one-third are kept in the institution itself, two-thirds are entrusted to the care of nurses who live in or near the city. The out-patients remain with their nurses till they reach the age of two or two and one-half years, when they are returned to the Hospital and are sent out for adoption. These children are thus subject to the conditions that prevail among the poorer classes of our population. The data derived from the hospital represent, therefore, the results of these conditions as well as those of the hospital itself. In 1891

Northrup published the results of his autopsies upon 125 cases of tuberculosis met within the Foundling Hospital, of which 3 were cases of primary intestinal tuberculosis. Since that time, that is in ten years, there have been placed upon the records an additional 125 cases of tuberculosis in children under the age of five years.* Of these 2 only were definitely cases of primary intestinal infection. We have thus 250 cases of tuberculosis in children with but 5 cases or 2 per cent. of definitely primary intestinal infection among them.

Therefore, even if we grant that all cases of primary intestinal tuberculosis in children are produced by the ingestion of tuberculous milk, such infections are responsible for only a very small and numerically unimportant part of the ravages of this dreaded disease in or about New York City.

The last 125 cases were met with in a total of 1,110 autopsies, a ratio of 11 per cent. Seventy-five of these cases were collected and reported in 1899 in an article in the *New York Medical Journal*, and it is interesting to note that the percentage of tuberculosis then obtained was exactly that now given. The ratio is notably below that given by some European observers.

In 2,576 autopsies on children, Botz⁴⁸ found 27.8 per cent. of those dying in their first year tuberculous.

Haushalter²⁴ in 261 autopsies on children found 36 per cent. tuberculous.

Comby²⁵ in 228 autopsies on children of two years or less found 15 per cent. tuberculous.

Kossel²⁰ in 286 children found at autopsy 13 per cent. tuberculous.

Two cases of primary intestinal infection in 1,110 autopsies represent less than .2 per cent. From the facts above given we may safely assume that this proportion fairly represents the incidence of primary intestinal tuberculosis in children in and about New York City.

The conclusions to which we have been led are:

1. That English reports alone show any considerable number of cases of primary intestinal tuberculosis.
2. That primary intestinal tuberculosis is a very rare affec-

* Many of the autopsies were made by Drs. R. G. Freeman and M. Nicoll, Jr., to whom I wish to express my thanks for the privilege of using the results of their work.

tion among children in or about New York, little more than 1 per cent. of the cases of tuberculosis having this origin.

3. That the proportion of tuberculous cases found at autopsy in New York is lower than that of European observers.

4. That the evidence connecting tuberculosis among children with the consumption of the milk of tuberculous cows is very scant.

126 WEST FIFTY-EIGHTH STREET.

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The Fate of Congenitally Syphilitic Children.—J. Karcher (*Correspondenz-Blatt für Schweizer Aerzte.*) investigated the further history of all the hereditary-syphilitics discharged as cured from the children's hospital of Basle during 1876-1896. Those were thirty-one in number, and it was possible to obtain information concerning sixteen. Six died in infancy, and four were found past the age of puberty and perfectly well. Another patient was healthy and employed in a factory, though no details as to his condition could be obtained. Five children were found who suffered from subsequent tubercular infection. The author concludes that the prognosis in cases of this sort is not as hopeless as it is usually considered, and that a thorough course of inunctions is sufficient, not only to cure the immediate manifestations, but also to offer good prospects for the future health of hereditary infantile syphilitics.—*Medical Record*, September 28, 1901.

A CASE OF PRIMARY INTESTINAL TUBERCULOSIS.*

BY DAVID BOVAIRD, JR., M.D.,

New York.

J. K., male, aged three years, was a patient at the New York Foundling Hospital.

FAMILY HISTORY.—Nothing known.

PREVIOUS HISTORY.—No acute illness, but boy had always been weak and sickly. He was cared for outside the institution until August, 1899. He then returned, and because his general condition seemed poor, was sent to the country branch at Spuyten Duyvil. His history from that time is briefly as follows:

October 23d to 30th.—Measles of ordinary course.

October 31st to November 15th.—Temperature, as a rule, from 101° to 103° ; for a few days from 103° to 105° . Respiration from 40 to 48; pulse, 120 to 148. Physical signs: many moist râles over both lungs; no signs of consolidation. No doubt he had a bronchopneumonia at this time. It was complicated by a severe ulcerative stomatitis, which improved steadily under treatment, also by an eruption of boils on many parts of the body. The condition of the bowels at this time was noted as good.

November 15th to December 1st.—Temperature continued to range from 99° to 103° . Respiration about 30 and pulse 120. The pulmonary signs cleared up; the mouth improved. The bowels remained normal; the boils continued in numbers.

December 1st to 15th.—The irregular temperature continued; the general condition became worse; the ulcerative process in the mouth developed into gangrene. He developed a diarrhea.

December 16th to 20th.—He was returned to the hospital. The gangrenous process spread from the mouth to the lips and cheek. Temperature, 100° to 104° ; pulse, 140 to 160; respiration, 28 to 42. There were signs of bronchitis; no consolida-

* Read before the Section on Pediatrics, the New York Academy of Medicine, November 14, 1901.

tion. He had from four to six stools a day, semi-fluid, containing mucus and undigested food; never blood. He failed steadily and died on December 20th.

AUTOPSY performed December 21, 1900. The points of interest are as follows:

A gangrenous process involving both upper and lower lip, with some destruction of bone, especially of the superior maxilla.

Pharynx, trachea and larger bronchi normal.

Cervical lymph nodes swollen, otherwise normal.

Pleuræ. — Both are studded throughout with miliary tubercles, and closely adherent except anteriorly.

Lungs.—Normal.

Bronchial Nodes.—A number contain minute caseous foci; in one there is a softened area about one-sixth inch in diameter.

Heart.—Normal.

Peritoneum.—Cavity obliterated by adhesions, both of the parietal and visceral peritoneum, of the coils of the intestines and of the several viscera. Peritoneum sown with miliary tubercles, and in parts greatly thickened—1-16 to 1-8 inch. It was



PRIMARY INTESTINAL TUBERCULOSIS.
Small Intestine just above Ileocecal Valve showing
Ulcerated Peyer's Patches.

difficult to separate the coils of intestines. In doing so the thickened peritoneum was frequently stripped off for some distance.

Liver.—Peritoneal surface studded with miliary tubercles, a few disseminated through the substance of the organ.

Spleen.—Enlarged, soft, surface covered with miliary tubercles, a very few in the substance of the organ.

Kidneys.—Normal.

Suprarenals.—Normal.

Pancreas.—Normal.

Stomach.—Normal.

Small Intestine.—The Peyer's patches throughout are swollen and ulcerated, the ulcers being numerous in each patch. The size of the ulcers varies, in many places they extend through the mucous membrane to the peritoneal coat. In shape they are generally oval or circular.

Large Intestine.—In the upper part a few small caseous nodules, probably solitary follicles, are to be seen. The solitary follicles throughout are enlarged and toward the lower part present a slight ulceration.

Mesenteric Nodes.—Most of them are enlarged and on section show a number of small caseous foci. Near the ileocolic junction is a mass of nodes one inch in diameter, on section caseous throughout, the centres softened and filled with thick, creamy pus.

The diagnosis of primary intestinal tuberculosis is based upon the autopsy findings. The lesions of intestine, peritoneum, mesenteric and bronchial lymph nodes leave no doubt of their tuberculous origin. The oldest and most advanced lesions are in the mesenteric nodes. The involvement of the pleura and bronchial nodes is evidently secondary. The experiments of Sydney Martin have shown that such lesions are frequently produced by a tuberculous process originating in the intestine and mesenteric nodes. The conclusion that the intestine has been the entry port of the infection can hardly be questioned.

The date of the onset of the tuberculous disease it is naturally impossible to determine. It was probably subsequent to the attack of measles. If so, it occurred at a time when the child's nourishment consisted entirely of fresh milk. This milk was supplied by one of the leading milk-dealers of the city. It was not possible under the circumstances to thoroughly in-

investigate the possibility of infection from this source. The case seems to the writer to deserve to be classed as one of "fütterungs-tuberculose."

It is interesting to note that the condition of the bowels was good until two weeks before death, and that the diarrhea, which then supervened, was lenteric in character and unaccompanied by blood. In the presence of such a degree of ulceration as was found post-mortem the latter fact is striking.

Arrhythmical Hysterical Chorea of Childhood.—G. Carrière and F. D. Sonnevillie state (*Archives Générales de Médecine*, October, 1901), that, according to Pitres, all hysterical manifestations have five distinct characteristics: (1) They are the result of purely functional troubles of the nervous system. (2) They can be suddenly called forth, modified or suppressed by psychical influences or by physical causes which have no influence on similar phenomena dependent upon organic lesions. (3) They are rarely isolated, certain of the latent stigmata co-existing with the striking manifestations of the neurosis. (4) They have no regular evolution, occur without preëstablished order, and take place under different forms and at different periods in the same subject. (5) They have not habitually the same influence on the general health and on the mental state of the individuals afflicted, as similar phenomena dependent upon another cause. It cannot be stated positively that arrhythmical hysterical chorea is not associated with organic lesions, for, as far as the authors are aware, there has never been an autopsy on such a case. The reason why they believe that this affection is not connected with organic lesions is the rapidity with which these movements are cured and disappear under the influence of any suggestion whatever. What organic lesion disappears thus under such circumstances? It is a fundamental characteristic of hysterical phenomena to be called forth, modified, or suppressed by external maneuvers, or by psychical causes. Arrhythmical hysterical chorea of childhood is indeed only a form of hysteria.—*Medical Record.*

GREAT FLUCTUATIONS IN TEMPERATURE IN THE TERMINAL STAGE OF PULMONARY TUBERCULOSIS.*

BY SAMUEL S. ADAMS, A.M., M.D.,

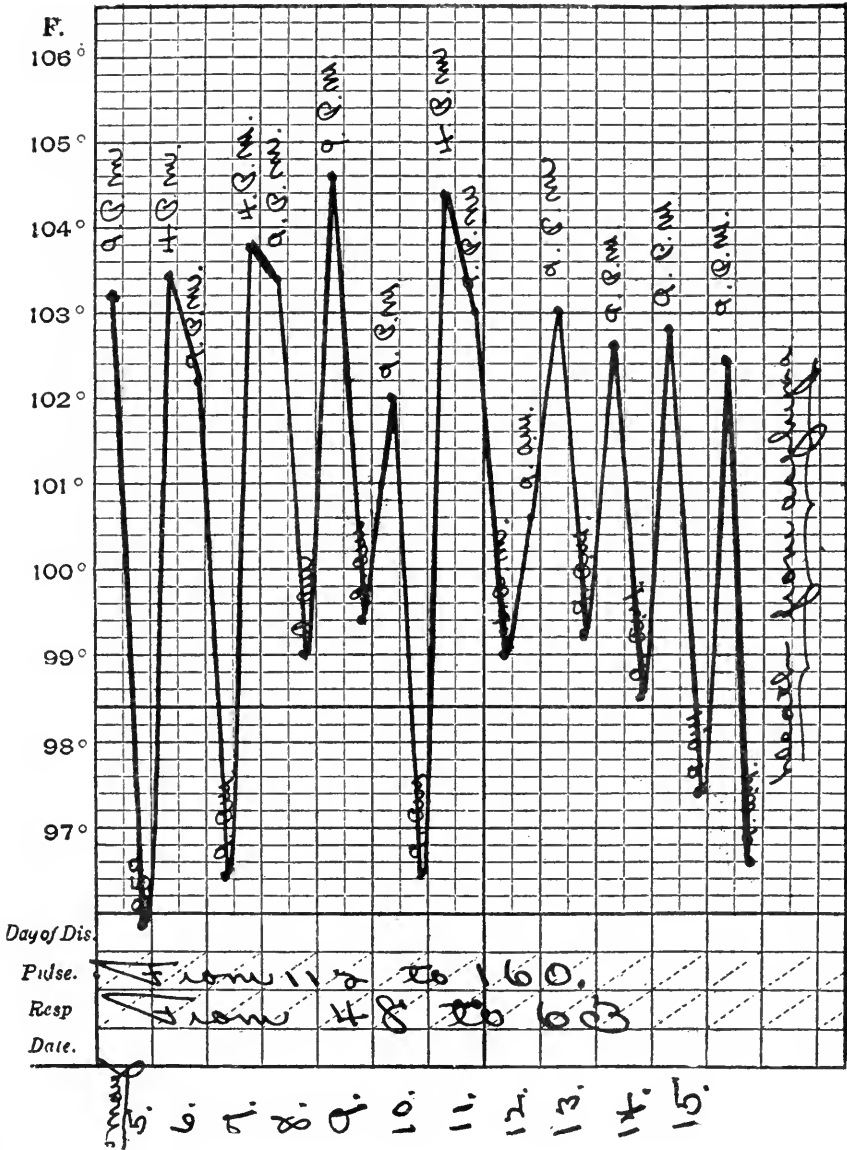
Washington, D. C.

The following cases of pulmonary tuberculosis, with the temperature charts, are presented to illustrate the apparent harmlessness of wide fluctuations of temperature in the terminal stage of the disease. While the rise and fall of temperature resembles in some respects the fever of sepsis, nevertheless it differs from it in not being accompanied by chill, sweat and great prostration. The symptoms of septicemia and pyemia are almost identical in the child and adult, and the high temperature is often associated with mental disturbances of more or less severity. In the terminal stage of pulmonary tuberculosis, however, the temperature may reach 108° F., and in a few hours drop to 95° F. without any apparent effect upon the child, either mentally or physically. Indeed, such wide variations have occurred in some of our cases without disturbing their appetite, disposition, intelligence or play. It is not unusual to see a child enjoying his breakfast with a rectal temperature too low to be registered by the thermometer; and later in the day find him sitting in bed eating his evening meal with relish, in spite of the fact that his rectal temperature is now 106° or 107°. The absence of evidence of collapse in the first instance and of the usual phenomena of hyperpyrexia in the second, can only be explained upon the assumption that some irritant acts upon the heat centres differently from that present in purely septic conditions.

CASE I. GENERAL MILIARY TUBERCULOSIS.—James J., colored, aged five years, admitted to hospital April 8, 1891, and died May 15, 1891. Had measles three months before admission, which was soon followed by cough, rapid emaciation, and loss

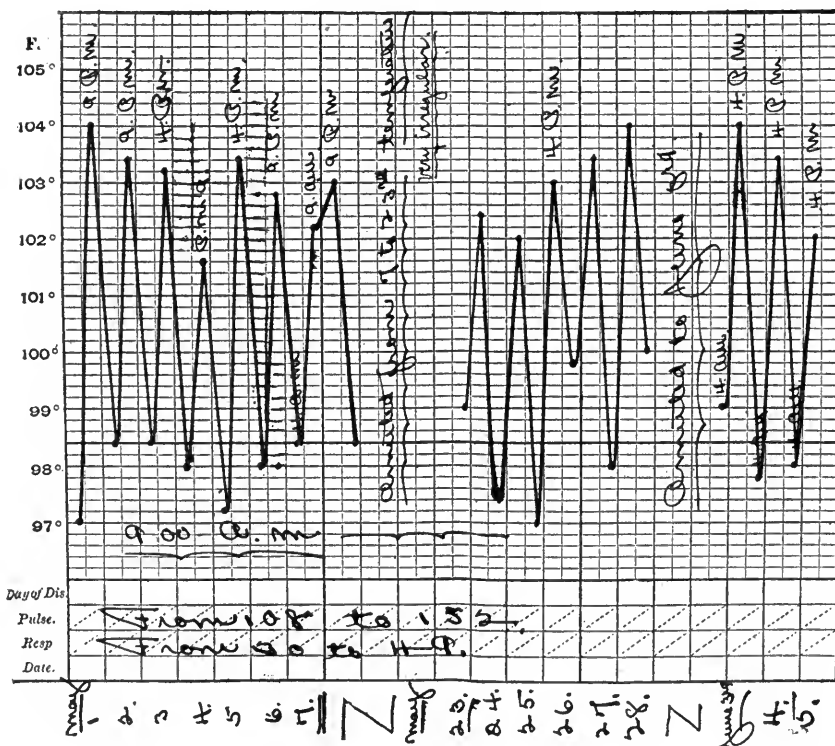
* Read in abstract before the American Pediatric Society, Niagara Falls, N. Y., May 27, 28, 29, 1901.

Chart of Case I.



of strength. Both apices involved. The great fluctuations in temperature did not disturb him. He had neither chills nor sweats, and high temperature was not attended by any nervous manifestations. He seemed equally contented whether the bodily temperature was very high or very low. The necropsy confirmed the diagnosis of marked infiltration at the apices of the lungs, with general lymphatic and visceral involvement.

Chart of Case II.



CASE II. PULMONARY TUBERCULOSIS.—A. B., aged seven years, colored, female, was admitted to the hospital March 15, 1891, and died July 14, 1891. Her previous history was indefinite, it being stated that her present illness began two months prior to admission with severe cough, fever and rapid emaciation. She complains of pain over left chest during violent paroxysms of coughing, but is at other times composed. There

was never any symptom referable to the temperature. A cavity of moderate size was located in upper part of the left lung, when she was first examined, and, as the disease progressed, areas of consolidation throughout the lung.

The necropsy revealed a cavity two inches in diameter at the apex and several small ones in the left lung, which was also

Chart of Case III.

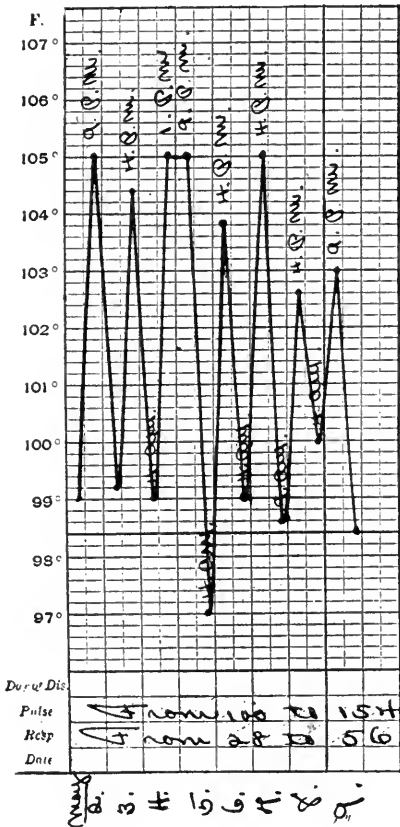
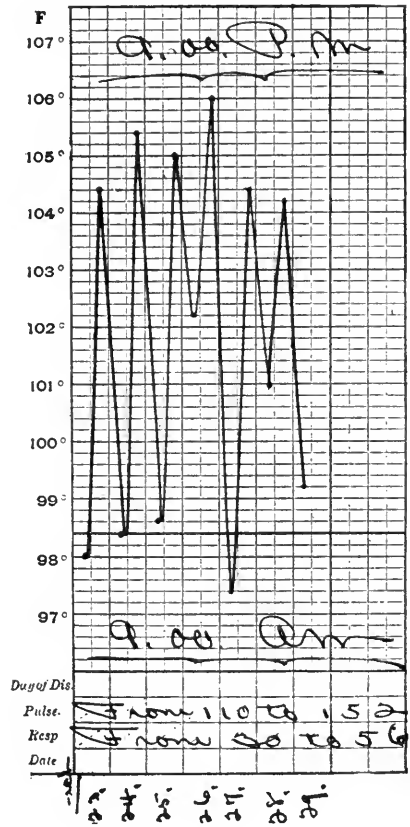


Chart of Case IV.

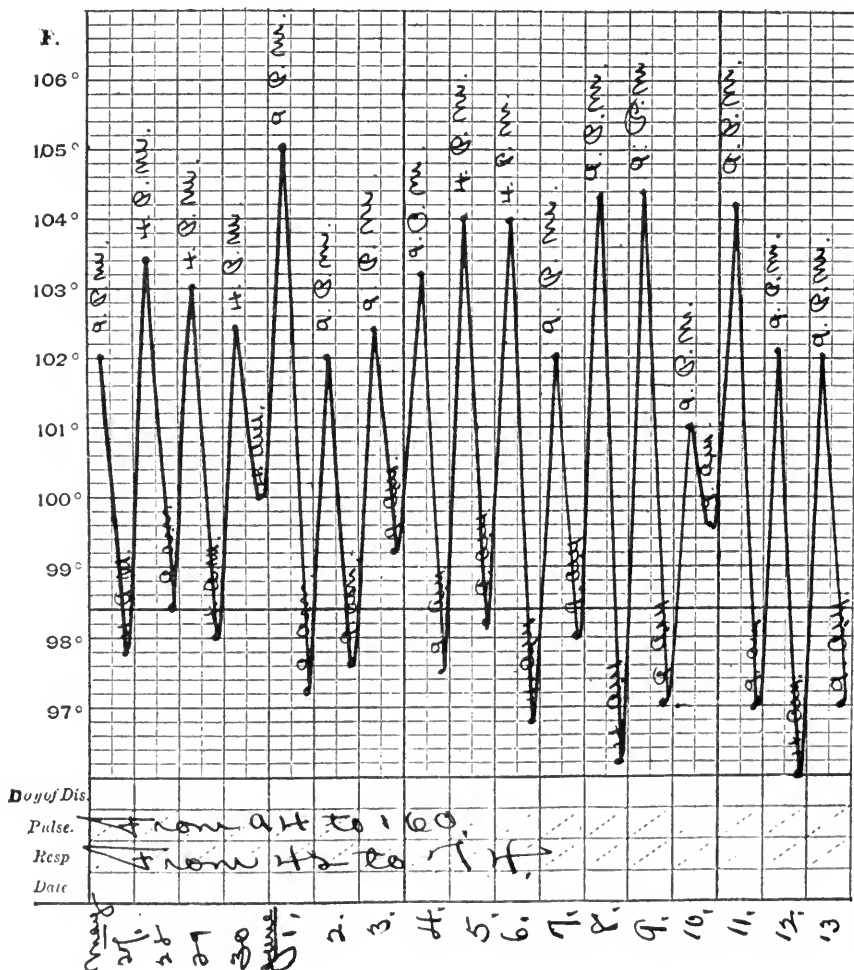


consolidated in many places. The right lung was congested and contained a few miliary tubercles.

CASE III. CRIES OF SPINE, WITH TUBERCULOSIS OF RIGHT LUNG.—Joseph B., colored, aged eleven years, was admitted to hospital May 2, 1891, and died May 10, 1891.

Father and mother died of "phthisis." Origin of disease one year ago. Since then has had cough and fever, and has emaciated. Has marked cervical deformity. Consolidation of entire right lung. Most of his suffering is from dyspnea. His mind is clear at all times, whether his temperature is 105° or 97°. No necropsy.

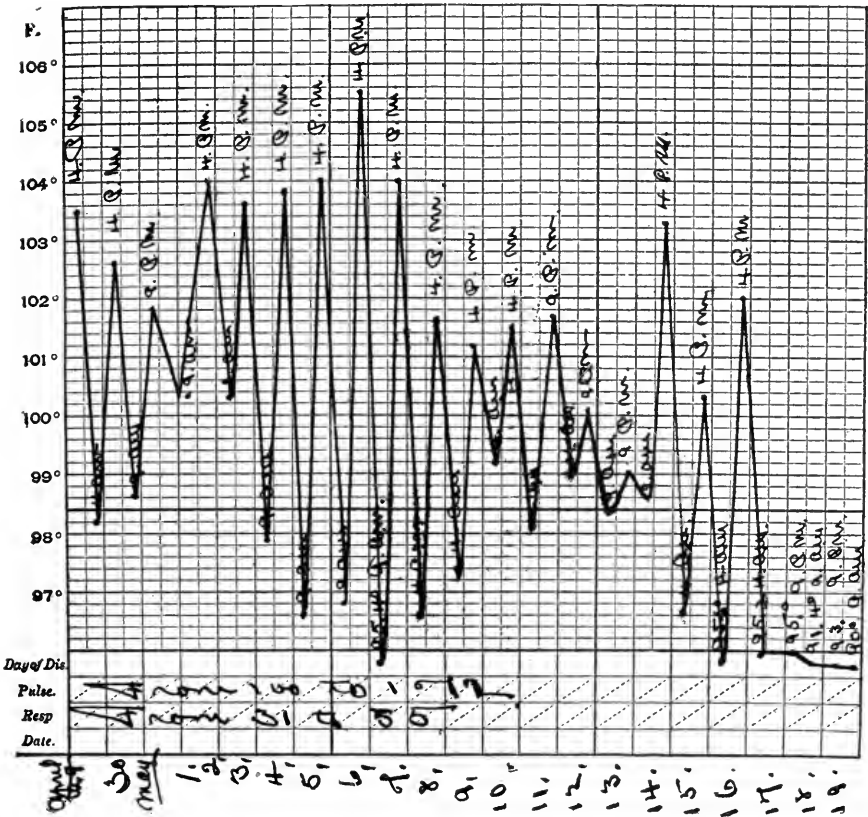
Chart of Case V.



CASE IV. PULMONARY TUBERCULOSIS.—Kate J., colored, aged three years, was admitted to the hospital March 23, 1897, and died a week later.

Paternal and maternal tubercular history positive. Onset of her disease so insidious that its beginning could not be ascertained, though of several months' duration. Tubercular process

Chart of Case VI.



general throughout both lungs. Suffers from severe cough, dyspnea, and pains in head and abdomen at times. Has neither chills nor sweats, nor do the fluctuations of temperature affect her sleep, appetite or intelligence.

Necropsy not permitted.

CASE V. PULMONARY TUBERCULOSIS.—Richard G., white,

aged eleven years, was admitted to hospital April 27, 1894, and died June 13, 1894.

Illness began seven months ago with cough, fever and loss of flesh and strength. Right lung chiefly involved. All signs of a cavity, including "cracked pot" sound at right apex. All through illness he seemed comfortable, with the exception of pains in the abdomen, caused by enteritis. No delirium, chills or sweats. His intelligence was not affected by the variations of temperature.

Chart of Case VII.

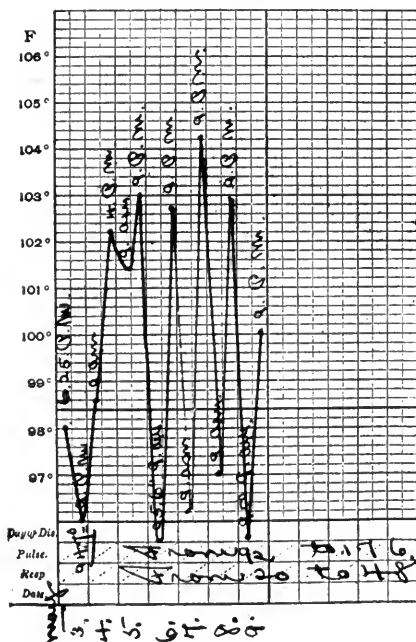
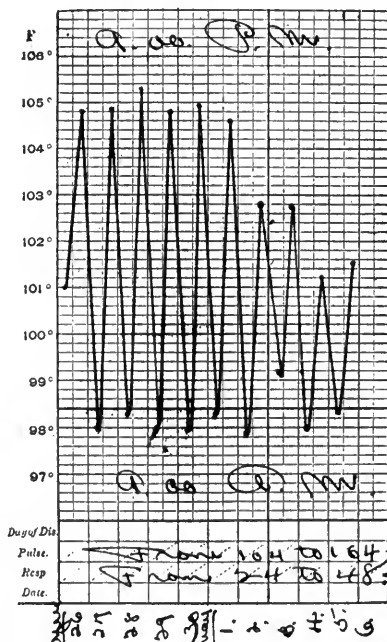


Chart of Case VIII.



The necropsy revealed destruction of almost the entire right lung; a sac, whose walls were composed of the thickened pleura, remaining. General miliary tubercles in other organs and lymph nodes.

CASE VI. GENERAL TUBERCULOSIS.—Edward C., colored, aged four years, was admitted to the hospital August 5, 1899, and died May 19, 1900. He was admitted to the ophthalmological service for "scrofulous conjunctivitis," but shortly after admission there were evidences of general miliary tuberculosis,

with prominent pulmonary lesions. A cavity was soon discovered at the right apex. During his long illness he exhibited no subjective symptoms, but was always quiet and contented. His appetite was always good. A fluctuation of nine or ten degrees in his temperature had no apparent effect, as there was neither chill, fever nor delirium.

The necropsy revealed general miliary tuberculosis, a good-sized cavity in the right apex, and areas of consolidation throughout both lungs.

CASE VII. PULMONARY TUBERCULOSIS.—Lina R., colored, aged eight years, was admitted to the hospital May 2, 1901, and died eight days later.

Present illness began three months ago with cough, fever and gradual emaciation. Both lungs involved, especially the left apex. Dyspnea, severe headache and pain in chest. No delirium or other nervous manifestations; neither chills nor sweats. Sputum contained tubercle bacilli. Marked leucocytosis, chiefly polymorphonuclears.

The necropsy showed general miliary tuberculosis. Both apices consolidated, but no cavities. Bronchial lymph nodes much enlarged.

CASE VIII. PULMONARY TUBERCULOSIS.—Rachael G., colored, aged eight years, was admitted to the hospital January 11, 1901, and died May 6th following.

This child was admitted for a burn of the second degree, but was soon transferred to the medical service. A cavity as large as a hen's egg was clearly defined about the middle of the upper lobe of the right lung. She suffered from an incessant cough and was restless, but had neither delirium, chills nor sweats, though her forehead was occasionally moist.

Tubercle bacilli and micrococci in sputum; leucocytosis. The necropsy confirmed the diagnosis.

DISCUSSION.

DR. GRIFFITH.—Did I understand that these cases were practically all in the third stage of phthisis?

DR. ADAMS.—Yes.

DR. WENTWORTH.—Were they all cases of general tuberculosis?

DR. ADAMS.—All were pulmonary cases with more or less general tuberculosis.

DR. GRIFFITH.—As I understand it, these cases are analogous to phthisis in adults, but the range of temperature is greater. I have seen temperature charts a good deal like these in children who did not have tuberculosis.

DR. ADAMS.—The diagnosis of pulmonary tuberculosis, and in some cases of general tuberculosis, was made in all these cases and was confirmed by necropsy. Of course, we frequently see such wide ranges on malarial charts, but they do not continue for two or three weeks, as these did. The question is whether they are cases at all septic in their nature. There was a leucocytosis but no other evidence of sepsis.

DR. HOLT.—It seems to me there must be something else here than the tuberculous process alone. It is well known that we get an exaggeration of all temperature curves in children. I have been accustomed to regard such cases as these as usually due to a complicating infection, generally by the streptococcus. I do not think these children have a general streptococcus septicæmia, if that is what Dr. Adams means by sepsis.

Congenital Bone Defects.—Grosse reports (*Archiv. f. Klinische Chirurgie* Vol. lxii., No. 4) the case of a girl of five, whose right leg, especially below the knee, was markedly smaller than the left, even at birth. Nor did the right leg grow below the knee. Various different supports had been used without effect. Roentgen photographs showed the absence of the tibia, the fibula being alone. Professor von Bramann operated, bringing the fibula into the knee joint, taking great care that the epiphyseal cartilage was not injured. Foot and leg were then put in plaster. With a support down the leg, about the waist, and a block under the foot, she soon could run. In six weeks femur and fibula had grown together; and her leg has developed well in the two and a half years since. The former shortening of $5\frac{3}{4}$ cm. has been decreased 2 cm. She can now support herself without any splint, walking with a slight limp. Grosse reports another case of von Bramann's, with similar results, no splint now being needed.—*The Philadelphia Medical Journal.*

TREATMENT OF TUBERCULOSIS IN INFANCY AND CHILDHOOD WITH SPECIAL REFERENCE TO THE USE OF GUAIACOL.*

BY B. K. RACHFORD, M.D.,
Cincinnati, O.

Tuberculosis in infancy and childhood is essentially a disease of lymphatic structures.

The tubercle bacillus finds its entrance into the body, as a rule, through the lungs and intestinal canal and is arrested by the tracheo-bronchial and mesenteric lymph nodes. This may be accomplished without injury to pulmonary or intestinal tissue. These nodes may hold the bacilli for an indefinite length of time, and as the number of bacilli increases, the contest for supremacy between the bacilli and the leucocytes goes on. In the great majority of instances these lymph nodes are a sufficient safeguard against the disease, and the bacilli are either destroyed or held captive, so that they can cause no material injury to the organism as a whole. But when the number of bacilli is overpowering, or when the contagion occurs in those who have inherited from tuberculous ancestors a type of lymph node tissue less capable of resisting the tubercle bacillus, the story is a different one. In these susceptible children the tubercle bacilli, finding entrance into these lymph nodes, are capable of producing great destruction of tissue, and as the unequal fight goes on, the bacilli escape into neighboring nodes, and chain after chain of mesenteric and tracheo-bronchial lymph nodes become infected, and an active and destructive tuberculosis is under headway. If the disease is not arrested other lymphatic chains become involved, the spleen is enlarged and a more or less diffused tuberculosis is established.

It is important for us, as physicians, to know that lymph node tuberculosis in childhood may be, and usually is, for a long time, a local disease confined to the lymphatics of some special part of the body. The tracheo-bronchial and the mesen-

* Read by title before the American Pediatric Society, Niagara Falls, N. Y., May 27, 28, 29, 1901.

teric lymph nodes are, however, the most important, not only because they are the most common sites of tuberculosis in infancy and childhood, but also because the disease may remain in these nodes for a long time, producing widespread destruction, without any very marked involvement of superficial lymphatics or without any of the ordinary symptoms of tuberculosis; that is to say, tuberculosis in infancy and childhood may be and usually is, for a long time, so concealed as to escape detection, if one depends for diagnosis upon the ordinary and well-defined symptoms of tuberculosis in the adult. This localized form of tuberculosis which may exist for months or years, gradually progressing to other and incurable forms, is the type of tuberculosis which is amenable to treatment, if it is recognized early enough and appropriate measures are adopted. But if the disease is allowed to progress and become more general, there is the ever present danger that intestinal tuberculosis, meningitis, or acute miliary tuberculosis will develop and place the patient beyond all hope of recovery.

The prognosis, however, of tuberculosis in childhood is, on the whole, very much better than tuberculosis in the adult. Very many of the cases of tuberculosis that one meets in private practice, among children, are amenable to treatment. This is true, not only of the cases of localized lymph node tuberculosis, but also of tubercular peritonitis and the milder forms of intestinal, pulmonary and chronic diffused tuberculosis, and most important of all is it, that these cases can as a rule be satisfactorily treated *at home* without the aid of the climatic and other advantages afforded by favorably located sanitariums.

The above statements emphasize the importance of the early diagnosis of concealed tuberculosis, and for this reason a short *résumé* of the symptomatology of this condition is here outlined.

In the *New York Medical Journal*, August 10, 1895, in a paper on "The Diagnosis of Concealed Tuberculosis," I dwelt at length upon the symptomatology of this condition, and many of the points in the following outline are taken from that paper.

SYMPTOMATOLOGY OF TUBERCULOSIS OF THE LYMPH NODES.— Experience leads the physician to suspect this condition when he is confronted with a certain type of child. It is difficult to draw a mental picture of the appearance which the tuberculous child presents to the trained eye of the physician. These children, as

we see them in private practice are, as a rule, nervous, irritable, undersized, slender-limbed, oval-faced, fair-haired and dainty little creatures, and we are at once impressed with their frailty. They have bright eyes and thin, transparent, fair skin, which makes them very attractive. There is another and less common type of the tuberculous child which is usually described as having a heavy figure, thick lips and hands, opaque skin and large thick bones. We do not depend, however, upon these types to make a diagnosis, since there are many important symptoms which point more or less clearly to concealed tuberculosis.

Anemia without apparent cause is very suggestive of tuberculosis of the lymph nodes. The progressive anemia which marks the progress of this form of tuberculosis is a very pronounced symptom, and is much more characteristic of the disease as it occurs in the infant and child than it is in the adult.

The anemia grows apace as the disease spreads through the lymphatic tissues, until finally it becomes very extreme. If one can eliminate malaria, syphilis, rheumatism and intestinal disorder as causes for the anemia, one is justified then in suspecting a concealed tuberculosis, even though there be no other symptoms to assist in the diagnosis. When, in an instance of this kind, one can find a family history of tuberculosis, and also, which is of equal importance, a history of exposure to the tuberculous contagion, one is then quite justified in making a provisional diagnosis of tuberculosis and at once instituting proper treatment. If in addition, however, one learns that the child has lost in weight, or has even failed to gain in weight, which in the young child has the same significance that loss of weight in the adult has, then we have established another link in the chain of circumstantial evidence. Further inquiry may perhaps develop the fact that the child is excessively nervous and that it is suffering from night terrors or nocturnal incontinence of urine.

Precocious anemic children suffering from general nervous irritability should always be searched for other signs of concealed tuberculosis. By still further inquiry one may learn that the child suffers frequently from mild attacks of bronchitis, that it catches cold readily, and may also have pain in the side on slight exercise. This last symptom may be accompanied by dyspnea and rapid heart action. The pain in the side on exer-

cise, however, and the proneness to catch cold are oftentimes most significant and important symptoms in the early diagnosis of tuberculosis in childhood.

Dyspepsia and diarrhea, obstinate in character, and unaccounted for by errors in diet, are also common symptoms of this form of tuberculosis. This is especially true of the disease as it occurs in the infant. A history of feeble digestion, frequent and obstinate attacks of diarrhea, sometimes alternating with constipation and associated with enlargement of the spleen, and possibly of the liver, presents a symptom group which at once suggests mesenteric tuberculosis. These are the cases which afterward develop enormous and board-like abdomens, with contracted chests, flaring ribs and emaciated bodies, which give us the well-known picture of *tabes mesenterica*.

It is well for us, however, to remember that many of these cases of tuberculosis in the infant and child may have a long-continued and wasting diarrhea without actual ulceration of the intestine, and are therefore amenable to treatment. But again before leaving this symptom group I wish to emphasize the fact that enlargement of the spleen is a common accompaniment and a most important sign of acute tuberculosis in the infant and child.

It is important to note that all of the above symptoms may exist without any very pronounced change in the temperature of the body. It may be, however, that after our attention has been called to the possible existence of concealed tuberculosis that we will find, if the temperature be carefully recorded over a number of days, that occasionally there will be subnormal temperature in the morning, or a slight rise of one or two degrees in the afternoon.

These tuberculous children, however, may have over a considerable period of time, an afternoon temperature reaching from 102° to 104° , and yet be upon their feet and protest that there is nothing the matter with them. Fever of this character without the ordinary accompanying discomforts, is suggestive of tuberculosis. The temperature, however, of patients suffering from tuberculosis of the lymph nodes is by no means an indication of the progress and extent of the disease. The presence of external lymph node enlargement is of itself not indicative of deep-seated disease. The gradual increase in size, however, of superficial lymph nodes, especially in the neck and groin, may,

when associated with other symptoms above recorded, be significant.

In older children the appearance of any of the preceding symptoms with failure in health and asymmetry of development are suggestive of tuberculosis.

In hospital practice I have for a number of years been in the habit of using tuberculin for the purpose of confirming a diagnosis of lymphatic tuberculosis, beginning with $\frac{1}{4}$ to $\frac{1}{2}$ mgs. and increasing to 2 mgs., if no reaction was obtained from smaller doses. I have witnessed no bad results from this practice, yet I have not thought it expedient or necessary to make use of it in my private practice.

It is also well to remember that the diagnosis of obscure tuberculosis may sometimes be confirmed by the appearance of tubercles in the retina.

It is not my purpose to discuss in a general way the symptomatology of tuberculosis. I have endeavored in the above outline simply to call attention to a group of symptoms no one of which is characteristic of tuberculosis, but which taken collectively as they appear in various groupings in cases of early tuberculosis of the lymph nodes, are sufficient to aid us in arriving at a diagnosis.

I have not dwelt upon the interesting group of pressure symptoms which result from the presence of enlarged lymph nodes impinging upon nerves, arteries, veins, bronchial tubes and other structures in various parts of the body which often assist us in locating the diseased structures.

Neither can I touch upon the importance of a large number of other and more advanced tubercular manifestations, such as caseation of lymph nodes, cold abscesses, eczema, phlyctenular ophthalmia, corneal ulcers, suppurative inflammation of the eyelids, otorrhea, mastoid disease and inflammation of bones, joints lungs and other structures.

TREATMENT.—The keynote to the treatment of tuberculosis in infancy and childhood is to maintain nutrition by a proper diet. This may be said to be the most important indication in the treatment of this disease at all ages. But the importance of nutrition becomes more and more paramount the younger the patient, and in artificially fed infants the problem presented is one of the greatest difficulty.

The tuberculous infant under one year of age that does not

happen to have a non-tuberculous mother from which to draw its breast-milk is indeed in a bad way. These children, as has been previously noted, have feeble digestions and suffer frequently from diarrhea. They cannot, as a rule, digest the casein of cow's milk, and, therefore, cannot be properly nourished with artificial foods. A wet-nurse is, for these reasons, almost absolutely necessary for the proper management of young tuberculous infants; and even after the first year of life I have found it necessary, as a rule, not to depend exclusively upon cow's milk, otherwise casein indigestion and diarrhea will bring disaster.

We may, however, when a suitable wet-nurse cannot be obtained, be forced to artificial feeding. Under these conditions I have sometimes used with benefit certain proprietary foods, after failing to keep up the nutrition of the infant with modified cow's milk. Nestlé's food and malted milk or a combination of the two have often served me a good purpose in the management of these cases.

I ordinarily begin by giving Nestlé's food alone. When the stools become normal under this treatment, cod-liver oil, in the form of an emulsion, or the clear cod-liver oil, is added to several of the feedings, until an infant, a year or a year and a half of age, is taking from one and a half to two teaspoonfuls of cod-liver oil in twenty-four hours. After a time I also add the white of one egg to one of the bottles of Nestlé's food and the yellow of an egg to another. In this way after a few weeks of treatment the little patient may be in a condition to commence the gradual substitution of dilute cow's milk for the Nestlé food mixtures; but even after this substitution has taken place the cod-liver oil and the raw egg are still added to the milk mixtures. This is necessary, because these children for many months are not able to take a mixture stronger than one-half milk. It requires constant watchfulness to properly feed and nourish these infants.

In older children milk and cod-liver oil remain the foundation-stones of the treatment. Where good, pure, fresh cow's milk can be obtained it is, as a rule, well borne, and in children over three years of age it is well to urge the child to take at regular intervals as much of this food as possible. One of the important advantages gained by sending tuberculous children to the country is that there they may get clean, rich, fresh cow's

milk in unlimited quantities. The other food of the tuberculous child should also be carefully selected. He should be given fresh eggs, good beef and poultry, and to older children cereals, fresh fruits and well-cooked vegetables may be allowed. But all made dishes, sweets, pastries, and in short all foods difficult of digestion should be excluded from his diet. The dietetic treatment of this condition ranks above all other measures. Every attention should be given to it, and it should be carried out not only month after month but year after year until all evidences of the disease have disappeared.

The next most important agents in the treatment of tuberculosis in childhood are fresh air and sunshine. These can, as a rule, be obtained in the suburbs of even our largest cities, and in most of our smaller cities they can be obtained without any change of home whatever.

A number of years ago when I took charge of the children's wards at the Cincinnati Hospital, I prevailed upon the trustees of that institution to convert one of the corridors leading to my wards into an open-air apartment. This corridor is now so arranged that the beds can be rolled from the wards into it. In this way I am able to keep my tuberculous patients out of doors without increasing the nursing force of the wards. Infants and small children suffering from this disease are kept out of doors, by this arrangement, for a variable length of time during all seasons of the year. In the very hot weather of summer the beds remain in this open air ward night and day, only being brought in in stormy weather. In colder weather, however, the beds are brought into the wards at night and remain outside a greater portion of the day. In winter these tuberculous patients are hooded and covered with warm bed clothing, and if necessary hot water bottles are placed in the bed, and they spend from an hour to two or three hours in the open air every day. The length of time of exposure, of course, must be determined for each individual case.

Older children suffering from this disease are allowed to play in this open ward for a good portion of the day. The fresh air treatment of tuberculosis is, I think, even more important in the infant and child than in the adult, and if faithfully carried out will give better results. In private practice fresh air and sunshine can of course be obtained in a much more satisfactory way than in hospital practice.

Many of these cases no doubt will do better if this fresh air treatment be carried out in high altitudes having a low barometric pressure; but for infants and very young children, the comforts and conveniences of a suburban home in any of our large cities cannot, so far as the treatment of tuberculosis is concerned, be offset by high altitudes with poor home accommodations.

Exercise is not an essential part of the fresh air treatment. In fact, it is contraindicated in all acute cases marked by high fever or other symptoms indicating rapid progress of the disease. Patients of this kind are to be placed out of doors in baby carriages, beds or chairs, and are thoroughly protected from the weather by suitable clothing. In the more chronic forms of the disease not marked by high fever and other acute symptoms, gentle exercise and lung inflation may be a part of the fresh air treatment.¹

MEDICAL TREATMENT.—The special purpose for which this paper was written was to call attention to the great value of guaiacol in the treatment of tuberculosis in infancy and childhood. Guaiacol, in my opinion, far outclasses all other drugs in the treatment of this condition.

In May 1894, * I called attention to the great value of inunctions of guaiacol and recommended the following prescription:

R ^y	Guaiacol,.....	ʒ i
	Lanolin,.....	ʒ ii
	Lard,.....	ʒ v

M. Sig. One level teaspoonful to be rubbed into the chest at bedtime each day.

This prescription I have used for the past eight years in almost every case of tuberculosis in infancy and childhood which I have had an opportunity to treat, and the experience which I have had with this prescription, in many hundreds of cases, has convinced me of its great value.

It is a well-known fact that guaiacol is one of the few drugs which, when it is applied to the skin, is rapidly absorbed by the lymph channels, and is in that way carried into the general circulation, producing the physiological action of the drug. Its great value in the treatment of the lymph node tuberculosis of infancy and childhood in all probability depends upon the fact

* *Ohio Medical Journal*, May 1894.

that by inunction it can readily be brought into contact with the diseased lymph nodes, and in that way acts as a lymphatic antiseptic.

Inunctions of guaiacol, notwithstanding their great value in the treatment of tuberculosis of infancy and childhood, are of comparatively little value in the treatment of this disease in the adult. The reasons for this are evident. In the first place the general lymphatic and glandular systems are more active in the child than they are in the adult, and in the second place adult tuberculosis is not, as a rule, tuberculosis of the lymph nodes.

In acute tubercular conditions marked by fever and other active symptoms, I ordinarily direct that a level teaspoonful of the above ointment be rubbed into the skin over the abdomen and chest night and morning. The rubbing should be done gently and firmly and should occupy ten or fifteen minutes. This treatment may be continued for from one to two weeks and then one inunction a day may be continued for an indefinite length of time. It is well, however, after the fever and other active symptoms have been controlled, either to discontinue the inunctions for a while or to give them two or three times a week as long as it may be deemed necessary. This treatment is of the greatest value in all forms of lymphatic tuberculosis and even when long continued can do no harm.

In tubercular peritonitis the good results which follow the use of this treatment commence at once and the patient, as a rule, slowly but steadily recovers. I have frequently seen the distended, tender and board-like abdomen, which this disease produces, lose its tenderness, distension and tumidity to a degree which marked the establishment of convalescence within a period of three weeks.

In these cases when the active symptoms are in abeyance I frequently substitute carbonate of guaiacol internally for the inunction treatment. Carbonate of guaiacol has the advantage of being easy of administration, and when mixed with a little milk-sugar can be given in powder, without complaint from these whimsical little patients. The value of carbonate of guaiacol in the treatment of all forms of tuberculosis in infancy and childhood is very great, but it is especially valuable in the treatment of intestinal and mesenteric tuberculosis. Guaiacol holds first rank as an intestinal and as a pulmonary antiseptic. And it is possible that a large part of its beneficial action may

depend upon its power to control and destroy the streptococci, which are constantly associated with the tubercle bacilli in the destruction of tissues.

Creosote, which has for many years held first place among drugs in the treatment of adult tuberculosis, is also of value in the treatment of tuberculosis in infancy and childhood. It cannot, however, be used very satisfactorily as an inunction, and its disagreeable taste is a very serious drawback to its successful use in tuberculous diseases of children. Since tuberculosis is a chronic disease, and since children suffering from it are as a rule whimsical and self-willed, it requires a great deal of tact to medicate these children. The medicines must be so palatable that these little patients will take them without a struggle, otherwise the indulgent mother will soon discontinue the treatment. For this reason creosote is available only in well selected cases and in older children, when it may be used in connection with guaiacol inunctions. Children old enough to take a capsule may be given the following prescription:

R̄. Tinct. Gentian..... ʒ iss.
Creosote (wood)..... ʒ ss.

M. Sig. Drop ʒ to 5 drops in a capsule and take every six hours, followed by a drink of milk.

Inhalations of creosote are also of considerable value in the treatment of older children suffering from pulmonary tuberculosis. For this purpose the following formula may be used:

R̄. Tinct. opii camph..... ʒ ii.
Creosote (wood)..... ʒ ii.
Alcohol..... ʒ iv.

M. Sig. 5 to 15 drops in creosote inhaler; use for fifteen minutes or more, three times a day.

Older children do not object to creosote by inhalation or to the creosote in capsules, so that these prescriptions may, under favorable conditions, be continued for a number of weeks without becoming distasteful to the patient. To infants and younger children, however, below the age of eight, I rarely attempt to give creosote in any form; this is because I have much more faith in the efficacy of guaiacol and it is much easier of administration. In chronic forms of tuberculosis or even in acute tuberculosis, after the active symptoms have been controlled by rest, fresh air, diet and the guaiacol treatment as

above outlined, cod-liver oil is one of our most valued remedies and should be given as a routine practice to all such cases. Mention has previously been made to the fact that it can be successfully administered to the infant, mixed with the food in the nursing bottle.

Iodid of iron, as well as other preparations of iron, are of value in treating the anemia of tuberculosis, after the disease has been brought under control by the treatment previously outlined. In the presence of fever, however, and other active symptoms, the iron salts, including the iodid, probably do more harm than they do good. The iodid of iron, however, has long enjoyed a favorable reputation in the treatment of the more chronic forms of glandular tuberculosis. This reputation no doubt is in great part deserved, as many of these patients are greatly benefited by this drug. Care, however, must always be taken not to allow it to disturb the digestion or injure the appetite since it is a cardinal rule in the treatment of tuberculosis that anything that interferes with the taking or the digestion of food, will, by interfering with the nutrition of the patient, do more harm than it can possibly do good.

Arsenic is a remedy also of value in the treatment of the most chronic forms of glandular tuberculosis. Enlarged tubercular lymph nodes will oftentimes grow smaller under its use.

Malt containing diastase may also be of considerable value in well selected cases. Taken after meals it will oftentimes assist digestion, and in that way promote the appetite and bring about a better condition of nutrition.

While it is not the purpose of this paper to discuss the surgical treatment of tuberculosis, mention may here be made of the facts that the removal of tuberculous bones and lymph nodes is not only at times expedient but is often necessary and laparotomy for tubercular peritonitis has been followed by very satisfactory results.

A Case of Purpura Fulminans.—Bargen reports (*Norsk Mag. f. Lægevid.*, Ap. 1901) the case of a child two years who was suddenly taken ill, and covered with ecchymoses; death within two days. On autopsy there was found a condition of general anemia, with swelling of the tonsils, glands of neck, and bronchial glands. Abundant quantities of streptococci were obtained from the spleen, the blood of the heart and glands, and sections of mucosa from the pharynx and the glands. Inoculation produced death in animals. He considers the case a violent streptococcopyemia accompanied by the hemorrhagic diathesis. —*Medical Record.*

A NOTE ON THE LITTLE FINGER OF THE MONGOLIAN IDIOT AND OF NORMAL CHILDREN.*

BY J. PARK WEST, M.D.,

Bellaire, O.

Five years ago Dr. T. Telford Smith called attention† to a peculiarity in the shape of the hand which existed to a greater or less degree in nearly every case of Mongolian idiocy he had examined, and consisted of a marked outward bowing or curving of the little finger. The skiagraph accompanying his paper shows "that the second phalanx of the little finger is considerably shorter than normal, and there is much lateral displacement of the terminal phalanx."

Two years ago a girl, two and a half years old, who presented many of the physical but none of the mental characteristics of the Mongol type of idiocy, came under my care. Her little fingers were somewhat curved, but not so much as those of her cousin, a normal male one month her junior. Of four Mongolian imbeciles seen previously but one had as much curve in the little fingers as this normal boy. This suggested the examination of the little fingers of other normal children, and after seeing a small number straight little fingers appeared to be the exception and a varying degree of curvature was quite common.

To form an estimate of the various degrees of curvature and the percentage of the different forms, I have within the past two years examined the little fingers of 605 children under twelve years of age, 296 being males and 309 females. These were children (with the exception of about 30 seen at a school) I had occasion or could make occasion to see in any way, and a number were seen several times. They were the ordinary children of an industrial community made up chiefly of American-born, with a few Bohemians, Russians, Germans, Italians and French. None were excluded except a few feeble-minded, a

* Read before the American Pediatric Society, Niagara Falls, N. Y., May 27, 28, 29, 1901.

† *Pediatrics*, October, 1896.

few with rheumatism, marked rachitis or deformities, and, after 50 for each year had been obtained, no more for that period were examined. Before the examinations had proceeded far it became evident that four varieties of little fingers existed in normal children, and for convenience they were recorded as follows, viz.: (1) Straight; (2) slight curve; (3) distinct curve; (4) marked curve. Of the 605 children, 112, or 18.5 per cent., had straight little fingers; 175, or 28.9 per cent., a slight curve;



Fig. 1.—STRAIGHT LITTLE FINGER.

199, or 32.9 per cent., a distinct curve; and 119, or 19.6 per cent., a marked curve.

The curving or bowing in this last class (Fig. IV.), corresponds in degree to that shown in the photographs of the idiots of the Mongol type published by Dr. Smith, and this skiagraph (Fig. V.), shows even more distinctly the same anatomical condition causes the curving in this feeble-minded type and in the normal child with the marked bowing of the little



Fig. II.—SLIGHT CURVE IN LITTLE FINGER.
Same in Ring Finger.



Fig. III.—DISTINCT CURVE IN LITTLE FINGER.

fingers. A few children showing the marked curve to the naked eye do not show this anatomical condition distinctly to the fluoroscope; but some in the third class, those with a distinct but not so marked curve, (Fig. III.), also show the short middle and more or less displaced distal phalanx.

It was not unusual to find the children of a family showing quite different degrees of curving in the little fingers, and 51 of the 605, or about 8 per cent., showed a different amount of



Fig. IV.—MARKED CURVE IN LITTLE FINGER.

bending in these two fingers without previous disease or injury to account for it. In a small number, probably 2 per cent., there was a distinct curve in the ring finger as shown in the second photograph (Fig. II.) Five sets of twins were seen and only one pair had fingers alike.

Close examination for stigmata of degeneration was seldom made, but my impression is they were not present oftener in the third and fourth classes than in the other two. From my

knowledge of quite a number and from inquiries about others I believe the mental capacity of the four classes is about the same. Four children under two years of age with the markedly curved little fingers have been watched from birth. The mental and physical development of all has been fully up to the average, and in three of them there has been an increase of the curving.

I have seen but nine Mongolian imbeciles within the past four years. I assisted at the birth of two of these, and the ages



Fig. V.—SKIAGRAPH OF HAND OF FIG. IV.

of the others varied from nine months to twelve years. Only one had such a bowing in the little fingers as this fourth photograph shows. Two others had a less marked curving that was apparently due to the anatomical peculiarity mentioned. Three had very slight curving and two had straight little fingers. One, nine months old, seen for the first time ten days ago, had the right little finger straight and the left somewhat curved, and it

is likely this will increase as the child grows older. Of the two seen at birth one had straight little fingers, the other a very slight bend at the distal phalangeal joint that had almost disappeared before his death, seven months later. A conclusion cannot be based on these few cases, but there is a striking similarity in them and in the normal children.

I am indebted to my colleague, Dr. J. S. McClellan, for the skiagraph and for the privilege of examining the hands of several children with the fluoroscope.

AGE	SEX	STRAIGHT	SLIGHT CURVE	DISTINCT CURVE	MARKED CURVE	NUMBER
Under 1 year	Male	9 } 20.	3 } 8.	8 } 19.	5 } 8.	25 } 55.
	Female	11-	5-	11-	3-	30-
Between 1 and 2 years	M.	9 } 16.	10 } 16.	4 } 11.	5 } 7.	28 } 50.
	F.	7-	6-	7-	2-	22-
2 and 3 "	M.	8 } 12.	10 } 16.	7 } 12.	7 } 10.	32 } 50.
	F.	4-	6-	5-	3-	18-
3 and 4 "	M.	5 } 10.	5 } 12.	12 } 18.	4 } 10.	26 } 50.
	F.	5-	7-	6-	6-	24-
4 and 5 "	M.	2 } 4.	11 } 22.	6 } 13.	8 } 11.	27 } 50.
	F.	2-	11-	7-	3-	23-
5 and 6 "	M.	3 } 9.	4 } 6.	14 } 24.	4 } 11.	25 } 50.
	F.	6-	2-	10-	7-	25-
6 and 7 "	M.	2 } 5.	5 } 14.	10 } 22.	5 } 9.	22 } 50.
	F.	3-	9-	12-	4-	28-
7 and 8 "	M.	2 } 7.	6 } 16.	6 } 14.	6 } 13.	20 } 50.
	F.	5-	10-	8-	7-	30-
8 and 9 "	M.	1 } 6.	9 } 23.	7 } 14.	4 } 7.	21 } 50.
	F.	5-	14-	7-	3-	29-
9 and 10 "	M.	5 } 7.	7 } 11.	8 } 20.	6 } 12.	26 } 50.
	F.	2-	4-	12-	6-	24-
10 and 11 "	M.	3 } 5.	7 } 19.	10 } 18.	5 } 8.	25 } 50.
	F.	2-	12-	8-	3-	25-
11 and 12 "	M.	5 } 11.	4 } 12.	7 } 14.	3 } 13.	19 } 50.
	F.	6-	8-	7-	10-	31-
TOTALS	M.	296	175.	199.	119.	605.
	F.	309	(18.5%)	(28.9%)	(32.9%)		(19.6%)

DISCUSSION.

DR. ROTCH.—It seems to me this corresponds somewhat with the investigations of the criminal ear.

DR. KOPLIK.—In demonstrating this Mongolian finger I have long been impressed by the fact that many people can show a small bend in their fingers. The Mongolian idiot shows the bend merely a little more marked than normal children, and I am very much pleased that Dr. West should have worked out this subject.

Rheumatic Nodes in Children.—Among 75 cases of rheumatic nodes published in recent years fully four-fifths relate to patients over twenty years of age. Rarely are nodes found after a first attack of rheumatism, as in a case reported by A. Josias (*La Méd. Moderne*, September 25, 1901). The subject in this instance was eleven years old and was suffering from a polyarticular rheumatic attack. The nodes were situated beneath the skin, which was freely movable over them and normal in color; they seemed to be adherent to the deep tendons and in some instances to the fibrous tissue covering the bones. In size they varied from that of a hempseed to that of a lentil. They were found on the hands, about the wrists, elbows, shoulders, feet, ankles, knees and head. The patient was kept under observation during a period of two months, during which time most of the nodes disappeared while those which remained diminished in size. One of the nodes was removed for examination and was found to consist of a flabby tissue which histologically revealed a vascular network with thick walls. In cases previously reported nodes were formed of fibrous tissue and sometimes of cartilage; others are said to have had necrotic areas. Nepoen is said to have found bacilli and micrococci in the lesions; bacteriological examination by Josias was negative. The latter compares the rheumatic node to the endocardial vegetations of rheumatism; in both cases there is a cellular proliferation superinduced by the same infectious cause. Endocardial growths may occur without accompaniment of subcutaneous nodes, but the latter are always accompanied by endocardial lesions and usually by chronic symptoms as well.—*Medical News.*

A CASE OF MYOTONIA CONGENITA.

BY CHARLES FOX GARDINER, M.D.,

Colorado Springs, Col.

The rarity of the disease and some suggestive facts in regard to the family history of the case reported make the following clinical notes of considerable interest.

Myotonia Congenita or Thomsen's Disease is described by W. H. White in Allbutt's System of Medicine as a malady, the chief feature of which is that in the execution of any voluntary movement the muscles brought into play remain contracted for some seconds. It is said to be the rarest disease known to medicine, and the cause is unknown. A great width of muscular fibers is found, 1-150 to 1-500 of an inch, normal fibers averaging 1-600. This is supposed to be due to some faulty construction of the fibers at birth.

The case which I report is in a boy of six years. He has always been healthy. Father's history is negative, but the mother affirms positively, and is sustained by others, that during her pregnancies, two in number, she suffered from extreme slowness of muscular action, that this was so marked as to be very embarrassing, and at times even dangerous, causing her to fall and making her feel helpless, and she often had to have help in moving about if she had been at rest for a few minutes previously. During her first pregnancy she fell because of this slow muscular action and aborted in consequence.

This stiffness was only noticed after the sixth month of pregnancy and gradually increased until delivery, when it ceased at once. She now shows no trace of this stiffness, and has never noticed it before or during menstruation. She is as active as any woman of her age and size, and muscular contractions are not at all prolonged.

Her son, whom I have mentioned, was born after a pregnancy that was normal with the exception mentioned of great stiffness of muscles. He has never been ill, and is quite intelligent. Almost from birth it was noticed that any voluntary

motions were performed much more slowly than normal, but always increasing in speed when repeated many times. Also that fright, anger, or any emotion increased the difficulty. At present, after a period of muscular repose, he can stand and walk only with extreme effort. He moves as if overcome with sleep, or as if he was wading in water; after a time he moves faster and can run, at first slowly, lifting his legs as if made of lead, then faster and more naturally, until at last after several minutes he can run almost as well as would a rather slow and clumsy boy of his age. After a rest he is again so stiff that if suddenly called upon to exert himself he will stumble and fall like a log incapable of motion. His muscles are rather larger than normal, biceps eight inches, calves eleven inches. His height is three feet nine and one-half inches, and his weight is fifty pounds. The general muscular system is developed much beyond that of a boy of his age and his muscles have the appearance of those of an adult who has been an athlete, the hypertrophy being pronounced. The reflexes, both superficial and deep, are normal.

The myotonic reaction of Erb was kindly tested for me by Dr. Swan. Motor nerves showed no increase of irritability to mechanical stimuli. To strong faradic current contraction lasted a little longer than usual. To galvanic current not abnormal. Mechanical stimuli to muscles did not cause noticeable contractions. Faradic current to muscles of calves caused contractions which lasted twenty seconds on left, and fifteen seconds on right. Flexors of forearms showed to a slight degree the same reaction.

He could get no wave like contraction by galvanic current. K.C.C. and A.C.C. equally easy to obtain. Rolling the ulnar nerve under the finger to cause contraction in muscles supplied by it, resulted negatively.

The case presented nothing more unusual than a well-developed case of Thomsen's Disease, but the mother's history was, as I have shown, unusual, and in the light of some recent theories regarding the etiology of Thomsen's Disease, is, I think, significant.

Recently, for example, v. Bechterew has called attention to the peculiar features of myotonia congenita which he believes indicate that this condition is properly the result of an alteration in metabolism (*Neurologisches Centralbl.*, February

1, 1900, No. 3, p. 98). The symptomatology according to him depends entirely upon the degree of the muscular tension, which, in these cases, develops very slowly. As the curious muscular phenomena are manifested either to voluntary, mechanical, or electrical stimulation, there is no reason to believe that they are dependent upon or concerned with the nervous system. Moreover, the curious modifications that take place in the severity of the disease from time to time, and the occasional complete cure, also indicate that the nature of the process is to be found in some disturbance of the metabolism of the body, especially of the muscular metabolism. Careful examination of the urine shows that in these cases there is diminution in urea, the chlorids, and phosphoric acid, and various alterations in the quantity of uric acid. As certain symptoms of the gouty type become less pronounced, the myotonia also improves, and it seems that the simultaneous occurrence of the two lesions is more than a mere accidental complication. Of course, if v. Bechterew is correct in this view, myotonia should be transferred to the domain of the general internal clinician, and the neurologist should have nothing more to do with it.

In a case reported by S. A. Lord (*Boston Medical and Surgical Journal*, March 8, 1900). A girl of twenty-three experienced a peculiar motor incapacity of legs on going up stairs, this gradually increased until her menstrual function was established, entirely ceasing when the flow had commenced. No other muscles were affected. This happened for one week before each period and raises an interesting question regarding the latency of myotonic conditions aggravated by certain states like pregnancy, or menstruation.

To me it seems that cases like the above, and the mother of the boy whose case I report, show at least the possibility of there being some element besides the mere width of muscular fibers, and that the cause of Thomsen's Disease may be in the imperfect metabolism which occurs at certain times. Thomsen found an active life beneficial, possibly because excretion was increased. Fright or anger increases the symptoms, and the effect lasts all day. We have seen that pregnancy increased the disease or its symptoms only decidedly after the sixth month when we would expect toxic material to be present in greater quantity in the circulation, and when labor was over, all

evidence of the disease ceased at once, as did the symptoms in the case of Lord's patient when she began to menstruate.

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Convulsions with Hemiplegia in an Infant of Fifteen Months.—Le Gendre (*Journal des Pratic.*, February 9, 1901) states that a baby of fifteen months, hereditarily syphilitic, suddenly had convulsions. They were epileptic in character, the right side moving more than the left. Right hemiplegia followed, more marked in the leg. Sensation remained normal. Babinski's reflex was present. Both pupils were contracted. Le Gendre gave 2 grms. of mercurial ointment externally, and 1 grm. of potassium iodid in rectal injection, daily. For two weeks treatment was of no avail, then the convulsions ceased. From that time the child improved continually. The cause of the convulsions was undoubtedly syphilitic, a gumma, a circumscribed meningitis, or encephalitis, in the left Rolandic region.—*The Philadelphia Medical Journal.*

ARCHIVES OF PEDIATRICS.

DECEMBER, 1901.

EDITED BY

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THE TREATMENT OF TUBERCULOSIS WITH SPECIAL REFERENCE TO THE LYMPH NODES.

The general term tuberculosis, in connection with the period of childhood, comprises a large number of localizations and phases of this disease, some of which are essentially pernicious and others are benign. The management and treatment of the localized form of tuberculosis, such as is observed in the lymph nodes, deserve thought as in many cases the progress of the disease can be retarded and limited to the area of invasion.

With infants, in whom there is a catarrhal tendency and a tuberculous ancestry, constant attention must be paid to the toilet of the mucous membrane of the upper air passages and

there must be an intelligent oversight of the state of the gastro-enteric tract lest a weakened membrane allows of the entrance of the tubercle bacilli to the lymphatic system. If the mother is tuberculous she should not be allowed to nurse her infant, but a healthy substitute should be provided. Everything that favors good hygiene and environment will conduce to a greater resistance in the tissues of the growing infant.

The principal indication always is to improve the individual resistance, and the first detail to require attention is the diet. A proper amount of nutritious and easily assimilable food is usually provided for breast children, but with an infant who must be fed artificially there is difficulty at the start.

Rachford in his article in this number of ARCHIVES OF PEDIATRICS states that the proprietary foods have rendered better service than preparations of cow's milk. While it may be in a measure true that tuberculous babies are frequently unable to digest the casein of cow's milk unless carefully modified, the absence of fat and overplus of starch in tinned foods make them less valuable for continued use than a diet containing proportions of fat and proteids more nearly approximating breast milk. As all of these patients, both infants and children, require fats and albuminoids the matter cannot be settled off-hand but must be determined by the individual digestive power in each case.

In regard to choice of climate, one must be selected which lessens the likelihood of contracting colds, since every fresh attack of bronchitis tends to aggravate the lesions of the bronchial nodes. The maximum of sunlight is important.

Second, perhaps, in importance to diet, sunshine and fresh air is hydrotherapy. The cold douche as described by Eustace Smith is one of the most effective measures of realizing the benefit of this species of treatment.

The child should be properly clothed and not exposed in high winds. Local lesions that may cause an engorgement of the neighboring lymph nodes should be given prompt attention. In this class of cases are the hypertrophies of the pharynx

and post-nasal space, all local irritations from carious teeth and abscesses. Enlarged nodes that are caseous should be removed.

Of internal remedies cod-liver oil still retains its original repute, and iodid of iron is believed to possess a certain value wherever the lymph nodes are involved. Certainly the two remedies are of sufficient value for a continuance of their use in cases of tuberculosis, although it is important to bear in mind the necessity for watching their effect lest they cause disturbance of digestion.

While creosote and its derivatives do not seem to have a fixed reputation in the tuberculosis of the lymph nodes, Rachford has employed guaiacol for many years in the disease affecting the bronchial and mesenteric nodes with gratifying results.

The tendency of tuberculosis of the lymph nodes to a spontaneous arrest, and the fact that these patients are, when under treatment, placed on the most nutritious *regimen*, make it difficult to determine the exact place of any one remedial agency.

Tardy Disturbances After Tracheotomy and Intubation.

M. Pfandler (*Muenchener Med. Wochenschrift*, October 22, 1901), Reviewing the latter history after tracheotomy or intubation of 173 children at Escherich's clinic, it was found that the children who had been intubated were as healthy as the same number of average children, and that no connection between any casual affection of the respiratory passages and the intubation could be discovered. But the case was different with the children on whom tracheotomy had been performed. Slight disturbances were evident in 12.5 per cent. of the tracheotomized, and in 18.8 per cent. of those treated by tracheotomy and intubation. Severer disturbances, such as permanent hoarseness, cicatricial tracheal stenosis, chronic cirrhotic pneumonia or pulmonary tuberculosis were noted in 3.5 per cent. of the intubated; in 12.5 per cent. of the tracheotomized, and in 31.3 per cent of the cases in which tracheotomy and intubation had both been applied. Intubation had been used alone in 141 cases, tracheotomy alone in 16 and both combined in 16.—*Journal of the American Medical Association.*

Society Reports.

THE NEW YORK ACADEMY OF MEDICINE—SECTION ON PEDIATRICS.

Stated Meeting, November 14, 1901.

WILLIAM L. STOWELL, M.D., CHAIRMAN.

AN AUTOMATIC SIPHON FOR SEPARATING CREAM OR TOP-MILK OF ANY DESIRED FAT PERCENTAGE.

DR. HENRY L. COIT, of Newark, N. J., exhibited a number of siphons that had been devised in the past for this purpose, but which in actual practice had been found wanting. Such a siphon should effect a complete separation of the cream at the cream-line and also be capable of separating the top-milk at several layers, and of removing the skimmed milk at certain levels. The siphon which he recommended and described was one that he had found in use in Newark. It is made of glass tubing of one-fourth of an inch calibre, bent on about a two-inch curve. The suction arm within the bottle is provided with a funnel-shaped end to facilitate the starting of the siphon, the entrance of the milk, to furnish a better support or rest on the bottom of the milk-bottle and to make it easier to cleanse the siphon. The length of the outer arm of the siphon may be used to determine the point at which the flow is to be stopped. To avoid a multiplicity of siphons, a telescopic arm may be used, or still better, a number of short straight pieces of glass tubing of varying lengths may be readily attached to the arm of the siphon by a coupling of rubber tubing.

MR. CHARLES A. MEADE demonstrated the action of the siphon. In using it water or milk is poured in the funnel end until the siphon is full. The finger is then placed over the outer arm, and the long arm of the siphon is dropped to the bottom of the milk-bottle. The skimmed milk is drawn off until the level of the shorter or outer leg corresponds with the level of the milk in the bottom, when the siphon automatically ceases to act, and the desired quantity of top-milk is thus left in the milk-bottle. The distinctive feature is that in order to deliver under milk only, the inner arm is made long enough to reach the bottom of the bottle, and the length of the outer or

delivering arm is determined and fixed by the exact amount of top-milk or cream it is desired to leave in the bottle.

DR. H. D. CHAPIN said that this was certainly the most ingenious and satisfactory siphon for the purpose that he had seen, but he had abandoned the siphon because of the difficulty of keeping it clean, and especially of getting the nurse-maid to carry out the necessary manipulations properly. The nurse was very apt to start the siphon with her mouth if not watched. He had stopped using so many ounces of the cream itself because many assays had shown him that what is called cream is an exceedingly variable substance. If the whole milk runs 5 per cent. butter-fat, the first three ounces in the bottle will be different from the first three ounces taken from milk running 3 per cent. butter-fat. He now used all of the cream and a certain percentage of the skimmed milk, as this gave an almost constant result. He had learned by experiment that in the first nine ounces of cream that has risen in the ordinary way, the ratio of the fat to the proteids is three to one, while in the first fifteen ounces this ratio is two to one. The easiest way of removing this cream was by the use of the little tin dipper that he had devised. An incidental disadvantage of the siphon was that the dirt settles down into the edges of the bottom of the milk-bottle, and therefore remains with the top-milk after the siphon has drawn off the skimmed milk.

DR. COIT said that this siphon had originated in a place where the milk has a uniform fat content, it having been found to vary only half of 1 per cent. in fifty or sixty analyses made by Prof. Leeds. He thought, however, the milk laws were so strict at the present time in most cities that the ordinary milk could not vary very greatly in this respect. Even if the nurse used her mouth for starting this siphon it would do no special harm because the skimmed milk which is drawn off is thrown aside. He had used Dr. Chapin's dipper and had experienced difficulty in removing the first ounce, but he had recently learned that Dr. Chapin overcomes this difficulty by using a teaspoon for the first filling of the dipper.

SAFETY-PIN IN CHILD'S VAGINA.

DR. SARA WELT-KAKELS presented a safety-pin removed from the vagina of a child who had suffered a long time from a persistent bloody and leucorrhœal discharge. Finally, the intro-

duction of a sound into the vagina had detected a foreign body, which proved, on removal, to be this safety-pin.

A PENNY IN THE ESOPHAGUS.

She also presented a skiagraph from a child of twenty months who had swallowed a penny. Under chloroform anesthesia she had easily removed the penny with the well-known coin-catcher.

DR. WELT-KAKELS exhibited a garment used in Germany for controlling children in bed for two or three days for purposes of examination; also an aluminium cap used to close bottles of sterilized milk.

THE VALUE OF THE WIDAL REACTION IN CHILDREN.

DR. MILTON A. GERSHEL read this paper. The observations upon which it was based had been made from March 1898 to October 1901, in the service of Dr. Koplik. A dilution of one to twenty had been used, according to the method of Dr. E. Libman, and in nearly every instance dried blood was used. Altogether 670 examinations had been made in 199 cases. Of the latter, 84 were typhoid, and the remainder were various other febrile disorders. Of these 84, 81 had given the reaction. Morse had seldom found the reaction before the end of the second week, and Musser had found it rarely before the seventh day. In the cases considered in this paper, 11 had given the reaction by that time. Blackader, in a series of 43 cases, had obtained the Widal reaction in 70 per cent. before the second week. This corresponded very closely with the results obtained by Dr. Gershel. One of the cases reported by him was that of a child who had presented clinically throughout the illness the picture of a lobar-pneumonia. On the third day the Widal reaction had been negative, but subsequently it had been positive in a dilution of one to fifty, later in a dilution of one to one hundred, and just before death the reaction had been obtained with a dilution of one to three hundred and fifty. In the 115 cases of fever other than typhoid no positive Widal reaction had been noted. The Widal test was of greater importance in children than in adults because of the frequently atypical character of typhoid fever in children.

DR. H. KOPLIK cited, as an example of the importance of the Widal reaction, a case in which a child in the hospital recover-

ing from a multiple neuritis, had developed a very slight febrile movement. After a few days, although there were no symptoms whatever of typhoid fever, an examination had been made for the Widal reaction and a positive reaction obtained. The case had run a mild course. Two children in one family had had typhoid fever, but had not developed the Widal reaction until after a relapse. The diagnosis had been made in the first instance by the clinical symptoms.

DR. H. W. BERG said that only ten years ago one of the authorities on pediatrics in this country had expressed his scepticism regarding the occurrence of typhoid fever in children under five years of age, yet the paper just presented not only showed many cases of this disease occurring in early life, but emphasized a method, now at our disposal, for positively diagnosing typhoid without waiting for an autopsy. Reasoning from observations in 5,000 cases, Cabot had affirmed that the Widal reaction is obtained sooner or later in 97 per cent. of cases of typhoid in both adults and children. However, in the speaker's opinion, a far more valuable means of making an early diagnosis was by the detection of a diminished leucocyte count, as this was often present by the second day. Of course this symptom by itself was not sufficient for a diagnosis of typhoid.

PRIMARY INTESTINAL TUBERCULOSIS IN CHILDREN; ITS FREQUENCY AND THE EVIDENCE OF ITS RELATION TO BOVINE TUBERCULOSIS.

DR. DAVID BOVAIRD, JR., was the author of this paper. (See page 881.)

DR. W. H. PARK said that it had always seemed to him questionable as to the value of the lesions in the intestine, for, it was doubtful whether the point of entrance of the infection leaves any recognizable evidence behind. Either infection of the intestine with any bacilli is an extremely rare thing, or else infection taking place there does not show at that place, but in some other part. Even the finding of a primary tuberculosis in the intestine was no proof that the infection had come from tuberculous milk, for it was just as likely that it came from the swallowing of human tubercle bacilli. During the past summer they had tried the experiment at the Health Department laboratory, of feeding four calves on enormous quantities of tubercle bacilli from human beings, retaining a fifth calf as a control. All the animals, with the exception of the control, had reacted

to tuberculin at the end of three months. Two of these animals had remained, however, well, but another calf was now losing weight. It had been already absolutely demonstrated that the bacilli in human beings are usually less virulent than in animals and differ from the bacilli of the latter in their morphology, yet are capable of infecting animals.

DR. THOMAS S. SOUTHWORTH said that he had been struck with the percentage of tubercular cases coming to autopsy at the New York Foundling Hospital, for he had been over his own records at the Nursery and Child's Hospital and had found almost exactly the same percentage—ten or eleven. There had been 6 cases of general tuberculosis in which the intestines showed ulcers of the intestinal mucous membrane, and in 3 these ulcers had been undoubtedly tubercular. Of these 6 cases the mesenteric lymph nodes had been cheesy in 3 and distinctly enlarged in 2, while the condition in the other case was not stated. The statistics presented would seem to indicate a much greater liability to tubercular infection abroad than in this country. Here, it would seem safe to discard pasteurization of milk in cold weather, if the milk supply is known to be good, and when the children are two or three years old.

DR. R. G. FREEMAN said that the cases reported in the paper of a single child dying of tuberculosis after having been fed on tuberculous milk seemed to him entirely worthless. There was some evidence, however, in that series of cases reported by Olivier and that of Demme, in which a number of persons in a school had become tuberculous, and the herd supplying the institution with milk was found to be tuberculous. Other good instances of this sort had been reported which had not been mentioned by the writer. It was well known that in animal experiments in which the tubercle bacilli are introduced into the intestine, and other methods of infection are eliminated, that the animal very early develops a respiratory tuberculosis which soon becomes much more marked than the intestinal tuberculosis. For this reason many cases of respiratory tuberculosis may have had their origin in the intestine.

DR. BOVAIRD said that there was good clinical evidence that the admission of tubercle bacilli to the intestine produced intestinal or mesenteric tuberculosis. In many of the cases of tuberculosis, seen post-mortem, the bronchial nodes alone were

affected; there was no lesion of intestine or mesenteric nodes. In many more there was tuberculosis of the bronchial lymph nodes with miliary tuberculosis of the lungs and often of other viscera, but without involvement of the intestine or mesenteric nodes. In other cases again the bronchial nodes tuberculosis was accompanied by advanced changes in the lungs, cheesy pneumonia, caseous foci, or tuberculous cavities; then, as a rule, ulcers were found in the intestine and tuberculous changes in the mesenteric nodes. In other words, as soon as there were changes in the lungs from which bacilli might easily be coughed up and then swallowed, tuberculous lesions were found in the alimentary tract; and these latter lesions were almost never found independent of advanced changes in the lungs.

Even granting that animals infected through the intestine sometimes show advanced pulmonary lesions, it must be admitted that these cases are rare; whereas when animals are fed on bovine tuberculous matter it is a regular thing to find the intestine first infected, and later on the respiratory tract.

It is, of course, evident that there may be other causes than tuberculous milk for the production of primary intestinal tuberculosis in children, but in the paper he had spoken as though that were the only cause, in order to simplify the argument and render all the more forcible the conclusion against it.

Arthritism in Children.—J. Comby declares (*Gazette Hebdomadaire de Médecine et de Chirurgie*, September 29, 1901), that arthritism is almost always hereditary, and is a permanent trouble of nutrition. In the child it presents only rarely striking manifestations, and it is easy of classification. The young arthritic is an intelligent child, with an alert eye and quick movements. It often shows the characteristics of the lymphatic temperament. Anemia is sometimes marked. Circulatory troubles are frequent, as are also respiratory affections, epistaxis, and asthma. There are often digestive troubles, such as anorexia. Albuminuria is sometimes found. The skin is fine and easily irritated. Diet plays a most important part in the prophylaxis and treatment of arthritism. Vegetables, water, milk, fresh fish, white meats, and cooked fruits are indicated.—*Medical Record.*

THE NEW YORK ACADEMY OF MEDICINE—SECTION
ON ORTHOPEDIC SURGERY.

Stated Meeting, October 18, 1901.

GEORGE R. ELLIOTT, M.D., CHAIRMAN.

INFANTILE PARALYSIS SIMULATING CONGENITAL TALIPES CALCANEUS.

DR. A. B. JUDSON presented the case of a baby five months old with what at first view appeared to be left congenital talipes calcaneus. Passive motion was abnormally free; active motion was deficient. The position was that of talipes calcaneus. The history was given of a three days' sickness occurring when the child was two months old, in which there were fever, trembling and general cutaneous hyperesthesia, but no vomiting, diarrhea or convulsions. The diagnosis of infantile paralysis was made and will probably be confirmed by partial spontaneous recovery during the next year. The cutaneous circulation was apparently normal and the general health of the infant was excellent. The left thigh and leg were one-half less in circumference than the right. The arms were normal. Congenital calcaneus was rare. Such a case with the resistant tissues and lasting deformity of congenital varus would be well worth careful study and description.

DR. W. R. TOWNSEND agreed with the diagnosis of infantile paralysis. He believed well marked congenital talipes calcaneus to be very rare, although he had seen such cases.

DR. GEORGE R. ELLIOTT asked Dr. Townsend what muscles would be affected to cause such a deformity as that presented.

DR. TOWNSEND replied the gastrocnemius, soleus and plantaris.

DR. ELLIOTT asked Dr. Judson if the poliomyelitis was limited to the posterior group of muscles.

DR. JUDSON replied that a careful electrical examination had not been made.

DR. HENRY LING TAYLOR said in reference to the statement about the rarity of congenital talipes calcaneus, that while he agreed that the severe forms were rare, the milder varieties were fairly common, they, however, usually corrected themselves without special treatment.

CREPITUS IN CERVICAL POTT'S DISEASE.

DR. JUDSON presented a case of crepitus heard in cervical Pott's disease in a woman forty years old, accustomed to housework. Symptoms had been present about a year. Movements of the head had caused pain of the forehead and face called by the patient, "neuralgia." She had often supported the head with her hands and at night had needed a number of pillows carefully arranged to hold the head in a comfortable position. When she stopped work for a time she felt better but on returning to work the trouble was increased. The deformity was marked, being partly due to a forward displacement of the axis of the head, a condition invariably present in cervical Pott's. The width of the neck posteriorly was increased. There was no abnormality of the trunk or any other part of the skeleton. She said that at one time the head was much flexed and inclined to the left. Six months ago she noticed that motion of the head in rotation was accompanied by a cracking sound. On examination the crepitus was readily heard, simulating bony crepitus, but evidently due to tendinous or muscular slipping.

DR. TOWNSEND said that he could not agree with the diagnosis of cervical caries; he was inclined to consider the case one of osteoarthritis which deceased condition had been well described by Goldthwait in the Transactions of the American Orthopedic Association, Vol. XII.

DR. ELLIOTT agreed with Dr. Townsend that the symptoms and objective signs were not typical of cervical caries. He would expect to find more real disability, more rigidity due to reflex spasm in spite of the fact that frequently the symptoms and signs of caries in the adult were frequently masked. Cervical caries appearing at the age of forty was not common and at that age almost invariably progressive, which did not appear true in the present case.

The crepitus, too, which was elicited so markedly upon free movement of the neck rather pointed to another disease.

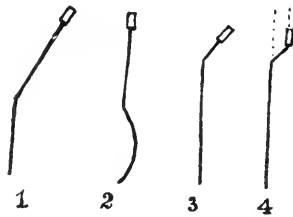
The word *caries sicca* he believed to be largely a pathological misnomer.

DR. TAYLOR agreed with the two foregoing speakers. He thought the patient should have shown more severe symptoms and more tendency to progress were it a case of caries.

The indications for treatment, however, of osteoarthritis

and tuberculosis of the spine were the same as far as protection and support to the diseased vertebræ were concerned.

DR. JUDSON expressed himself as unable to amend his diagnosis. He considered the case as a typical one of cervical Pott's disease and recalled the symptoms in detail. He took the opportunity to call attention to an important sign of the disease in this region. Figures I. and II. showed how the lordosis accompanying deformity in the dorsal region was unconsciously assumed by the patient for the preservation of his equilibrium.



This has been well shown in the photograph exhibited by Dr. H. Gibney, at the meeting held on October 19, 1900. In cervical disease, Figures III. and IV., the equilibrium was not seriously disturbed but the necessity of a horizontal visual axis led to extension of the head at the occipito-atloid articulation with the characteristic forward displacement of the axis of the head seen in Figure IV. and in the patient who had been presented.

DR. LEONARD W. ELY asked if this sign was invariably present.

DR. JUDSON replied that in adults it was.

OSTEOTOMIES FOR CORRECTION OF BOW-LEGS AND KNOCK-KNEES.

DR. HOMER GIBNEY presented 6 cases, and described method employed. Three of the cases shown were very marked anterior curves of tibiæ entirely corrected. Tracings, photographs and notes from the records of the Hospital for Ruptured and Crippled were presented.

DR. L. A. WEIGEL, of Rochester, said that he was somewhat in doubt as to what constituted a true bow-leg and the proper course to pursue in a certain class of cases. An outline tracing of the leg might show an apparent bowing, while a skiagraph would demonstrate that the shafts of the leg-bones were straight. He exhibited skiagraphs of 2 cases to illustrate. In one of the cases the deformity was corrected by osteoclasis, but the skiagraph showed that the legs were straightened by making the bones slightly crooked.

DR. TOWNSEND agreed with Dr. Weigel about straightening legs often by making them "crooked." He had found frequently that in cases where the deformity was ideally corrected the bones were actually very crooked and his experience with radiographs had been similar to that expressed by Dr. Weigel.

DR. TAYLOR wished to call attention to the importance of correcting inward rotation of the tibia in cases of bow-legs. There often existed an inward twist of 20° or more, and this could only be obviated by everting the lower fragments at time of operation. In the cases presented by Dr. Gibney he noticed that two of the children showed a marked inward twisting of the feet. Too little attention had been given to this point by operators. Neglect to correct this rotation meant an incomplete correction of the deformity and liability of a recurrence of the bow-leg. He advised breaking the fibula as well as the tibia, well loosening the fragments, twisting the foot out as much as possible—the resulting eversion would not be too great.

DR. R. H. SAYRE remarked that in one of the cases presented in photograph by Dr. Weigel, the thighs as well as the legs were bowed, and the bowing was accounted for probably by twisting of the neck of the femur as well as the lower part of the femur near the condyles. In many cases the distortion was found close to the epiphyses, while the shafts of both tibia and fibula were straight. Operation should be performed at point where deformity existed.

COXA VARA.

DR. TAYLOR presented a boy first seen by him in May, 1900, then six years old. He gave the history of having walked at the age of eleven months and of having been lame in the left leg ever since. There was one-half inch shortening of the left leg, the trochanter was elevated one-half inch and the head of the femur could not be felt. The symptoms pointed to coxa vara, but he had not known of any other cases of this disease beginning at such an early age. A skiagraph showed that the head of the bone was in the acetabulum and that the neck was bent downward. There was no evidence of rachitis. The leg at present was smaller than the right; adduction and outward rotation were limited, other movements were free; shortening and elevation of the trochanters were the same. There had never been any pain.

DR. SAYRE said he should judge from the skiagraph that there had been a fracture of the neck of the femur and the inability to secure history of traumatism did not necessarily have any weight. The child had not been seen till six years of age, and gave the history of walking at eleven months and limping. He judged that this might be a case of fracture or of epiphyseal separation.

DR. WEIGEL asked, if there had been epiphyseal separation would not the action of the muscles have tended to draw the trochanter and shaft upward, the head being retained in the acetabulum?

DR. SAYRE said that would depend on the extent of the fracture, in other words, whether it were complete or not.

DR. TAYLOR said that there was a history of several falls, none of them severe or followed by symptoms of injury.

It was evident that coxa vara was present whether as the result of traumatism or malformation.

DR. WEIGEL read a paper on "Skiagraphy in Orthopedics," illustrating his discourse with many negatives adjusted in the X-ray stereoscope which he used. A brief reference was made to the technic of stereoscopic skiagraphy, and the advantages over the ordinary method of producing X-ray negatives were fully explained. The technic was not difficult. He considered one of the principal difficulties in skiagraphy—the proper interpretation of the negative in the stereoscope. The idea of depth was given, which was not apparent when viewing the negative alone. By reversing the negatives in the apparatus the pictures could be viewed from the opposite surface.

DR. WEIGEL also presented the subject of

FRACTURES AND DISLOCATIONS IN TUBERCULAR JOINT DISEASE,
with illustrative skiagraphs.

One of these was of a boy who was said to have double congenital dislocation of the shoulders, which proved on careful examination to have been tubercular destruction of the joints, with partial dislocation. On one side an abscess cavity of large size communicated directly with the joint.

In another case involving one elbow joint and forearm the necrotic process gradually attenuated the shafts of the radius and ulna. Eventually a complete separation of the latter bone, occurred about one inch below the joint and allowed the bones of the forearm to slide upward and backward.

Current Literature.

DERMATOLOGY.

Montgomery, Douglas W.: **The Cause of the Streaks in Nevus Linearis.** (*Journal of Cutaneous and Genitourinary Diseases.* No. 229.)

This article is based on the study of a case of nevus linearis in a lad of twelve years of age. The linear nevus exhibited a wide distribution, affecting portions of the face, neck, arms, axillæ, chest, abdomen, pubes and perineum—sometimes on one and again on the other side.

The disease began not very long after birth and was well marked at the age of two years. It was apparently not a family disease, but the father may have had a mild form of the same or a similar affection.

The belief that in these cases the lesions have a definite relationship with the cutaneous nerves is not borne out by the author's study of the present case. There is, indeed, a rude and incomplete agreement in most of these cases between the direction of the neval lines and that of some of the nerves, but points of disagreement are sufficient apparently to explode any hypothesis which relates to a nervous origin of this affection. Nor do the streaks run parallel to the aright or cleavage lines. All other hypotheses which make the lines follow the blood vessels, embryonic segments, etc., are alike unsatisfactory. The great obstacle to many theories is found in the sudden angle which is seen at times in the course of the warty streaks. This affection is best treated by pinching up the warty streak and trimming it off with blunt-pointed scissors.

MEDICINE.

Moizard and Bacaloglu: **Genital Tuberculosis in the Child.** (*Arch. de Méd. des Enfants.* Vol. iv., No. 10.)

The authors consider male children only. Testicular tuberculosis has been observed more frequently during the first years of life than at or near puberty. It is usually unilateral, affecting the left side more than the right. The symptoms are the same as in adult life, but the acute form is more common in children.

Two cases are reported. The first was that of a boy fifteen months old, who had tuberculosis of the right testicle and seminal vesicle, of the prostatic gland and back of the right hand. There was no appreciable pulmonary lesion, but an enlarged spleen. Death was due to tuberculous meningitis. The autopsy showed that the genital tuberculous lesions were comparatively old and probably of hematogenous origin, the meningeal process being recent and secondary. The other case occurred in a boy thirteen years of age, the diagnosis of kidney tuberculosis being made during life from the presence of tubercle bacilli in the urine. Death was due to uremia. At the autopsy the right kidney was found to be four times its normal size, with tubercles varying from the size of a pea to that of a nut. The left kidney was transformed into a cheesy mass without a trace of renal tissue. The right ureter, bladder, urethra, prostate and seminal vesicles showed tuberculous lesions; the testicles were perfectly healthy. The urethral lesion was especially interesting because of its extent (the entire length of its mucosa was in a state of ulceration) and rarity. The genital lesions in this case were secondary, infection taking place through the urethra and bladder.

Testicular tuberculosis may heal spontaneously by becoming encapsulated. It does not menace life directly, but indirectly, by causing a general tuberculous infection.

Sachs, B., and Brooks, H. : Progressive Muscular Dystrophy, With the Report of an Autopsy. (*The American Journal of the Medical Sciences.* Vol. cxxii., No. 1.)

The patient was first seen when thirteen years old, and remained under observation until his death from pneumonia nearly eleven years later. A younger brother presented the clinical symptoms of Erb's juvenile type of the disease, and died of a cardiac lesion. A third brother has the ordinary form of pseudohypertrophy. The patient was practically well until ten years old, when he broke his leg; one year later fracture of the same leg is said to have occurred again, and afterward the boy could not walk well. After an attack of typhoid fever at the age of twelve, he could not walk at all. The condition changed very little during the years of observation, and may be summarized as follows: A large head undergoing constant rotary movements, congenital nystagmus, macroglossia and thick

speech—all stigmata of degeneration. The general intelligence was fair. There was a marked atrophy of the muscles of the shoulder girdle, upper arm, forearm, deep spinal layer and thighs. Both feet were club-shaped and with calves large and tough. He could not raise his head nor perform a single movement of the trunk or limbs. Reflexes were absent; response to the faradic current disappeared as the atrophy increased.

The autopsy showed broncho-pneumonia, fibroid myocarditis and fibrosis of all the voluntary skeletal muscles. No gross lesion was apparent in any part of the nervous system. On microscopical examination the muscle substance was found to be replaced by diffuse areolar connective tissue and fat; there was slight general perivascular connective tissue hyperplasia, modern interstitial myocarditis, extensive degenerative changes in a few of the cells of the posterior root ganglia, and rare, irregular types of cytoplasmic alterations without morphological change in the ganglion cells of the spinal cord. The smooth muscle tissue and the heart muscle cells were unchanged, showing that the disease process was strictly localized in the voluntary muscles. The degeneration of the ganglion cells in the cord might have been due to post-mortem change or to the terminal infection which was the direct cause of death. The negative findings of the case show that the wasting of the muscles could not be attributed to disease of the gray or other matter of the spinal cord. It may be taken for granted that the disease represents a primary affection of the muscle fibre, and that the fatty degeneration is secondary to the hypertrophy and atrophy of the muscle tissue.

The authors' experience during the past few years lead them to infer that the progressive deterioration of the muscular system in cases of pseudohypertrophy can be checked, for a time at any rate, by active exercise. Two cases of marked improvement are reported.

Bottazzi: Acetonuria in the Diphtheria of Childhood.
(*La Pediatria.* Ann. ix., No. 9.)

While investigating the urine of children for evidences of acetonuria, the author accidentally discovered some of that substance in the urine of two children who had recently recovered from diphtheria. He then investigated the urine of children in the midst of acute diphtheria; and here he found acetone in the

urine in very large quantities. One child even passed 535 mgm. in twenty-four hours.

As to the source of this substance it can only be surmised that it is a result of destructive metabolism of the protoplasm of the cells under the influence of the action of the toxins of the diphtheria.

If acetonuria is really a physiological state, the enormous augmentation (40-60 fold) found in diphtheria must be regarded as pathological.

Ross, Geo. T.: Congenital Stenosis of the Larynx. (*Montreal Medical Journal.* Vol. xxx., No. 9.)

The patient was three years of age when first seen, and had never cried since birth, the cry being replaced apparently by a muffled sound. There was no dysphagia and nutrition appeared to be perfect. There were likewise no evidences of other anomaly.

A laryngoscopical examination was made with much difficulty, and a web was seen passing between the two vocal cords. An oval opening in the web permitted respiration. There appeared to be no dyspnea, save when the child was excited. An operation was refused.

Herringham, W. P.: On Essential Toxemic Dropsy; Dropsy Without Albuminuria. (*British Medical Journal.* No. 2123.)

Cases of general anasarca are occasionally encountered in children which exactly resemble Bright's disease, although there is no albumin in the urine nor is there anything in the action of the heart to account for the condition, which has received but scant attention in general text-books. Authorities differ in their conception of the nature of this condition, some looking upon it as due to ordinary nephritis without albuminuria, while others regard it as purely hematogenous. A few writers call it a disease *sui generis*.

The author has had one personal case which ended fatally, and at the autopsy there were found some evidences of exudation into the glomeruli and convoluted tubes. The conclusion reached by the author is that certain toxemias of unknown nature may manifest themselves in the production of anasarca. In the discussion which followed the reading of Herringham's

paper (before the British Medical Association, 1901), Dr. Batten spoke of three personal cases of dropsy without albuminuria. This condition is not necessarily idiopathic, for we may see it in various wasting and cachetic conditions. In two of his cases which ended fatally the kidneys, while free from disease, were preternaturally small. We should, therefore, recognize a form of dropsy due to renal insufficiency from congenitally small kidneys. His third case was of the same order as that of the essayist, and he concurred in the propriety of the term idiopathic toxemic dropsy to characterize such cases.

Comba and Melenchini: Amyloid Degeneration of the Liver Rapidly Developing in the Course of a Severe Gangrenous Pharyngeal Diphtheria. (*La Pediatria.* Anno. ix., No. 8.)

The patient was eight years old, and was ill for eleven days with severe diphtheria of the nose and pharynx which finally ended in death.

Such sudden development of amyloid liver is believed to be unique. The child had always been well until she contracted diphtheria.

Wingrave, Wyatt: A Note on the Morbid Conditions Simulating Adenoids. (*British Medical Journal.* No. 2126.)

Many children with symptoms pointing to the existence of adenoids are found upon examination to be suffering from some other affection. As both digital exploration and posterior rhinoscopy are often impracticable in young children, many erroneous diagnoses are probably made by the profession at large. In some cases our only course must be to practice the touch under an anesthetic.

The conditions which have been found to simulate adenoids comprise the following:

1. Diminutive choanæ and nostrils. These occur frequently and in association with low vault of the pharynx and other anomalies of development. These defects appear to be of rachitic origin in some cases.
2. Paresis of the soft palate and pharynx. This affection is symptomatic of a number of conditions.
3. Septal anomalies. The septum may be prolonged backward into the nasopharynx, dividing the latter into two compartments.

4. Forward projection of the vertebral column, usually due to deformity of the arch of the atlas.
5. Retropharyngeal abscess and the enlarged lymph ganglia from which the former originates.
6. Undue prominence of the soft parts over the internal pterygoid plate.
7. Ordinary neoplasms of the nasopharynx.

Zuppinger : Intestinal Cancer in Childhood. (*Centralblatt, für die Medizinische Wissenschaft.* No. 37. 1901.)

The author reports the case of a girl twelve years of age who died with symptoms of intestinal obstruction after a previous history of colic and tenesmus with bloody movements at times. Autopsy showed carcinoma with metastases in the liver peritoneum and retroperitoneal glands. General remarks from literature follow.

Risley, S. D. : Some of the Ocular Affections of Childhood Associated with Impairment of General Nutrition. (*Philadelphia Medical Journal.* No. 199.)

Two cases are reported with the following conclusions: Impaired vitality associated with evidences of faulty metabolism may be accompanied by an ocular syndrome comprising fronto-occipital headache, photophobia, diminished acuity of vision, injected conjunctivæ, organic changes in the retina and choroid, etc. A predisposition was present in the form of congenital hypermetropic astigmatism.

The author appears to suggest the possible existence of a vicious circle in cases of this type; or in other words the defective nutrition may determine the ocular condition, which may in turn aggravate the general state.

Thursfield, J. H. : The Value of Widal's Serum Reaction in the Diagnosis of Typhoid Fever in Children. (*British Medical Journal.* No. 2123.)

The value of this test has not yet been fully demonstrated in children. Contrary to the experience of some authorities the author has found the application of this diagnostic resource to be attended with good results.

Out of 100 miscellaneous cases tested, there were 42 positive results. The cases, which did not respond to this test,

included a great variety of children's diseases from which typhoid could be excluded. The author's method is briefly as follows: A broth-culture of the bacillus is used. It is made from a stock-culture and should be less than twenty-four hours old. Blood is taken from the patient with a sterile pipette and mixed with an equal quantity of sterile broth while still in the pipette. The latter is then placed in the centrifuge and the blood corpuscles separated. Broth-culture is added to the blood-serum on the cover-glass in the proportion of 15 to 1 (actual dilution therefore 30 to 1). The specimen is examined at intervals, and if no clumping has occurred at the end of an hour, the reaction is said to be negative.

Three of the 42 positive cases were not examples of typical typhoid, and might well have passed unrecognized by the clinician. On the other hand it does not appear that any undoubted case of the fever was missed by the test.

The author concludes that the Widal reaction is of even more value in the child than in the adult.

Petrone, Giuseppe Antonio: A Case of Primary Splenomegaly in a Child, Associated with an Unusual Type of Chronic Interstitial Hepatitis. (*La Pediatria.* Anno. ix., No. 8.)

This case of so-called Branti's disease is interesting from the following reasons: (1) There were some unusual symptoms such as dissociated icterus. (2) The cirrhosis was of an unusual type, characterized by a peculiar disposition of the biliary pigment in the hepatic cells. (3) There were important changes in the spleen, bone-marrow and lymph-ganglia. (4) The hepatitis was clearly secondary while the splenic lesion was primary.

Still, Geo. F.: Observations on Suppurative Pericarditis in Children. (*British Medical Journal.* No. 2123.)

In 769 autopsies on children there were found 28 cases of "suppurative" pericarditis; *i.e.*, pyogenic micro-organisms were found, although but 11 of the cases were suppurative from the clinical point of view. Two groups of this affection are made on the basis of this distinction.

Suppurative pericarditis appears to occur chiefly in children under three years of age. In the great majority of cases the pneumococcus appears to be the agency which produces the

disease. Naturally other evidences of pneumococcus infection coexist (pneumonia, empyema, meningitis, etc.) As the pericardium is usually attached in the course of some other pneumococcus suppuration, especially of empyema, it is well to consider this contingency, and to prevent it if possible by early evacuation of empyemata, etc.

The absence of cardiac dilatation together with the slight amount of pericardial fluid present as a rule, makes diagnosis difficult, as the area of cardiac dulness undergoes but slight change. As to the possibility of recovery in these cases, it is clear that timely drainage may save life, although spontaneous recovery has occurred. Practically, however, the coexistence of other severe lesions make such terminations very rare.

To secure evacuation and drainage, the use of the aspirator is far inferior to resection of a costal cartilage followed by free incision.

Batten, Frederick E.: Diagnosis of Suppurative Pericarditis in Children. (*British Medical Journal.* No. 2123.)

No less than 3 per cent. of the deaths in the Children's Hospital are due to this affection, which is one of the most difficult to recognize during life. Even with diagnosis made, the physician is often impotent to interfere.

Of 6 personal cases of this affection in children, from ten months to three years of age, all had existed for some weeks before admission to the hospital.

In every instance the pericarditis appeared to be secondary to some other affection (measles, pneumonia, bronchitis).

The patients often have an apparently healthy look (as far as nutrition goes), which, however, is belied by the very rapid pulse, flabbiness and wasting of the muscles, pallor, etc.

One symptom frequently encountered is the tendency to syncopal attacks, characterized in the infant by lividity of the lips, tachypnea and general moribund appearance.

Physical exploration does not supply the practitioner with much definite information. As a rule the area of percussion dulness was not increased, and murmurs were absent.

The amount of pus found in the pericardium varied from a few drachms to six ounces. The heart muscle and endocardium were natural. Empyema coexisted in 4 of the 6 cases.

Differential diagnosis in these cases must take into consider-

ation the possibility of empyema and tuberculosis. The only symptoms at all suggestive of suppurative pericarditis are very rapid pulse and the syncopal attacks.

The only rational plan of treatment, viz.: evacuation of the pus and drainage, is considered as at present out of the question.

SÚRGERY.

Wunch, Max: Multiple Congenital Contractures. (*Archiv. für Kinderheilkunde.* Vol. xxxi., Nos. 3, 4.)

The patient is a girl three and one-half years of age. The conditions present are as follows: Right elbow contracted (flexion); bilateral dorsal and ulnar flexion at wrists; slight contraction of pharlangeal joints (flexion); bilateral contracture of knees (flexion); lateral displacement of patellæ; club-feet; no disturbance of electrical reactions.

Operation.—Bilateral shortening of extensor carpi radialis; tenotomy of hamstrings in above case. Seven others of recent literature are arranged in series. The following conclusions are arrived at:

Symptoms.—Joints of hands and feet most frequently affected; hands usually in palmar flexion with ulnar or radial flexion; dorsal flexion uncommon; club-feet usually bilateral, or one club-foot over pes valgus; spinal column and articulation at jaw rarely affected; contraction at shoulder and hip not uncommon; congenital dislocation at hip a very rare complication; knees and elbows often affected with subluxation of patellæ and radius; subluxation of both bones of the forearm very rare. Rudimentary development of patellæ, condyles of femur and of epiphysis of tibiæ found at times.

Etiological factors are faulty development of bones; primary disturbances of the nervous system; faulty position in utero *e. g.*, large fetus and small uterus; pressure in utero due to entrance of intestine into cord in early fetal life. Transmission of maternal disease to fetus *e. g.*, articular rheumatism. The theories relative to the pathological anatomy of the changes in the soft parts surrounding the joints and in the ends of the bones are enumerated. Little's disease, acute spinal and cerebral paralysis are to be considered in the differential diagnosis. The prognosis is generally favorable. The treatment is, tendon surgery, massage and apparatus.

Pitts, Bernard: The Treatment of Intussusception in Children. (*The British Medical Journal.* No. 2123.)

He has compiled a table of the cases of 105 children under twelve years of age with intussusception, which have been treated at St. Thomas' Hospital. Of this number there were but 35 recoveries; 13 got well after treatment by inflation and manipulation, and the balance after abdominal section. The disease appears to be increasing in frequency; thus but 40 cases were brought to the hospital in the period 1875-1894, an average of 2 per annum; while during the six years 1895-1900, 68 cases were brought in—over 11 per annum. This increase is doubtless apparent, rather than actual, and due to increased accuracy in diagnosis.

There can be no doubt that in suitable cases inflation and manipulation give ideal results, as shown by some of the writer's material.

An argument against expecting too much from operation is found in the difficulty usually experienced in reducing the invagination after direct access is obtained; but the great uncertainty as to extent and locality of the affection make it advisable in most cases to obtain a direct view of the parts.

His experience of the past few years causes the author to remodel his previous views as follows:

1. Inflate only in very early and relatively mild cases.
2. Inflation may sometimes be done as an adjuvant to operation with the purpose of partial reduction.
3. When resection becomes necessary it should be done through the invaginating portion of the bowel.
4. In gangrene operate in two stages, first bringing the cut ends into the cutaneous wound and later restoring continuity.
5. In exceptional cases the enterectomy must be performed at a single sitting.

Tubby, A. H.: Traumatic Separation of the Lower Epiphysis of the Femur, with Notes of a Case and Skiagrams. (*The Edinburgh Medical Journal.* Vol. x., No. 2.)

A nine-year-old boy caught his legs in the wheel of a cab, the twisting force resulting in the separation of the lower epiphysis of the right femur. The middle of the left femur was fractured, but healed well under the application of a Liston splint.

Among the immediate complications in the right leg were: pressure on the popliteal vessels with coldness and edema of

the foot, partial discoloration of the tibia on the lower end of the shaft of the femur, and fracture of a portion of the shaft of the femur. The recurrence of the deformity after reduction, necessitated opening the knee-joint and fastening the epiphysis to the shaft by means of a steel screw three and a half inches long. The whole extensor cruris tendon had to be divided and subsequently sutured. Five weeks after the operation it was noted that the limb was not as straight as was desirable, there being some genu valgum; and the knee-joint was stiff. Under anesthesia some adhesions were broken up and the leg straightened and put up in plaster. The final result was a straight limb with 25° flexion at the knee, and only half an inch shorter than the other. The screw remained in situ, not giving rise to any trouble. The boy walks without support of any kind.

Power, D'Arcy: The Treatment of Intussusception in Children. (*The British Medical Journal.* No. 2123.)

During the years 1860-1900, 113 cases had been admitted into the wards of the St. Bartholomew's Hospital and Victoria Hospital for Children. Out of this number there were 47 recoveries.

During the past ten years the number of cases treated was 65 (in a total of 46,197 surgical cases); and the number of recoveries was 23.

The disease was undoubtedly very rare, and also irregular in its frequency. In St. Bartholomew's, a number of years once elapsed without the admission of a single case.

Newbolt, G. P.: A Case of Deformity Arising from Arrested Growth in one Limb Remedied by Exsection of Bone from the Other. (*The Lancet.* No. 4073.)

The deformity in the eleven-year-old patient was probably of rachitic origin. The left leg was two and one-half inches shorter than its fellow, and considerably adducted. The right knee was the seat of genu varum, and was somewhat adducted. There was lateral curvature of the spine.

The right femur was sawn through above the condyles, the deformity corrected and extension applied. As there was some flexion deformity at the hip, this was also forcibly corrected and the adduction was overcome.

Subsequently a piece of bone was exsected from the left

femur and the two ends were wired together; the periosteum which had been spared was sutured over the wire. This second operation made an extension shoe unnecessary. The general result as shown by the photographs, is excellent, although there may be some recurrence of the deformity. If the left limb has a tendency to shorten, the heel of the shoe will have to be made a little thicker each year.

While the original shortening was two and one-half inches, the disk of bone taken from the left femur measured but one and three-quarter inches; it was thought that at least a half inch of the cut ends would disappear by absorption. This result had not occurred six months later, the left limb still being half an inch longer than its fellow.

Eve, Frederic : On the Treatment of Intussusception in Children. (*The British Medical Journal.* No. 2123.)

The author tabulates 21 cases from the services of the Evelina and London Hospitals; of this number there were 10 recoveries.

Reference is made to a variety of intussusception first described by the writer in 1897. There were no less than six examples of this variety in the 21 cases cited above. In this form the invagination does not begin at the ileocecal valve, but at the free end of the cecum.

Of the 21 cases, all of which were subjected to operation, but one invagination was irreducible.

No less than 16 of the 21 patients were in the first year of life. This fact must have exerted an untoward influence upon the mortality.

HYGIENE AND THERAPEUTICS.

Noer, J. : Some Considerations Regarding the Hygiene of Early School Life. (*The Journal of the American Medical Association.* Vol. xxxvii., No. 16.)

The hours of the primary school should be shortened, and more time devoted to manual training and to the study of nature. Regular medical inspection, including physiologic and anthropometric examination of school children should be required. Children with marked mental and physical abnormalities, developmental defects or stigmata, should be segregated for special training.

Mays, Thomas J.: The Therapeutics of Whooping-Cough.
(*New York Medical Journal.* No. 1188.)

The author has never obtained any decided benefit from any of the numerous sedatives recommended for this affection, but acting upon the theory that the vagus nerve is the structure at fault he has obtained much amelioration from systematic counter-irritation. He first applies massage over the vagus and then attaches a strip of mustard plaster from the angle of the jaw to the clavicle. Or, in place of the latter, tincture of iodine may be applied twice daily until desquamation sets in.

If the disease continues obstinate a hypodermic of 5 minims of 2½ per cent. cocaine solution is thrown in directly over the vagus, and this injection is followed by another containing the same amount and strength of nitrate of silver solution.

Rabinowitsch, Lydia: The Infectiousness of the Milk of Tuberculous Cows; The Bacteriological Diagnosis and the Practical Value of Tuberculin for the Extermination of Tuberculosis Among Cattle. (*The Lancet.* No. 4074. 1901.)

It has been demonstrated that the milk of cows suffering from general tuberculosis or from tuberculosis of the udder contains tubercle bacilli; that milk from cows with incipient tuberculosis and non-tuberculous udders is infectious; and that tubercle bacilli are present in the milk from cows with latent tuberculosis, revealed by the tuberculin test. The only reliable method of proving the presence of tubercle bacilli in milk is by animal experiment (intraperitoneal injection), since by microscopical examination the bacilli may be missed if not present in large numbers, and their microscopic differentiation from other acid-resisting bacilli often found in milk is impossible. The presence of tubercle bacilli in the milk does not as a rule, correspond to the extent of the disease in the animal; nor does the clinical diagnosis of tuberculosis, especially of tuberculosis of the udder, enable one to judge whether tubercle bacilli are secreted with the milk of the affected cows. Tuberculosis of the udder may escape detection altogether, or be diagnosed as simple inflammation until histological examination and inoculation experiments prove the contrary. Interstitial mastitis or cyst formation of the udder may be mistaken, clinically, for tuberculosis. Repeated inoculations with the milk may fail to

show the presence of tubercle bacilli, though the clinical diagnosis of tuberculosis of the udder may be confirmed at autopsy, and great numbers of tubercle bacilli be detected microscopically in the interstitial tissue, but not in the milk ducts. The presence or absence of tubercle bacilli in the milk is greatly dependent upon the extent of the disease in the organ.

The only quick and sure method of diagnosing tuberculosis among cattle is by the use of tuberculin, which fails in only 2.9 per cent. of all the cases subjected to the test. The extermination of bovine tuberculosis is practically impossible without the aid of tuberculin, and combined with the clinical and bacteriological examination, it furnishes the safest means of obtaining milk free from tubercle bacilli, as well as of rearing cattle free from tuberculosis.

Robison, John A.: **The Prevention of Pulmonary Tuberculosis in Predisposed Children.** (*Journal of the American Medical Association.* Vol. xxxvii., No. 8.)

Among the suggestions are the following: The very young child should be allowed to eat carbohydrates, even to the extent of gratifying its natural craving for candy. It should be made to drink a certain quantity of fluids daily. With increasing years nitrogenous food should enter extensively into the diet. Gymnastic training should begin with puberty, and over-study should be prevented if possible by individual instead of class instruction. Much thought should be devoted to the subject of a trade or occupation, the choice being from those which do not predispose to phthisis. The apparently innocent diseases of childhood which pave the way for tuberculosis should be carefully antagonized in every way.

In the discussion which followed, various speakers advocated respectively the removal of adenoids and enlarged tonsils, systematic changing of clothing after temperature changes, overcoming the dislike of fats and of bathing so commonly encountered in these children, etc.,





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