When the fever suddenly flashes up to such dangerous height it indicates that the system's bulwarks have been overthrown, and that the germs are invading the blood and tissues generally, or more frequently it denotes a great influx of the alkaloids or the albumoses into the system, which immediately begins to burn them out, because they are there in large enough quantities to stimulate excessively the thermogenic centre. The larger the dose of typhotoxine injected under the skin the higher the temperature will run till a certain limit is reached, when the irritability of the thermogenic centre becomes exhausted and the temperature falls below the normal. If the above be true why do we ever give an antipyretic in typhoid that we have had under our care from the first? And above all, why is it ever necessary to give a cold bath? Cold bathing and a milk diet is the present treatment. Do we expect to depress the temperature below the growing point of the germs or the forming point of the ptomaine? The remedy is a good one in its place for it acts as a tonic to the system, and by contracting the surface arterioles it flushes the capillaries of the internal organs, and thus retards the absorption of the poison which is being manufactured in the bowels. It also possibly aids the elimination of the ptomaine already in the system. But all the previous methods of treating typhoid have required from four to six weeks for recovery. Now if a treatment that allows of a normal temperature in from ten to sixteen days be advanced, why still advocate an unnatural method of treatment that loses two or three weeks of the patient's time?

We do not now expect to cure ague with quinine by depressing the temperature, but by killing the hæmatozoa malarie of Laveran. Quinine is absorbed and circulates along side of the organism and destroys it by attacking its protoplasm. The *B. typhosus* is not in the blood till late in the disease, but exists by the million in the bowels and fæcal matter. By actual experiment it has been demonstrated that bile kills or stunts them; shall ice baths and milk diet be ordered, or shall a cholagogue be exhibited?

Since mercurials are not cholagogues in reality, but serve to stimulate the liver and thus eliminate bile more rapidly than any other means at our command, it is preferable, since bile is in excess in the system and only needs to be eliminated, to begin with some mild preparation of mercury, such as calomel. This is administered for the first two or three doses in two- or three-grain powders, then the next six or eight doses in one-half or one-fourth grain doses, and then for six to ten days one-tenth of a grain at a dose every three or four hours. About the fifth or sixth day the salicylates, turpentine or salol which really cause a greater formation of bile, will be

of service in combination with the calomel, to the case. If the case is seen late and there is a very high temperature to combat, with great depression and wasting, conserve the tissues with alcohol. It is possible that the calomel may act directly as an antiseptic on the germs, but I have had quite the same results with the administration of podophyllin. Out of fifty-two cases that I have thus treated I have not observed one instance in which there appeared salivation. Of the fifty-two cases there were none that were not free from fever on the seventeenth day, and only one that ever had a temperature of 103.5° F., and he called me on the fifth day that he was confined to his bed.

Apropos of the action of bile on the intestinal contents and the utility of the cholagogue treatment set forth above, it might not be untimely here to say that the same comparative results obtain in treating summer diarrhoea of children in the same manner. Podophyllin, calomel, salol and turpentine continued, with an occasional dose of coto, have produced most brilliant results, and I apprehend that Dr. Boardman Reed's experience (*Practitioner*) in checking diarrhoea with podophyllin is a like result.

102 So. Michigan St.

SOME OF THE LESIONS INDUCED BY TYPHOID FEVER.

Read before the Cambridge Society for Medical Improvement, February 23, 1891.

BY AUGUSTUS P. CLARKE, A.M., M.D.,
OF CAMBRIDGE, MASS.

Perhaps no disease whose records have been embodied in medical literature is attended or followed by a greater variety of lesions than is that of typhoid fever. The functions of the great nerve centres, including the brain and spinal cord, as also those of the nervous system generally, are liable to be seriously influenced, weakened or interrupted, for periods of uncertain duration, by the occurrence of an attack of typhoid fever.

Among the sequels or complications that have been observed is dementia, insanity, loss of sight, aphasia, paraplegia and other forms of paralysis. Sometimes only one limb, as a leg or an arm; rarely, only an arm and a leg at the same time. At other times disturbances are limited to the functions of speech. Cases now and then occur, in which we have paralysis without appreciable anæsthesia. The more common forms are those in which both the motor and the sensory portions of the nerve are involved. Neuritis beginning at the peripheral portions of the nerve is not an uncommon sequel of typhoid fever. Another complication of typhoid fever is pneumonia. This is often of a limited extent, but occasionally it is more or less diffused. Perhaps the particular

position which the patient assumes during the first illness in the fever may have a controlling influence in the extent and severity toward that sequel of the disease. Formerly much was said in reference to pneumonia as a complication of disease. Such attacks of pneumonia were called "hydrostatic," from the supposed influence position of the patient exercised in favoring the gravitation of the blood and other fluids to the more dependent portions of the parenchyma of the lungs.

In my own practice I have met with three well marked cases of aphasia occurring in typhoid fever. The patients were young; their ages being 12, 14 and 17 years. The aphasia in each case occurred after the second week of the fever. The temperature had been unusually high, and much exhaustion had ensued. No paralysis, nor other morbid process of the nerves occurred. The patients at length fully recovered.

The record of the following case presents an affection of the eye: Mrs. B., aged 31 years and mother of three children, had the characteristic symptoms of typhoid fever, such as epistaxis, rose spots appearing on the seventh day following the initial chill. The patient had been very delirious, and had become much exhausted. After the fifth week she complained of pain in the eyes, more especially in the left one. Ophthalmoscopic examination revealed neuritis extending to both discs. After the temperature became normal she suffered from perversion of the senses, and at length became partially insane. There was no history of renal trouble, the urine at that time contained only traces of albumen. The patient finally recovered without sustaining permanent loss of vision.

Disease of the optic discs following typhoid fever is mentioned by Dr. Oglesby,¹ of Leeds. That author says that he has never met with a case without a distinct history of meningitis. "The majority of those patients," he says, "present objective symptoms indicative of acute kidney mischief, having a decided appearance of cellular dropsy of the face, with the usual pallor of such cases. It is very exceptional that albumen is found in the urine."

I have records of a case of severe laryngeal inflammation, following typhoid fever. The case occurred six years ago, in a man aged 42 years. The typhoid symptoms were quite characteristic. The morning decline, and the evening increase of temperature prevailed throughout the attack. From the onset there had been much delirium, also tympanites and a profuse diarrhoea. After the fourth week the patient showed decided improvement. On the fortieth day a dyspnoea ensued, though there was but little cough and no cardiac disturbance. For the next two weeks the symptoms were more se-

rious. The respiration became more and more difficult, and at length the patient appeared in imminent danger of suffocation. The late Dr. A. F. Holt saw with me for several times the case in consultation. It being evident that there was an abscess which was extending into the laryngeal perichondrium. On the sixty-first day operative measures were decided upon. By the use of cocaine we were enabled to reach the abscess without the necessity of resorting to laryngotomy. The patient ultimately recovered, though there remained a laryngeal stenosis. Two years later the patient died of acute pneumonia, hastened, no doubt, by the laryngeal constriction.

I have notes of four cases of pneumonia occurring as sequel or complication of typhoid fever. In one case in which the typhoid symptoms were well pronounced, pneumonia developed in the third week and led to a fatal termination. This occurred in a female aged 18 years. For some two years previous to the occurrence of her last sickness she had suffered from impaired health. In three cases the patients were aged respectively 17, 20 and 29 years. In two of the cases the area of dulness was limited. In the third case the whole of the right lung was involved. The patient did not recover until the fourth week after the onset of the pneumonic symptoms.

In a case of typhoid fever occurring in a woman aged 34 years, the mother of two children, acute pleurisy developed in the sixth week. There was marked dulness on percussion over the right side, also egophony and absence of vocal fremitus of that side except at the upper third. The effusion was moderate in amount. She recovered with slight retraction of the chest of that side. Two years later phthisis supervened, from which she died within eighteen months.

In one case of typhoid fever occurring in a man aged 41 years, facial erysipelas made its appearance on the forty-first day after the beginning of the febrile symptoms. This complication ran into the ninth week, causing an abscess of the scalp just back of the forehead.

Another complication I have met with is that of parotiditis. This occurred in the case of a man aged 37 years. The attack of typhoid in the patient was of a severe type. Inflammation of the right parotid began on the tenth day after the initial symptoms of the fever. Hope in the patient's recovery was entertained until the twenty-fourth day. Soon after that the patient rapidly sank, and died three days later. Suppuration of the parotid did not take place. The inflammation, however, extended into the cervical and axillary glands. This was the most marked case I have ever met with, in civil practice.

I recall cases occurring in the Spring and Summer of 1862, during the Peninsular campaign. At that time the occurrence of an affection of the parotid in a typhoid case was regarded as an ex-

¹ Boston Med. and Surg. Journal, Vol. cviii, p. 476.

tremely dangerous complication. Some forms of paralysis after typhoid fever have been reported by Dr. Ross.² Dr. Ross mentions two cases; in one case there was severe paraplegia attended with much pain, rigidity, and wasting of the limbs, but with no anæsthesia. In the other the paralysis was unusually extensive, involving all the limbs, also the muscles of the palate. Both cases ended in recovery.

A case of paraplegia after typhoid fever occurring in my own practice was that of Mr. S., aged 29 years, a teacher in a Boston school. The fever had not been unusually severe, though the symptoms were well pronounced. After the fourth week the temperature became normal. The patient in other respects was also much improved, except that there was pain in the limbs and an inability to use them. The patient at first was unable to stand. Ten days later he was able to get about his room, with a sort of shuffling gait. Some weeks later he fully recovered and was able to resume the duties of his school.

Two cases affecting the muscles supplied by the circumflex nerve I have met with. One, a case of a child aged 6 years, occurred in my own practice. The other, a case of a man aged 21 years, occurred in the practice of the late Dr. Church. This case I saw in consultation. Each patient finally made a good recovery.

Two years ago I was called to attend a child aged 7 years, who had recently recovered from an attack of typhoid fever, and who was suffering from partial loss of speech. The palatal muscles were affected. The paresis resembled that supervening after diphtheria. The history of the symptoms clearly showed that her condition was the result of typhoid fever. She afterward greatly improved. I am now unable to state whether she ever fully recovered.

Two cases of periostitis occurring in typhoid fever have come under my treatment. The first patient, J. O., a girl aged 9 years. She suffered from typhoid fever upwards of three weeks. She was then able to be up and about her room. Six days later she was seized with a relapse which lasted nearly four weeks. The evening temperature was unusually high, there was much delirium. The patient refused all kinds of nourishment except milk and the stronger stimulants. The latter she took in abundance. After the fourth week of the relapse, her left elbow-joint became greatly inflamed and was much swollen. Suppuration of the elbow-joint ensued, necessitating a deep incision into the joint, and a large amount of pus was evacuated. Several places in the periosteum of the ulna from elbow to wrist were the foci of suppuration; indeed, the whole shaft of the ulna was involved. The first abscess appeared in the periosteum near the left olecranon, and involved the elbow-joint. An abscess also

appeared on the opposite side of the joint. Both these abscesses communicated with each other. An inch below and more to the inside was a third abscess. On the same line and an inch below the first was a fourth abscess. Another formed midway between the other two. Another occurred in the middle third of the ulna. Another, the seventh, opened near the wrist, but fortunately did not involve the joint. From time to time several pieces of necrosed bone were discharged through the open sinuses formed by the suppurative processes. This patient finally recovered with a stiff elbow-joint. Dr. H. O. Marcy, and also Dr. Geo. H. Lyman, of Boston, saw the patient while she was suffering from the effects of the periosteal inflammation.

There was a peculiar interest attached to this case, as a suit by the parents was brought to recover compensation for the child's sickness and also for the loss of use of the arm. It appears that the mother, a short time immediately preceding the attack of the typhoid fever, was employed to do special work in a family in which there occurred a fatal case of typhoid fever. Without being informed of the dangers incident to such service, the mother returned to her own home, carrying from the sick-room a piece or pieces of bedding to be washed. Not long after this her own daughter, J. O., was seized with typhoid fever with results as above stated. Had the case not come to a settlement without a trial, some of the most important points relating to the responsibility of families to domestics would have been urged in the prosecution for judicial consideration.

The other case occurred in a lad, H. M., aged 13 years. The history of the case shows that he had studied hard at school; that often he had been out late at night to fulfil engagements as cornetist. When I was called, February 7, the patient showed the characteristic symptoms of typhoid fever. He had epistaxis, tympanites, headache, delirium; later rose spots, evening temperature higher than the morning. After the third week the typhoid symptoms abated; the patient was able to leave his bed. His recovery was soon interrupted by repeated chills, each chill being followed by a greatly increased temperature and an exacerbation of the other constitutional symptoms. In the right thigh, just above the knee, there was a most intense pain. Soon much swelling at that point developed. March 14, with Dr. H. O. Marcy's concurrence, I made a deep incision into the swelling and obtained a free discharge of pus. By liberal use of antiseptics and the drainage tube, the patient at length fully recovered without appreciable injury to the knee-joint.

On reviewing the history and symptoms of this case it might appear at first that the constitutional symptoms were wholly due to inflammation

² Braithwaite, part 97, p. 30.

of the periosteum, as there was a history of a fall upon the knee. The initial symptoms, however, from which the patient suffered were typical of typhoid fever; beside, after the third week there was for awhile an intermission, or rather cessation of the constitutional disturbance.

J. O. Affleck,³ M.D., reports three cases of periostitis in typhoid fever. These cases appeared in a total of 117 cases which were under treatment in 1884 (in the typhoid wards of the Fever Hospital of the Edinburgh Royal Infirmary). Two of them occurred in young men, aged each 21 years. One of them had periostitis commencing in the right tibia in the third week of the fever. This produced a recrudescence of the fever, and prolonged the case for four weeks, but the patient made a good recovery. The other showed symptoms of marked periostitis in the right humerus in the third week, and this was followed by a similar condition of the right tibia. Convalescence was slow, and after the periostitis had apparently departed, it reappeared in the right humerus, and an abscess formed. The patient ultimately recovered. The third case was that of a girl, aged 9 years. The attack reduced her to such a degree of exhaustion that, for a time, it seemed scarcely possible she could survive. In the fifth week, and just as the temperature had begun to subside, she was attacked with periostitis of the right humerus, which set up fever again and caused her intense suffering. Contrary to expectation, she recovered. No abscess formed, but the painful swelling of the shaft of the humerus continued for full six weeks from its appearance. Dr. Affleck refers to Sir James Paget's observations that periostitis with or without necrosis may be enumerated as one of the sequels of typhoid fever. Sir James had seen such cases when they occur only at advanced stages of convalescence, and when the patient was regarded as free from fever. Dr. Affleck says that periostitis may occur at the height of the fever, or when convalescence has no more than begun; that such a morbid condition may be regarded as a complication no less than as a sequel of typhoid fever.

Among a few of the more serious sequels which are liable to arise in typhoid fever is softening and degeneration of the tissues and organs belonging to the circulatory system. Cardiac thrombosis, emboli of the larger, and embolic occlusion of the smaller branches of that system, are not very uncommon occurrences of the typhoid state. Affections of the heart from such a cause were long since described by M. Louis, and also by earlier observers. Variation from the typical diurnal temperature is another peculiarity which is sometimes observed. Quite recently, in a case of typhoid fever occurring in a man aged 31 years,

there was a morning increase, and an evening decline in the temperature. The patient had been greatly exhausted from overwork, and from a diarrhoea which supervened at an early stage of the fever. The diarrhoea, however, was readily overcome. Delirium from the first stage was unusually marked. Though the patient was able to take a liberal amount of nourishment, including milk, broth and even stimulants, he had but a feeble and compressible pulse. He gradually lapsed into a cyanotic state, and died apparently of cardiac failure (if such a failure from such a cause ever occurs), in the fourth week of the fever.

In regard to the etiology of the sequels and complications of typhoid fever, it may be remarked that the typhoid bacilli and their ptomaines produce such changes in the tissues as to diminish their resisting power. The osseous tissues, as also the parenchyma of the lungs and of the other parts of the organism, being subjected to such influences, are thereby more easily invaded by the pyogenic and septic cocci. These invading elements, under such conditions, induce sooner or later, in one or more of the various tissues, an irritation, inflammation or suppuration. The severe and prolonged pyrexia also interferes with the nutrition of the nerves. This undoubtedly leads, occasionally, to dementia, insanity, and to cerebral affections generally; also to disturbances of nerves, sometimes at their origin, sometimes along their branches, and sometimes only at their periphery. The presence of such lesions and their extent will depend, no doubt, largely upon the susceptibility of the patient, the degree of exhaustion of the nutritive functions, and upon the nature, potency, and perhaps quantity of the invading cocci.

LECTURES.

EMPYEMA.

A Lecture delivered at the Post-Graduate Medical School, Chicago, January 24, 1891.

BY BAYARD HOLMES, M.D.,
OF CHICAGO, ILL.

No surgical procedure is so little studied and so often overlooked with such deplorable consequences as empyema.

One of my neighbors, who is quite deaf, recognized a case of right-sided empyema in a man 36 years old, and sent him immediately to one of our large hospitals. He remained in the hospital three weeks and was discharged to die of phthisis. My deaf neighbor was surprised that the true condition was not recognized, and fearing he had made a mistake, he drew out a syringe of pus with his hypodermic. Thus satisfied as to his own diagnostic acumen he took care of the patient and "promoted euthanasia."

³ Braithwaite's Retrospect, part 92, p. 27 (British Medical Journal, 1885).