active communion with every advance in medical and physical science.

Who can say that such a training and such a life is not the peer of any other in fitting a man for the performance of the highest duties which in any way concern his own profession at least. The old village doctor was the wisest councillor in the affairs of his community, the modern physician represents the broadest culture of his time. I cannot better close this plea for the independence of our profession than by quoting the words of one of the most independent statesmen of the day in a recent address to the medical profession, Mr. Gladstone, himself Senior Governor of Guy's Hospital. "The medical profession," he said, "has been steadily rising in power and influence and general respect, and it is my belief that it will continue to rise. . . . Another point upon which I congratulate the profession is its independence, which will enable it to pursue its stately march in the times that are coming, to form its own convictions, to act on its own principles without fear or favor for the general benefit of mankind."

Let us not be turned aside from striving to accomplish the measures I have asked you to consider by the comments so easily uttered: Oh, these are sentimental, impractical views, we are doing well enough as we are. I have lived long enough to see other important schemes of reform, regarded as just as visionary and impossible, terminate in complete fruition. I firmly believe that it rests only with ourselves to make these as successful.

But I must not close this imperfect presentation of our immediate duties towards some of the most important matters of public medicine, and of our relations to the future elevation of our profession, without asking you to give a few moments of reverent thought to those who will never be with us again on this day of reunion. Not a few of us have ceased to labor in the year which closed yesterday. Some when their work had just begun, some at full tide of life, but most in the evening of their days, when the long rest had been well-earned and could not have been unwelcome. Their lives were not eventful, but they were spent in hourly efforts to help their fellowmen retain or regain their health and happiness. Think of the vast aggregate of bodily suffering and of mental distress these departed ones have relieved during their lives; how constantly and conscientiously they walked the narrow path of duty and self-sacrifice; how often the mask of cheerfulness hid a heart weighted with anxiety and sympathy; how many the long hours of watching by the sick bed, how few for the bright joys of home. And what reward have they received, while living, for the fraction of these good deeds known of men? Their deepest knowledge drawn from science and experience, their best judgment, their most cunning hand-skill, such qualities of head, like those exercised by other professions and callings, are properly paid for in gold: but the sympathy, the vicarious suffering, the sustaining spirit of hopefulness and cheer, the renunciation of personal ease and pleasure, which are interwoven with the former, these are not recompensed except by values in kind. Some faint appreciation on the part of the public they may have received, some true gratitude from the few, a modest support, let us hope, for those left behind, surely the consciousness of a life of hard duty well

performed to the end. And what else have they received and borne, so silently and patiently, too. Often the grossest ingratitude from those to whom they have done their best unceasingly; neglect and desertion on the part of those who have received the faithful devotion of years; detraction and cruel abuse for no reason, or for possible limitations of judgment common to all humanity, from those who should be the last to utter it. Such are some of the shadows which may have clouded the lives of those who have gone to their rest. Now they sleep peacefully alike, those who spent their days in the exciting whirl of the large city and who lie still not far from its never-ceasing noise, their brothers on the quiet hillsides overlooking the rural scenes of their labors, and they who repose within sound of ever-changing ocean. Their work and troubles are ended, they await the longings of their faith.

Let us who survive, and those who join our ranks to-day, not fail to do our whole duty, both public and private, with all their devotion, bear all our undeserved ills with conscious equanimity, an exercised in all things that true independence, out of which shall grow the respect and position our noble profession merits.

Original Articles.

CASES OF MENINGITIS FROM INFLAMMATION OF THE TYMPANUM.¹

BY J. ORNE GREEN, M.D.,

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CASE I. E., aged thirty-nine, of good health but nervous temperament. Had inflammation of the right tympanum from a cold in the head in November, attended by much pain in the back of the head and over the eyes. The tympanum was treated by paracentesis, cleansing and in every way rationally; but the otorrhœa and pain continued and, from what I learned after his death, must have been attended with more head-symptoms than I at first supposed. For several days before I saw him there was swelling over the mastoid with greatly increased pain.

About seven weeks from the beginning of the illness I found very great œdema over the whole mastoid region, œdema of the upper posterior wall of the meatus and enormous swelling of the membrana tympani without perforation. There was imperfect fluctuation close to the auricle; the pulse and temperature were nearly normal.

The next day under ether the bone was exposed; there was no pus beneath the periosteum, but a small spot of softening was found in the bone, just below the centre of the mastoid through which a probe passed into the mastoid cells. This sinus was then enlarged with a gouge and the diploë of the bone found to contain pus, but no pus, at least to an appreciable amount, was within the cells. A diagnosis of acute osteomyelitis was then made. Carbolic irrigation, drainage-tube and antiseptic dressing were used.

Great relief followed the operation; two nights afterward he had ten hours' sleep without narcotics, "the best night for many weeks"; in four days the

¹ Read before the Boston Society for Medical Improvement, April 14, 1890.

pain had entirely disappeared and he eat and slept well, but on the fifth day there was a return of slight pain limited to a small spot, the size of a dime, about one and a half inches upwards and backwards from the meatus and this was quite tender and slightly œdematous. The tympanum had improved and the hearing was better. This tenderness and œdema disappeared in two days, but there was some complaint of pain in the right side of the neck and in the right supraorbital region, and in another two days there was return of œdema with apparently distinct fluctuation over the previous spot on the skull. The pulse and temperature were normal. This spot was then aspirated and a small cavity found beneath the periosteum with bare bone but no pus. The next day there was frontal headache with nausea for a short time and he vomited once, but when I saw him later, was feeling bright and in excellent spirits. In the afternoon he was found unconscious, having been laughing and talking with the nurse within an hour and appearing so well that both the nurse and his sister had left him for a short time.

I saw him within half an hour and found him totally unconscious, breathing quietly but tossing slowly from side to side and with constant snapping of the forefinger and thumb of the right hand; the pupils were normal and reacting promptly and equally, the pulse was soft, full and regular, and the temperature was normal; there was no paralysis. Dr. Cheever saw him with me two hours after; the temperature had then risen to 102°, and the diagnosis of meningitis was made. The bone under the œdematous spot was exposed, and a carious perforation directly into the cancellated structure was found into which a probe could be passed forwards for an inch, but not a trace of pus was found. He failed gradually with increasingly high pulse and temperature and died twelve hours from the time unconsciousness set in.

Autopsy. — By Dr. Henry F. Sears. Convolutions of brain flattened, sulci filled with opaque yellowish-gray fluid; brain substance normal. Post-mortem diagnosis: acute diffuse leptomeningitis; chronic pleurisy; slight acute hyperplasia of spleen; and slight granular degeneration of the heart, liver and kidneys.

The dura over the petrous bone was normal, but on stripping it off, directly opposite the incision of yesterday and in the groove of the lateral sinus, carious bone was found over a surface three-sixteenths of an inch in diameter. The bone had disappeared just under the superior petrosal sinus, about opposite the superior semicircular canal, over an extent of surface one-quarter of an inch wide and through the opening congested, spongy soft tissue was seen. There was also softened bone around the orifice of the internal auditory canal. The whole petrous bone was inflamed, purplish and very soft. From the external opening of yesterday a probe passes directly into the groove of the lateral sinus. Post-mortem diagnosis of bone: osteomyelitis.

Remarks. — The interesting points in the case were the great œdema of the superficial structures, simulating fluctuation, and yet not a trace of pus beneath the periosteum; the presence of pus in minute quantity in the diaplœ of the bone but none in the mastoid cells. This is a condition which I have found not infrequently and is quite characteristic of a certain class of cases in which the mastoid inflammation sets up an acute osteomyelitis which goes on to destruc-

tion of the bone with such a small amount of suppuration that it can easily escape observation. Very often such an otitis is limited in extent and subsides, but in this case it evidently gradually extended and involved the whole petrous bone, finally infecting the meninges.

A nearly normal temperature and pulse while the disease of the bone was steadily progressing are worthy of notice.

Another interesting feature was the initiatory symptom of unconsciousness continuing as the only indication of disease for two and one-half hours before the rise in temperature occurred, and followed by death within a few hours from purulent meningitis. The premonitory symptoms in the head, which are always serious when associated with a suppurating ear, were in this case much shorter in duration and less severe than I have generally seen, and were masked by the great relief afforded by the operation; as his sister said to me "after the operation he had seemed himself for the first time for a month."

The autopsy demonstrated conclusively that nothing more could have been done surgically to the bone; it was a case of infection from a osteomyelitis involving the whole petrous bone.

CASE II. J., aged thirty-seven, had had continuous otorrhœa on the left since scarlet fever seventeen years ago; three years ago he had severe pain in that ear, and the advisability of opening the mastoid was then considered, but the trouble subsided. Within a fortnight he had had pain again in both ear and head followed on March 6th by delirium and fever for which he was brought to the City Hospital, and I saw him on March 8th. He was then delirious with a temperature of 104.5° F. There was well-marked œdema over the whole mastoid with deep fluctuation close to the auricle, and on consultation with Dr. Gay, Bradford and Forster, an immediate operation was deemed advisable to give him the possible benefit of the evacuation of pus.

Under ether a vertical incision evacuated abundant, very thick subperiosteal pus and a large spot of caries of the cortex was found on the anterior aspect of the mastoid opening into the mastoid antrum; there was extensive caries of the cancellated structure which was broken down as far as possible and the softened bone removed by the curette. The cavity ran so high up that it was quite a question whether the cranial cavity had not been opened, but a bent probe seemed to detect bone in every direction, and I concluded that it was a case of very high diaplœ. The cavity was thoroughly irrigated with sublimate 1-3000, the fluid passing freely out at the meatus; a drainage-tube was inserted and an antiseptic dressing applied. Some slight relief to the temperature and restlessness followed, but the next day he began to fail and died early on the tenth, with well-defined symptoms of meningitis, the temperature steadily rising till it reached, a few minutes before his death, 110.5° F., as was carefully determined by the house officer with two thermometers in the axilla.

The account of the autopsy by Dr. Henry F. Sears, is as follows: "Abdominal and thoracic organs showed nothing abnormal. On opening the head the dura-mater showed no pathological changes. The upper surface of the left petrous bone was thinned to a mere shell, the bone itself reddened but no hole nor break could be made out. The pia-mater was every-

where deeply injected with opaque yellow lines along the course of the veins; in several places were small accumulations of yellow opaque puriform material, especially at the anterior end of the left frontal lobe, where there was a collection of puriform material covering a surface larger than a silver half-dollar. Back of the ear was a short vertical incision, and on turning back the ear there was seen an irregular opening, containing black, somewhat offensive, cheesy material. Diagnosis: acute purulent meningitis."

The examination of the removed bone showed no pus within or without the dura-mater; there was no inflammation of the dura over the bone. On stripping, the substance of the bone was distinctly red from inflammation over the whole tympanic and antrum roof. The upper surface of the bone was unperforated but very much thinned by otitis, so that a needle passed easily through it into the tympanum. The anterior wall of the mastoid was perforated and the bone destroyed forwards into the tympanum, leaving an opening three-sixteenths of an inch wide and half an inch long. The cancellated structure in the upper part of the tympanum had largely disappeared, making a cavity half an inch long and one-quarter of an inch wide, only separated from the dura-mater by the thin bone above mentioned. On opening with a saw, the mastoid was in a state of osteo-sclerosis with only three or four small pneumatic cells, communicating however with the antrum, which latter was of normal size and filled with cholesteatomatous masses. The whole mastoid bone was reddened throughout by otitis.

Remarks. — The case was interesting from the high temperature and from the specimen which is shown. The ear was undoubtedly the source of infection for the meninges, but the dura-mater over the inflamed petrous bone showed no signs of inflammation and not a trace of pus was discovered on the surface of the bone. The pia-mater was inflamed throughout but the inflammation had reached its greatest intensity at the anterior end of the left frontal lobe where there was a large purulent collection. This condition is in marked contrast with some cases where the highest stage of inflammation with purulent deposit is found in the immediate neighborhood of the ear.

CASE III. C., aged thirty-six, in August last, from a cold had suppuration of the tympanum which was treated at irregular intervals, but continued without urgent symptoms till November when Dr. Leland found tenderness and redness at the tip of the mastoid and he entered the City Hospital for operation, but the next day, before I saw him, demanded his discharge, saying that he felt well. The tympanic disease and mastoid tenderness continued as before till on December 7th he was suddenly seized with a severe pain in the head, "entirely different from anything he had experienced before," as he remarked to his wife, and in a few minutes became unconscious. I saw him at the hospital nine hours after, finding him semi-conscious, unable to speak, evidently suffering from pain in the head, pupils contracted, and without reaction, no paralysis; pulse sixty-four and weak; temperature normal. There was no external swelling but the mastoid was very sensitive on pressure and the skin slightly reddened; there was great œdema of the upper wall of the meatus and the drum-membrane was inflamed, showing a well-marked nipple at its

posterior part. Under ether the antrum was thoroughly opened, but no pus found either without or within the bone; the drum-membrane was also freely incised.

The next day he was a little more conscious, but unable to speak, and the pupils remained contracted and without reaction; pulse sixty-six; temperature normal. That evening the temperature began to rise. On the 9th he showed symptoms of heart-failure, but recovered under a subcutaneous injection of tincture of digitalis; he gradually lost ground, however, became comatose and died early on the 10th. No autopsy.

In this, as in the first case, unconsciousness, preceded however by a few minutes of headache, was the first symptom of the meningitis and the disease was much longer in running its course (three and a half days), probably due to the inflammation involving the convexity rather than the base of the brain.

CASE IV. S., aged twelve, was brought to the Massachusetts General Hospital in August last in a state of active meningitis with a mastoiditis of one week's duration and a suppuration of the tympanum of eleven years' duration. In this case also the mastoid was opened and both subperitoneal and mastoid pus evacuated, but without avail, the patient dying the next day. No autopsy.

All four cases are demonstrations of the failure of the operation to avert the fatal result where the meninges have been already infected however successful the operation may be in cleansing the original source of infection, and this brings up the question of the surgeon's duty in such cases. We find, I believe, two varieties of meningitis from inflammation of the ear, one infection by absorption into the circulation, but the exact path by which the morbid material is carried from the ear to the meninges is not yet known; the other an extension of inflammation *ex contiguo* from the bone to the dura-mater and thence to the other meninges. The first is infection from a distance, the other from direct contiguity of tissue. The former is a rapid process and once established is necessarily fatal; the latter is a gradual process, in its incipency localized and, as I believe, is occasionally cured. It is impossible to distinguish between the two from any early symptoms and it is equally impossible to say at what precise moment the meninges have become infected in either variety. The differential diagnosis between meningeal irritation and meningeal inflammation is, in the beginning impossible. This being the case I am inclined to give the patient the benefit of evacuation of pus and cleansing of the bony cavities merely on the possibility that I am dealing with the second variety which has not yet fairly infected the membranes of the brain.

Years ago I operated on a case which was in a state of apparently active meningitis and which recovered from the ear disease and also from the meningitis, but died some months after suddenly with symptoms of a ruptured brain abscess. Here, although no autopsy was obtained, I think we had a case of the second variety at the time of operation. Cases of meningeal irritation I have certainly seen recover after the operation in a number of instances where the symptoms in the head were so exactly like the early symptoms of some of my cases of meningitis that I could not distinguish them. Of eighty cases of opening the mastoid for inflammation which I have recently been

tabulating from my notes, three, besides the four cases here reported, died, all from infection of the meninges before operation. In this series I find two cases of meningeal irritation, one of which made a perfect recovery in the ear and head, the other recovered from the head symptoms but a cholesteatomatous mass developed in the mastoid some years after.

The full statistics of these cases are as follows: Cured, 62; not cured, 3; died, 7; unknown, 2; unfinished, 6; total, 80.

PHYSICAL CULTURE AS TAUGHT ABROAD.

THE GYMNASIA OF ENGLAND AND THE CONTINENT. SWEDISH GYMNASIICS.

BY KATE C. HURD, M.D.,

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SPENCER says, "We progress by resisting"; that is, muscular effort is needed in order to be strong; our faculties are developed by exertion. The ancient Greeks knew this practically from observation. They had no clear theories of the circulation of a life-giving fluid through the tissues; they knew little of the waste and repair, regeneration and desintegration which go on during all bodily work, but they knew that with exercise they became strong and healthy, and fitted for war. They paid great attention to bathing, but not because they realized how impossible it is for the skin to perform function when its millions of pores are choked with debris of epithelial cells and with dirt.

At this present time we have not such need of athletes and great bodily strength as in the days of Xenophon, Cæsar, or even of Napoleon. The old proverb "The battle is to the strong, and the race to the swift" is true to-day, but it is more a conflict of brains, a race of memory and mind, which call for greater stamina and more powers of endurance year by year, as the conflict grows sharper, and intellects broaden and deepen.

In the schools, brain-power is put to its utmost test by the scholarships and promotions offered, and by the dreaded examinations. What is the antidote to all this? How can the insidious foe and merciless enemy called "nervous prostration" be warded off? Riding in the omnibuses or horse-cars here is as instructive as many a clinic, and much sadder cases are seen, — absolutely broken-down business-men of fifty years, women prematurely withered and gray, and children with chorea; the feeble as numerous as the healthy. In one omnibus-ride from the Bank to the British Museum, a distance of a mile and a half, last Saturday afternoon, five business-men, of ages varying between forty and sixty sat opposite me, having entered at different places, every one of whom was afflicted with tic, with partial paralysis, etc.

Health can only result from a *regular* and *uniform* development of the body. The man of healthy organization will not fail from inability to endure a sudden or protracted pain in some member, or from grief, watching, or any other unusual work. A sound heart will not give out from fright, nor will sound lungs rebel against a run, nor will well-developed calf-muscles ache after a tramp. It would not be necessary to take time enough from brain and other work to become an athlete, but an hour's judicious exercise during the day would prevent a premature break-down, and develop a fine condition of health and endurance.

Body and mind need each other, and the one is most perfect when the other is in best condition. A *book-worm* is not an object of admiration to-day; he always induces a feeling of pity as of one whose development was arrested. The lean, hollow-chested student, whose round-shoulders are unduly prominent, whose expression is cadaverous, is working sixteen hours a day to very little purpose; he reads without assimilating, listens to lectures without comprehending.

The children's hospitals here are crowded; the hip and orthopaedic hospitals are over-full; the lanes and alleys swarm with puny, anæmic, deformed children, — pigeon-breasted, hollow-chested, sciotic, stunted in all ways. And what is the cause? Poor inheritance and unhygienic living. If one-fourth the money which here in London is spent on laying out and grading new sidewalks and roads, were spent on the homes of London's poor *wisely*, the physical and moral tone would be wonderfully raised in one generation. As it is, no city in the world does so much philanthropic work; but there is something wrong in the way in which it is done, and pauperism is encouraged.

Credit should, however, be given to efforts which are being put forth in the right direction. It is true, that a greater zeal for physical exercise is pervading society, philanthropists are directing their attention to the founding of gymnasia for the masses, as well as to the sanitary conditions of tenements and boarding-houses. Many young business-men, beginning at the first principles of hygiene, diet, rest, devote an hour or two daily to the gymnasium, and are diligently endeavoring to strengthen their weak places.

" 'Tis mighty plain
That the weakest place must stand the strain:
And the way to fix it, I maintain,
Is only jest
To make that place as strong as the rest." 1

The former physical trainer at Oxford, Mr. Archibald McLaren, has written many good rules for the young men who have come under his care, and his works on physical training are among the best which I have been able to find. He has had much complaint to make of the bad rules prescribed by the men who prepare the boat crews, etc., in that they order very unscientific and injurious modes of living. To be sure, fresh air, good cold water and free ventilation are insisted on, and the demon of "internal fat," and its synonyms "loose flesh," are not heard of as much as of yore. The practice, however, continues of taking forced sweats, long fatiguing walks, rarely drinking, eating no fats and little starches; in fact, the men not only lose weight, but power and endurance. Their rule is, when eating and drinking, to leave off hungry and thirsty. Let us hope that Charles Lamb's motto does not apply also, "When washing, leave off dirty." If men would learn to masticate well their rations, sip instead of gulp their tea or beer, learn to run for miles with no fatigue, and to use every alveolus which their lungs contain, then at the end of the course it could be said of them "well done"; but we should less often hear from the crowd of men standing to watch the fun and applaud, the slang remark, "Well done, fatty, one more stroke and you'll boil!"

Let a person be temperate in eating, drinking, and exercise, then Bahting's system of starvation will not be needed. We hear every day ridiculous stories of the purging, vomiting and bleeding which men

1 O. W. Holmes: One-Horse Shay.