

ination, for in response to my inquiry as to the condition of the prepuce, by a mistake I was told that it had been examined and pronounced in a normal condition, but the symptoms becoming more pronounced and the evidence of a brief loss of consciousness becoming stronger, I insisted on seeing the child, and an examination showed a phimosis with a pinhole orifice, and at the incision I found the prepuce strongly adherent to the glands over quite a portion of the surface. For two or three weeks after the incision the symptoms continued, but in a gradually diminishing degree, the diminution apparently keeping pace with an increasing confidence that the old sensations had been removed, and finally the trouble definitively ceased without the administration of drugs.

The other case was that of a lad, 10 years of age, who had shown no trouble prior to seven months of age, aside from measles when five months old. The first signs consisted of slight convulsive seizures, consisting mainly of rigidity of the muscles of the trunk and oscillation of the eyes, though at eight months there was some paresis of the right side which persisted for quite a period. For about eight years the attacks recurred on the average from three to six times daily, were brief in duration and were not followed by somnolence, but the frequency would be increased during the continuance of intercurrent illness. During the following two years the attacks did not notably increase in frequency, but they became somewhat more severe and were followed by a stupid or drowsy state. The father consulted me concerning him in an incidental way, and I advised that he should have him examined, particularly in reference to natal or post-natal injury to the head and the condition of the genital apparatus, for he described the act of urination as difficult and spasmodic. In the meantime I advised the use of bromids to try and control the habit element. As he lived a long distance from me, I heard nothing from the case for some months, when, being in the neighborhood of his home on another case, I again was consulted, and found a well developed boy of 10, apparently in good health in every way except the convulsive seizures, and some slight defect in the motility of the right side, presumably due to a mild attack of polio-myelitis in his early infancy. There were defective educational development and somewhat peculiar manners, both of which were doubtless in a measure the result of his having been kept from other children and from school.

The bromids had stopped the convulsions for nearly six months, but they had begun to recur. A tight and adherent prepuce furnished one ground for interference and I advised that the phimosis be removed, which was done somewhat later, and thereby he was relieved of his urinary trouble, but after a time the convulsions recurred, and he will probably become a confirmed epileptic, though I am convinced that an early operation and efficient medical treatment, particularly if instituted before the epileptic habit had been formed, would have resulted in a cure.

Another case of reflex influence interested me very much. It occurred in the practice of a medical friend, early in my professional work and before the use of the bromids had become so common. The patient, a man, had had several epileptic attacks, when, during an examination of his body for general diagnostic

purposes, and while manipulating one foot a paroxysm occurred. The same event having been repeated at another and not remote occasion, a more critical examination disclosed a small subcutaneous tumor on the dorsum of the foot, and pressure thereon produced a more or less complete epileptic attack. Excision of this growth resulted in a definite recovery.

Another instance will serve to illustrate the importance of thorough measures in the early stages of the disease. A young woman consulted me on account of a single convulsive seizure which had occurred a day or two before. Though realizing fully the fact that a single attack had slight diagnostic value, the description of the fit, as witnessed by a friend, led me to suspect so strongly that it was epileptic that I at once placed her on a bromid treatment with directions to make certain increase in the dose in case of a recurrence. In a short time she had another attack and then another, so that she had several within a few weeks. After each fit the dose of bromid was increased, until finally the intervals increased, and after about three months she had the last attack. The dose of bromid of potash had then reached a little more than 2 drachms daily and was continued at that amount for upward of two years, and then gradually diminished, so that it was stopped at about four years from the commencement of the treatment. This case, like the majority of cases of epilepsy, furnished no evidence as to causation or pathology and was treated entirely on an empirical basis. If the attacks had been allowed to continue for quite a time it is fair to assume that the condition would have become more difficult of control and probably incurable.

I am fully aware that this note contains nothing new, but it has seemed clear to me that the utility of energetic measures in the early stages of the disease has not been adequately urged or appreciated, and it is then, if at all, that we may hope to eliminate one factor, a minor one though it be, in the continuation of the disease, *i. e.*, the element of habit.

THE LIMITATIONS OF SURGICAL OPERATIONS AS A MEANS OF RELIEF OR CURE IN EPILEPSY.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY THOMAS H. MANLEY, M.D.

NEW YORK.

During the past two decades, or the last quarter of the nineteenth century, a vast change has been wrought in the principles governing surgical operations; the use of the microscope has sapped the very foundations of pathology which was taught as late as the early 70's, and in that short space of time, we have witnessed the birth and death of many theories which were advanced with the force of dogmatic emphasis.

In short, our age is one of theories and it would seem that in spite of the scientific foundation which modern medicine is supposed to rest on, our position is anything but fixed and definite, and, never, probably at any time, was the profession more eager to test the efficacy of any therapeutic agency, provided only that its source was from those recognized as authorities. Our bent is essentially materialistic,

and we are endeavoring to wring from nature her mysteries and her secrets by experimentation and biologic research, rather than on the old beaten track of clinical observation. Surgery has made vast inroads on the domain of the physician. Not content with the slow uncertain action of medicines, by an internal route, we now take time by the forelock and scarcely any recess of the body is beyond the exploratory advances of modern surgery.

The same cavities which our forefathers never penetrated, except with fear and hesitation, have lately been ruthlessly invaded, and we have been led to hope that the time had come when many of the maladies heretofore quite incurable were now capable of prompt and certain eradication.

Truth and justice, however, compel us to avow that, except with the cavity of the peritoneum, it remains an open question, whether or not aggressive surgery has any well founded claim in the way of securing better results than may be attained by constitutional or symptomatic treatment.

With pulmonary diseases, surgery can do little, except in draining for empyema. And in this, of all the cavities, physics has brought the art of diagnosis practically to perfection. Since the doctrine of cerebral localization has been promulgated, Ferrier, Broca, Victor Horsley, McEwen and others have made the brain and its surgery a special study, the cranial cavity has been opened and explored in the treatment of many traumatic and pathologic conditions which, formerly, were regarded as quite beyond operative relief.

From what had been achieved by the security against inflammation or septic infection which antiseptics afforded, the precision derived by cranial topography and accurate cerebral localization, together with such osteoplastic operations on the cranial walls as would permit us to again fill in the wide breach made through them, it was believed that the time had come when we might succeed in locating and removing safely, neoplastic formations, or such other pathologic conditions as give rise to or perpetuate many of those maladies which appear to be of central origin.

It was earnestly hoped that at last a way had been opened by which we might offer some prospects of cure of that dreadful affliction designated epilepsy; that if it were dependent on cranial contraction, expansion and free play of the cerebral mass might be promised through a simple division of the cranial walls; if there were hard osseous compression, it would be easily relieved by the trephine; if there were new growths or adventitious formations, that their extirpation might be safely accomplished.

How far our anticipations have been realized in this direction, what positive substantial progress has been made, it is interesting and necessary that we now determine, in order that we may be able to make a reasonably definite forecast of the results following these cranial operations which are undertaken to relieve a case of epilepsy, whether their scope should be enlarged, or, on the contrary, restricted to only very rare and exceptional instances in which the physical distress is so great that any description of interference, not too hazardous to life is justifiable when indications point, even though remotely, to the probable seat of trouble.

Before we undertake the treatment of any disease on a scientific basis, it is indispensable that we have

a correct understanding of those pathologic conditions of the elements of the structures or organs through which it finds expression. Though, even when such a consummation is attainable and science has pointed unmistakably to definite etiologic factors, it has, so far, been singularly impotent in all but a very few instances to proceed any farther and indicate specific remedies. Thus we will observe that though physics has enabled us to easily recognize and follow every stage of pneumonia, its mortality remains as great or even greater than when symptoms alone were treated. Nor has the discovery of the microbe of phthisis suggested its antidote. Our microscopic differentiation of the cell elements of malignant growths has in no manner enabled us to the more effectively abort their progress or, after their advance has begun, do more than treat them on general principles.

But with epilepsy, anything like a definite pathology is wholly wanting. There are good reasons for believing that though its manifestations are through explosions of nerve force, by way of the encephalon, there are other subtle influences in operation, possibly in the blood of some one of the eliminating organs. While the cause of the malady remains in such profound obscurity, how is it possible to direct effective measures for its control or cure? And this view of the question is borne out by the fact that in our time nearly every large city is provided with special hospitals or asylums for the management of many of these hopeless cases.

But there are quite a few of the focal or Jacksonian type, which seem to date their origin to an injury of the skull. Perhaps a blow or a fall, which produced evident cerebral concussion, or a fracture with depression of bone. In one case which came under my care there was a marked depression of the left glabella of the frontal bone, produced by compression of the obstetric forceps at the time of birth.

For this class, aggressive surgery was looked to for relief. The depressed bone might be elevated or removed; an organized blood clot pressing on the cortex might be displaced, a new growth enucleated, or adhesions between the meninges and brain substance liberated.

Intra-cranial surgery was soon greatly enlarged, and this offered a fertile field for radical methods. Treatises have been written on it and monographs in great number have been widely circulated, setting forth the claims for this new departure. Progress, however, had not made very great advance before circumstances arose that led to a pause; and then reaction set in, until now we have reached a middle ground, with a tendency rather in the direction of a salutary conservatism, than ill-timed indiscriminate operating.

It was found that the operation of *trephining* itself was attended with many serious dangers to life from hemorrhage, meningitis and cerebral hernia, and what was most discouraging, after varying intervals of time, the convulsions almost invariably returned.

In some few cases the epileptic attacks were not so frequent nor violent after operation as before. True permanent cures have been reported; but no such result has ever come under my observation, either from the hands of others or in my own practice. It is not impossible nevertheless, to find an occasional cure succeeding operation in a certain class of cases. A great fright has been known to produce epilepsy as well as

a severe physical accident; and, singular to say, the same agencies have been known to promptly cure it. Some years ago a little girl was under my care for the treatment of a fractured arm, resulting from a fall over a rocking-horse, and though a victim of the most violent form of epilepsy before the accident, she has never had a seizure since; many have experienced a vast improvement by hypnotism, the faith-cure and clairvoyant treatment. It is, therefore, reasonable to inquire what rôle psychic influence plays in these cases which been operated on; the anticipation, dread and fear of the ordeal, the effects of the traumatism on the tissues, the loss of blood, or the effects of the anesthetics?

If we were only assured that any type depended in certain cases on localized compression, as depressed bone, or tumor pressure alone, then we might hope for enough benefit ensuing to warrant us in undertaking an operation for its removal. But those who have opportunities to examine many traumatisms of the skull, know well that in many who have well-marked bone depression, epilepsy is never witnessed. It is a well-known clinical fact too, that moderate cerebral compression is entirely compatible with the healthy functions of the brain. Extensive intracranial compression may produce pain, paralysis or coma; but that it in itself is ever a sole and direct cause of epilepsy is decidedly doubtful.

In more than seven hundred fractured skulls, beside other serious traumatisms of the brain which have come directly under my care during the past fifteen years, I have found no direct evidences that a moderate indentation of its plates or intracranial pressure from effusion ever *per se* was the cause of epilepsy in any one who before the injury did not give a history of having had it at some earlier stage of life.

With those who have an inherited or an acquired tendency to this disease, a cerebral injury undoubtedly often serves as a direct determining cause of its manifestations, and, with this class, we may, perhaps, expect the most satisfactory results from an operation on the brain when we have reasons to suspect pressure.

On a comparatively superficial examination of the surgical literature of the past ten years, one is quite amazed at the vast number of cases of epilepsy that have been treated surgically during that period. This is notably true of the Jacksonian and traumatic types. Few surgeons could resist the seductive promises held out by modern investigators, with the apparent precision in cerebral localization and no serious peril to the patient. Current medical publications, in both Europe and America, contain almost an infinite number of cases dealt with by radical measures, yet, withal, it does not appear that any author has prepared a statistical table setting forth in detail the ultimate results. It is obvious that such an undertaking, though highly valuable, would be quite impossible, for the reason that in a very considerable number the reports of several are so incomplete and indefinite as to be practically of no value. Certain authors speak of "recoveries" after operations when it is not clear whether they refer to operative success or cure of the disease. Very many are set down as "recoveries" when the time that the patients were in hospitals was too brief, or they were too soon lost sight of.

But very few have noted the influence of hereditary taint, sex, physiologic conditions, or antecedent his-

tory. Enough, however, has been gathered to lead us to the conclusion: 1, that trephining the skull is in itself, except in the hands of skillful surgeons, an operation which may endanger life; and 2, that, with only occasional exceptions, it makes no permanent impress on the course of the disease. Gowers ("Diseases of the Nervous System," vol. II, p. 314) believed that "blows and falls on the head which cause symptoms of cerebral injury are sometimes followed by recurrent convulsions of an epileptoid character, leaving an impaired vitality of delicately constituted cells; the convulsions being local, owing to a local damage of the cerebral cortex." This view is difficult to harmonize with oft repeated clinical observations; and if rational does not explain how we may look for relief through tapping the skull.

Gray says, that these cases of a peripheral origin usually improve under treatment; though a convulsive tendency clings to them. ("Diseases of the Nervous System," p. 375.) This distinguished writer adds, that "trephining is a harmless procedure, under antiseptic precautions." The same writer tells us that some may enjoy an immunity from an attack from ten to fifteen years, and others a shorter time. What we are desirous of correctly appreciating after a traumatism borne by the skull, and followed by epilepsy, is precisely the effect of this *alone* as an etiologic factor. Before we can conclusively settle this important question, we must eliminate all extraneous influences; those already stated, beside the reflex neuroses, such as have been reported by various authors; a few of which may be enumerated. St. Vilbis, in three severe cases of nasal catarrh, saw severe attacks of epilepsy which quickly ceased when this was relieved. (*St. Louis Medical Journal*, 1888, vol. XVI, p. 17.) Robert saw a man have epileptic fits every time he had a severe attack of pleuritic pain. Another author cured his patient by removing an injured eye; while Bartholow saw cases which he believed were cured by the expulsion of orange seeds in the intestinal canal. Le Grand Du Saulle (*Gaz. Des Hôpitaux*, 1885, LXVIII, p. 491) reported eight cases of epilepsy caused by viewing the dead body. They were all females, from 12 to 28 years old, and in all there were histories of being the progeny of drunken or neurotic parents. He accordingly observes that in all these cases there was enough to account for the onset of the malady, independent of fright or shock.

In one of my own, the patient gave a history of having borne an injury to the skull in childhood. With the aid of Dr. M. C. O'Brian, the neurologist to the Harlem Dispensary service, I was enabled to localize the apparent intracranial mischief, and after removing a disk of bone, came down on a glioma as large as an egg, lying between the arachnoid and cortex, over the fissure of Rolando on the right side. This was completely removed and our young man promptly recovered from the operation; but the truce was very brief, for in three months the convulsions returned with their old-time severity. Echerexria throws some light probably on the cause of our failure, for he cites quite a similar case, ending mortally after operation, in which, on autopsy, several growths of a similar character were found scattered throughout the brain substance. My patient gave a history of trauma in early life. (*Arch. de Med. Gen.*, t. III, p. 533.)

From the accumulated testimony of a very large number of surgeons who are not disposed to "color" or report their cases in such ambiguous terms as to

leave one in doubt of final results, we can only conclude that the number of cases of epilepsy capable of substantial relief or permanent cure through the resources of surgery is very small indeed. We have no evidence that trephining makes any impression on the chronic type of a constitutional origin; those only dependent on local traumatism holding out any definite hope from cranial surgery.

The afflicted are loath to admit that they inherit special diseases, and will resort to many subterfuges rather than acknowledge the truth. This human frailty is peculiar to no particular class. In many of these cases which come to us with scars on their scalps, no doubt, if we instituted a searching inquiry, we would find in some of them, at least, that they were produced by a fall in an epileptic seizure.

In the general run of this class we will not find sufficient osseous compression to account for the epileptic seizures. Some will say that there was a marked thickening of the plates of the skull where the trephine entered, but how can we determine this, except we are familiar with the relative thickness of the whole skull, which is quite impossible. And so may there be patches of thickening of the dura mater or the meninges found; a similar condition often met with within the skulls of those who have died of maladies in no manner connected with the brain.

It is certainly doubtful if moderate local depression of bone *per se* will cause epilepsy. I have trephined and elevated depressed bone after cranial injuries more than one hundred times; either immediately after injury or within forty-eight hours, and in no single case have I ever seen epileptic convulsions follow, except when meningitis developed. In one man an opening was made in the skull to drain a traumatic abscess which contained nearly six ounces of pus, but there were no fits, though we had reason to believe that the fluid compression had lasted more than a week. In another man I removed, by *débridement*, several depressed fragments from his skull, which had been injured five years previously. The fracture had produced an indentation that would admit the top of the finger and was located immediately over the torcular, which fact probably accounted for non-interference at the time of injury, through fear of hemorrhage. He never had any convulsions and only came to us because there was a discharge from the necrosed fragments, which produced spells of irritation and pain in the scalp, which he wished relieved.

We are not in a position yet to make any accurate estimate of the range of intracranial surgery in these cases of neoplastic growths, involving or within the cranium, which are presumed to provoke epileptic seizures. If we are in possession of such definite data diagnosis as point with certainty to this malignant character, surgery is impotent to offer any relief, except by such perilous exploration as will place life in danger without any commensurate advantage. Operative interference for the malignant class may be totally discarded.

The myxomatous or gliomatous growths are those most frequently met with in the cortical or gray substance of the brain; and are the species of heterogeneous formations most often encountered in various forms of focal epilepsy. They seem to bud from the stroma of the pia mater, usually are of small volume, have very thin walls and lie close to the under surface of the arachnoid. Sometimes they are covered at

varying depths from the surface by a layer of medullary substance. In physical character they closely resemble the gummata of syphilis.

Neurologists in many instances, are able to locate them with remarkable certainty, as I have seen demonstrated several times. If the therapy of those cerebral affections accompanied with epileptic seizures was as definite as their diagnosis, the problem would be solved, for experience teaches us that, with few exceptions, after the evulsion or enucleation of these pulpy cysts, the tendency to many cerebral disturbances which they provoke continues. The cerebral centers are then said to have acquired a habitual derangement, or have undergone such alteration in their elementary structures that operative measures in nearly all cases can only assure a temporary truce.

The surgery of certain types of epilepsy to-day occupies a status not altogether unlike that of cancer, *i. e.*, in various clinical types it holds out no possible prospects of cure or even of relief.

Like the dread scourge of epithelial proliferation, in rare isolated instances, after operation, epilepsy may not relapse. Indeed, on the whole, it may be said that cancer is the more amenable to treatment; for the charlatan has always a large *clientèle* of those afflicted with this malady, though it is seldom that we see him advertise his "cures" of epilepsy.

From the foregoing brief review of the surgery of epilepsy, the inference will probably be that, notwithstanding all that has been written of late years on the great advances of intracranial surgery, its application to those morbid conditions of the brain that gives rise to epilepsy in its various forms is so narrow and limited as to be practically of no avail.

It has not been my intention to leave that impression, for it is my conviction that with the onward march of progress, in the near future a way will be opened through scientific research, experimentation and improvement in surgical technique, by which many of those afflicted with this disease will be greatly relieved, if not promptly cured. Even now there can be no question but in a considerable number of the most aggravated type, though surgery can not promise a permanent arrest of the convulsive seizures, it may very greatly reduce their frequency, relieve the congested state of the vessels of the brain; diminish the dizziness and headache, displace dependency for buoyancy of spirits, and produce an entire psychic change for the better in the individual. In the Jacksonian and traumatic types, though we may not be able to guarantee to our patients a definite cure, we may quite confidently assure him of a mitigation of his symptoms and a removal of the conditions which, if left undisturbed, in many are liable to lead to serious symptoms later in life. Nevertheless, it has been my aim to warn against being too optimistic, or too sanguine in exacting from intracranial surgery, results which we well know at the present time we may not hope to realize in any but a small proportion of cases.

115 West 49th Street.

A MIXTURE FOR LOCAL ANESTHESIA.—Le Gerant and E. Pierre (*Le Moniteur Thérap.*, 1895, xxii, p. 160). The following formula is given for local anesthesia, to be applied as a spray:

Chloroform	10 parts
Ether	15 parts
Menthol	1 part

The anesthesia resulting from the application lasts about five minutes.—*Am. Med. Surg. Bull.*, Dec. 1.