

## THE SURGERY OF IDIOCY AND INSANITY

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Some of us, I fancy, in writing upon this subject, would be disposed to consider it in the same manner as snakes were discussed in the famous chapter on snakes in Iceland, in which the learned author's views were set forth in the single sentence, "There are no snakes in Iceland." Such a one might write a chapter on the Surgery of Insanity, and simply state, "There is no surgery of insanity." Nevertheless, it must be admitted that such an attitude would be untenable; for there may be conditions associated with insanity that demand operation, and some few insane states themselves call for it.

Some men have so far departed from this conservative standpoint as to have actually become enthusiastic advocates of operations to cure insane conditions, thinking apparently that ideas may be knocked into lunatics' heads like they were into Jack Bunsby's, who "took as many spars and bars and bolts about the outside of his head, when he was young, as you'd want an order for on Chatam Yard to build a pleasure yacht; and yet he'd got his opinions in that way." Some would attack the brain directly, in order to look for lesions—such as cysts or blood-clots—and attempt to remove them; others would trephine, to alter pressure or to drain; and still others would remove considerable portions of the bones of the skull, in the hope of causing a diminutive brain to expand. Among these enthusiasts are, of course, to be found certain of the specialists. Some maintain that in insane women abdominal section is likely to disclose conditions of pelvic disease that should be removed; gynecologists have advised correcting uterine displacements and repairing lacerated perineums and cervixes, and genito-urinary surgeons have been impressed with the occasional association of genito-urinary and mental disease; and laryngologists now and then come forth to proclaim the need of treating the larynx or naso-pharynx.

We thus see that some physicians utterly disbelieve in operations for insanity; but that the majority think that there are times when they are justifiable, while a few consider them to be frequently necessary. An operation may be intended to remove the cause or the association of the insanity, a condition giving, it may be, climate to the mental atmosphere and influencing unfavorably the state of the patient; or this peripheral irritation may be merely an annoying and harrassing complication, impairing the general health. An operator may also attack the brain directly, with the thought that a causative lesion may be reached and removed, or that pressure may be modified. In considering this subject, we would lay down certain facts as a basis for any conclusion that may be reached:

1. A surgical operation, like an injury or an attack of fever, may be followed by the development of insanity. This is particularly true in women, after operations on the pelvic organs. This fact is so well recognized that the name post-operative insanity has been given to the condition. It is most likely to occur in those already predisposed to insanity. A shock of any sort may immediately bring on a temporary delirium; may lead to the development of prolonged excitement, or of stuporous dementia; may cause gaps, or lucanæ in the memory; or may produce confusional insanity.

2. The development of a carbuncle, or a crop of boils, an attack of erysipelas or of some other acute illness, an injury, a severe physical or mental shock, or a surgical operation is occasionally followed by the apparent cure of mental aberration. In a case of acute mania in the Insane Department of the Philadelphia Hospital, cure rapidly followed a fall. In another case in the same hospital cure rapidly followed an act of self-mutilation, the man having forced his penis through a metal ring. The parts were much lacerated and removal was accomplished with difficulty. Clouston saw a man cured of hypochondriacal melancholia by losing his fortune and being obliged to go to work. The same alienist saw a woman cured of melancholia by marrying a widower with seven children. A trend towards dementia may sometimes be arrested by a powerful physical or mental impression. It thus be-

comes evident that shock sometimes causes insanity and sometimes arrests it, just as an explosion may stop a clock, and sometimes may start one which is wound but not running. Such events may interrupt morbid mental habit, lift the thoughts from a groove, concentrate the attention on realities. Cure may be due to fear, to a strong arousing of the will, to the awakening of hope previously dormant, or to alterations in intracerebral pressure. All these influences except the last, it would appear, should be more strongly present when an anesthetic is not used than when it is given. Such a cure is apt to be sudden.

3. Sudden cures in the insane are not likely to be permanent. One feels much more confident in regard to a patient's future if there is a gradual return to a normal level, than if there is a sudden return. Persons that suddenly become apparently normal are extremely likely to have a reproduction of the attack of mental trouble; hence, it is wise to consider carefully whether a case apparently cured by surgical operation would not have recovered anyhow, and whether a gradual recovery brought about by ordinary methods of treatment would not have been better than a sudden recovery produced by operation.

4. One should not lose sight of the fact that although a surgical operation may be followed by apparent cure, it very rarely is; and that just as shock or traumatism may develop an insanity, it may make an existing insanity worse. Hence, the surgeon should bear in mind that it is a great responsibility to recommend operation; for the chances are that in most instances it will fail, and there is always the possibility that it will make the patient worse.

5. There is always considerable doubt, even in apparent cures, as to what actual part the operation has played in producing the result, and whether the patient had not been on the high-road to cure when the operation was undertaken. The real test of the value of an operative procedure is to find that the recovery rate is much better than in like cases unoperated upon or that cure follows in cases that, on account of the type of insanity or because of the duration of the disease, would otherwise be esteemed hopeless. Most acute cases recover under medical treat-

ment. It is estimated that 70 per cent. of acute maniacs and 50 per cent of melancholiacs recover from first attacks. In the first six months of an acute case the prognosis is good. In the second six months it is only one-half as good. After the third year it is almost hopeless (Régis). One test question is, Can Surgery cure cases after the third year? and another is, Can it cure secondary dementia, paranoia or paresis?

6. Insanity may be associated with physical bodily disease and, whereas this physical bodily disease is not the actual cause of the insanity, it may have predisposed to it by depressing the general health, developing pain, impairing the appetite, or creating insomnia. Furthermore, such physical disease not unusually directs the attention to a particular region, colors the emotional tone, and favors the production of delusions of a certain nature. It admits of no dispute that an insane individual that has some dangerous or annoying, yet curable, physical disease, has a right to have that disease cured by surgery; and that the cure of such a condition by surgery may be followed by improvement in the mental state, because it may remove certain annoyances, harassments, and weakening influences upon the general health.

7. An examination of the recorded cases indicates that some of them have been reported by men entirely untrained in the care of the insane, and that not infrequently no alienist has been associated with the surgeon in making the diagnosis or in judging whether a cure has resulted. From some reports, one cannot tell what was the real form of insanity present; what were the hereditary tendencies, what the predisposing or exciting causes, from some reports, one cannot be sure that the patient was really insane. One case is reported as delirium of persecution, and yet from the report there is no evidence that anything existed except the obsessions of neurasthenia. Some present no proper demonstration that cures have been obtained. One case is reported as showing signs of dementia and then becoming violently insane. One report is made of a man who was trephined and after operation spots suggesting syphilis appeared on his body. He was placed on specific treatment and recovered, and the cure is attributed to operation, which is said to have permitted the absorption of "syphi-

litic phenomena." One insane condition is described by saying: "Patient could not think much, only to a certain point." Another report says that, "immediately after operation patient began to follow out ideas." In order to have any value, the cases must be reported by those that possess some knowledge of insanity and have properly and systematically studied the case.

8. Some of the reporters have been extraordinarily optimistic, and one cannot help thinking they have occasionally seen what they expected or wished to see. As St. Theresa long ago said, "I have known some of weak mind who imagined they see all that they think, and this is a very dangerous condition." The favorite argument of such persons is the *post hoc, ergo propter hoc* method of the savage. They reach a conclusion in the same manner as those of a former day concluded that the fearful famine that afflicted France in the eighth century was due to the repugnance of the French people to the payment of tithes.

In discussing the subject of the surgical treatment of insanity, I shall, of necessity, make definite headings, under which I shall consider special conditions:

1. Operations for microcephalic idiocy. 2. Operations for hydrocephalic idiocy and imbecility. 3. Operations for epileptic insanity. 4. Operations for paresis. 5. Operations for ordinary non-traumatic insanity and paranoia. 6. Operations for hypochondriacal delusions. 7. Operations for hallucinations. 8. Operations for traumatic insanity. 9. Gynecological, abdominal, genito-urinary and nasal operations on the insane.

I. OPERATIONS FOR MICROCEPHALIC IDIOCY.—In the year 1890, Fuller, of Montreal, trephined an idiot's skull in hope that the operation would improve the mental condition. Soon afterwards, Lannelongue, of Paris, devised the operation of linear craniotomy for the treatment of microcephalic idiocy. This operation was founded upon the hypothesis that in microcephalic idiocy the fontanelles close prematurely, and ossification of the cranial sutures takes place too early; and that the developing brain is unable to expand on account of the rigidity and non-distensibility of the bony case. The procedure was re-

ceived with enthusiasm. It was floated high on the wave of surgical fashion. It was employed extensively, in widely separated countries, by many operators; but it is now going out with the tide.

In considering this operation, it is well, first of all, to bear in mind that microcephalus is a form of idiocy in which the cranium is of such small size as to be distinctly noticeable. All idiots in which the circumference of the skull is less than seventeen inches Ireland considers to be microcephalic. This is not by any means a common form of idiocy, for probably not more than one idiot out of every hundred belongs to the microcephalic type; hence, in only one idiot out of one hundred is Lannelongue's operation to be even considered.

Beyond any doubt, the fontanelles are found closed at birth in some microcephalic idiots; and occasionally the sutures do ossify prematurely. Once in a while, as Jacobi has pointed out, there is also premature ossification in the bones of the face, and the teeth erupt at too early a period. If microcephalic idiocy were the result of premature ossification, closure of the fontanelles, and non-distensibility of the brain-case, the operation of Lannelongue would have a reasonable foundation; and the surgeon might hope that removing a piece of bone would lessen the pressure upon the brain; the pressure that might have limited brain development; but there seems to be overwhelming evidence against such a view of the causation of this condition. First of all, the size of the head is no proper gauge of the intelligence of the idiot; for we have all seen some microcephalic idiots that possessed more capacity than other idiots with large heads. Premature ossification is the exception, and not the rule. This has been proved by Bourneville, who made a large number of examinations and found that it is just as common for the sutures to be closed less tightly than they should be as for them to be closed too firmly. Again, as Gratiolet has pointed out and Ireland has confirmed, even when the sutures of the vault are prematurely ossified, those at the base are found to lag behind the proper level of development. Furthermore, it should be remembered that it is a rule of the economy for the soft parts to dominate the hard, rather than for the hard to control the soft; therefore, an

expanding brain would be more likely to thin and expand the skull than a contracting skull would be apt to limit the brain.

A study of the brains of microcephalic idiots reveals no signs of pressure. Had there been pressure, the sulci would be shallow and indistinct, and the convolutions would not be definitely marked; but, as Sir George Humphrey points out, the convolutions are clearly outlined and the sulci are distinct. Not unusually, in microcephalus, the spinal cord, as well as the brain, is small; yet this condition, which is strikingly analogous to the other, cannot have been produced by ossification of the vertebræ. Neither can the small heart so frequently found be due to ossification of the ribs.

Again, microcephalus begins long before birth, probably before the fifth month of intra-uterine life. This is evidenced by the fact that at birth certain brain-areas that should be found do not exist. To a small, ill-developed brain, badly formed and even deformed,—a brain that may lack certain convolutions and does lack quantities of nerve-cells that a normal brain would contain,—the skull is moulded. Besides, in microcephalic idiocy there are likely to develop curious structural changes, which could by no possibility be amended by an operation. Furthermore, it should be borne in mind that in idiocy there is a general lack of development. Rickets frequently exists; the patient may be without the sense of sight or that of hearing; some of the bodily structures may be absent; deformities of the toes are quite common; a certain formation of the hand is so characteristic that it has been called the idiot-hand; and the skin is curiously relaxed and inelastic.

I think with Ireland that the skull cannot limit the growth of the brain, and that the brain does not cause a normal skull to expand; but that brain and skull grow together harmoniously, under the influence of an inherent formative force that adjusts each to the other. Believing, then, that premature ossification is not responsible for microcephalic idiocy, I should not use Lannelongue's operation even in these cases. In other cases of idiocy it is not to be considered at all; although some surgeons have recommended that it be performed in those cases also, if there are evidences of pressure. Pressure, however, is not, of course, the cause of idiocy.

I have assisted in a number of these operations in the past, though I have never performed one; and I am convinced that they are absolutely without value. In a condition of general maldevelopment such as idiocy, the removal of a strip of bone cannot create powers that are non-existent. It cannot release the shackles from fettered capacities; and cannot stir a dormant mind, because, for one reason, the powers that are assumed to be shackled do not exist. The cells of the brain are abnormal in character and deficient in number. The surgeon who performs this operation with the idea of causing the brain to develop displays the same judgment as if he were to remove a section from the dome of the cathedral in order to increase the stature of the archbishop and of his assistants.

Some years ago, remarkably favorable statements in regard to this operation were made, but some of the most enthusiastic reporters have since changed their views. For instance, E. Blane was much impressed with the value of the operation in 1890 and for a time subsequent to that date. He has performed it seven times and found that the immediate results were favorable; but later observations of these patients have caused him to change his opinion, as he has found that they all returned to their previous mental state. Several years ago, my friend, Dr. Barr, in the Pennsylvania Institution for the Feeble-Minded, at Elwyn, showed me two idiots that had been reported as instances of notable improvement; yet each patient, in Dr. Barr's opinion, had degenerated after the operation from fairly high-grade to low grade idiocy. In view of these facts, I am persuaded that not only is the operation useless, but that it sometimes actually makes the idiot worse. Lannelongue's operation, of course, possesses decided elements of danger, but a family is not likely to lament the death of an idiot-child under a surgical operation; in fact, it is not improbable that the operation is sometimes sought by the family in the hope that it will either improve the condition of the miserable specimen of humanity or kill it. A surgeon, however, should not be willing to assume the duties of an executioner.

That some distinguished and conscientious practitioners



have been for a time convinced that the operation is productive of good results is undoubted. This conviction seems to have arisen from the fact that there is frequently some evidence of improvement for a brief time after the operation. For instance, Pouchet, as lately as 1902, reported two cases, and stated that one patient was remarkably improved in intelligence thirteen months after the operation. That there is sometimes a temporary improvement, I acknowledge; but a great many of the favorable reports have been made altogether too soon after the operation. Tillmanns cautions us against mistaking a temporary for a permanent improvement. The reason for this frequent temporary improvement is obvious. The idiot, probably for the first time, is placed under careful regulation, positive direction, and scientific control. It is watched and guarded, and its doings are systematically observed. It sees about it new faces and hears strange voices, and it soon feels the effect of these various changes in its life. An anesthetic is given it, and it suffers from the shock of an operation. A powerful temporary effect may thus be produced. Hence, after an operation it is quite common for an idiot to become quieter and more easily controlled; but this improvement does not last, unless the systematic regulation practised just before and immediately after operation is continued. All the circumstances before mentioned serve to concentrate the attention and to utilize what little intelligence may exist.

Again, idiots are subject to outbreaks of maniacal excitement; and parents that have not previously thought of having an operation performed will often decide to have this done when the child has a maniacal outbreak and becomes uncontrollable. When the surgeon first sees the idiot, it is in a state of great excitement; but after the operation this excitement often disappears. The operator may suppose that the idiocy has been benefited, whereas the child has merely returned to its ordinary regular condition. If, later, it is trained and educated, and does distinctly improve, there is a tendency on the part of the operator to give the entire credit to surgery.

After having carefully weighed the reported cases and considered in the light of my own experience, the views of

various authorities, it seems proper to set forth the following conclusions:

1. Microcephalus is not the result of premature sutural ossification.

2. A microcephalic brain is not a more or less normal brain of very small size, the idiocy resulting from the smallness of the parts present; but is always an abnormal and undeveloped and, in a great many cases, a diseased brain. Large areas of it may never be developed; and the cells that are present are small and comparatively few in number.

3. In idiocy not only the brain, but the entire organism is in a condition of general undevelopment.

4. If a strip of bone be removed from the skull, new normal cells will not be produced. Parts that are entirely absent cannot be created, and powers that do not exist cannot be called into being. The operation cannot bring about these changes any more than it could give sight to the blind idiot or hearing to the deaf one, or could make the inelastic skin of the idiot elastic.

5. The reported improvement after this operation is not due to the surgical procedure. Many cases have been reported at too early a date; numbers of those in which improvement is said to have taken place have not continued in this improved condition, and some patients have been made worse. When the improvement has continued, this has been due to proper instruction and care, and not to the operation. Sometimes, also, the alleged improvement has been due to the passing away of a maniacal attack.

6. In uncomplicated cases, the operation is never justifiable; its mortality is nearer 15 per cent than 2 per cent, as alleged.

7. The proper treatment for microcephalus is educational, hygienic, and disciplinary. What activities the brain possesses should be trained, guided, directed, and controlled.

8. Certain complications may arise that would make trephining justifiable: for instance, certain forms of epileptic seizures, muscular spasm, muscular rigidity, or paralysis. The operation may relieve such a complication and contribute to the patient's comfort, but it will not benefit the mental condition.

9. In traumatic idiocy or in cases of idiocy in which definite pressure-symptoms arise, operation may be justifiable.

In opinion I am in entire accord with Dr. Nicholas Senn, who says: "I am free to confess that I have never been able to muster up courage to attack the skull of a poor microcephalic child, because I have always regarded the operation as useless in promoting brain-development. The responsibility of the surgeon is not limited to the defective mental development of the child, nor to the importunity of the parents in demanding an operation at all hazards. The surgeon should stand guard over such a charge, mindful of the limits of the art of surgery." That the operation has been a failure is now admitted by practically all judicial-minded surgeons. Much was expected of it, but we may say of it what Pepys said of the dinner set before him: "The venison-pasty was palpable mutton." It is quite needless to waste our time with the enthusiasts who once claimed that they could empty institutions of idiots by performing this operation.

2. OPERATIONS FOR HYDROCEPHALIC IDIOCY AND IMBECILITY. Of course, hydrocephalus does not always cause idiocy; in fact, it occasionally does not even cause imbecility. In the vast majority of cases, however, it does produce decided mental weakness, and often complete idiocy. A child with marked hydrocephalus rarely lives more than a year or so, and is likely to be rickety and to develop tuberculosis. As a rule, these idiots are heavy, dull and somnolent; and are liable to attacks of persistent vomiting, convulsive seizures, and the development of paralysis.

When one contemplates the hopelessness of the condition in these cases, and the early death that is likely to ensue, or the almost inevitable failure of the mind to develop, one is justified in taking a good deal of risk if there is any hope of improvement. Strapping the head with adhesive plaster or compressing it with a rubber bandage is painful, cannot be long tolerated, and rarely does good; although, after drainage has been inserted beneath the scalp or beneath the dura, it is sometimes advisable to compress the head with a rubber bandage. Tapping through a fontanelle has frequently been done, two or three ounces of fluid being allowed to flow out at one opera-

tion. In a case in which the sutures are unossified and the fontanelles are open, if the ventricle is tapped in this manner, the head should subsequently be compressed with a rubber bandage. In a case in which the skull-sutures are ossified and the fontanelles are closed, the skull may be trephined and the ventricle formally tapped; but tapping has rarely proved of much benefit and is not unusually fatal. Some surgeons have endeavored to increase its efficacy by injecting iodine, but this is not advisable.

Repeated lumbar punctures have been recommended in acquired cases; and in congenital cases, repeated lumbar punctures associated with antisyphilitic treatment. (Immerwol.) Occasionally a patient is benefited by a series of lumbar punctures. As a rule, however, lumbar puncture fails, because in hydrocephalus there is usually closure of the foramen of Magendie with fibrous tissue, or there is an exudation about the foramen magnum, which separates the spinal canal from the ventricular cavity; or there is adhesion of the tonsils of the cerebellum to each other and to the ventricle; or a cyst exists at the posterior and lower part of the cerebellum. (Bruce and Stiles, *Scottish Medical and Surgical Journal*, March, 1898.)

Some years ago, L. L. MacArthur, of Chicago, devised a promising method of operating in chronic hydrocephalus. He introduces a metal tube into the lateral ventricle, the collar about the external end of the tube resting upon the bones of the skull at the margin of the drill-opening, and the scalp being sutured about it. Two cases that he has operated upon by this method have been distinctly benefited. It will be observed that in this operation the fluid of the ventricle is drained into an area in which absorption can take place, and that the great peril of external drainage from the ventricle (which is infection) is avoided. I do not consider it justifiable to drain the ventricle externally for any length of time, but I do believe that MacArthur's operation has elements of great usefulness.

At a little later period, Mikulicz, not knowing of MacArthur's views, performed a similar operation; and somewhat subsequent, to the latter's studies, Troje effected drainage on a similar basis by introducing glass-wool into the ventricle.

Sutherland and Cheyne have devised a method of intra-

cranial drainage. They drain from the ventricle, not beneath the scalp, but into the subarachnoid space. A small opening is drilled in the skull, an incision is made in the dura, and some strands of catgut are pushed through the thin brain; so that one end of the catgut lies in the ventricle, and the other beneath the dura. The dura is then sutured, and the scalp is closed. Absorption is believed to take place from the subarachnoid space.

Bruce and Stiles (*Scottish Medical and Surgical Journal*, March, 1898) advocate trephining in the middle line of the occipital bone, just above the foramen magnum; and draining the fourth ventricle. Any method of external drainage, however, is likely to be followed by fatal infection; and I think that an operation on the plan of MacArthur's, offers some chance of decided benefit, and is far less likely to be fatal than is any other method.

3. OPERATIONS FOR EPILEPTIC INSANITY.—Epileptics are very liable to become insane. They may develop chronic dementia; temporary acute mania after a fit, before a fit, or replacing a fit; or chronic epileptic insanity, which may assume the type of a chronic mania, a chronic melancholia, or a circular insanity. A characteristic of these epileptic lunacies is the occurrence, from time to time, of violent outbreaks and the performing of impulsive acts, the violence coloring whatever type of insanity which may exist, and being linked with advancing dementia and with the occurrence of fits.

The conditions that in ordinary epilepsy without insanity would call for operation, also call for it in epilepsy with insanity. Operation, however, is even far less promising in these cases than in those in which insanity does not exist, because the brain-changes have advanced to such a point that there is almost no hope from any method whatever. Nevertheless, it is justifiable to operate if there is evidence of head-injury; and the procedure may at least lessen the number and the violence of the attacks. If there are focal seizures, one is justified in proceeding as one would for focal seizures in ordinary epilepsy. If status epilepticus exists, one should trephine to relieve pressure; but in the insanity that may accompany ordinary essential epilepsy, no operation of any sort is of the slightest avail.

4. OPERATIONS FOR PARESIS.—About fifteen years ago, considerable interest was aroused by the appearance of certain papers advocating operative interference in paresis. Harrison Cripps operated in 1890. Those who advocated it believed that in paresis there is apt to be increased intracranial pressure, and that trephining might be of value in relieving this pressure. In paresis there may undoubtedly be internal or external hydrocephalus; and in such cases drainage, as already mentioned, may effect some improvement. It is very common in paresis, to have an increased amount of fluid in the subdural space. If this be the case and one wishes to drain, one should bear in mind that in paresis tissue-resistance is very low and that suppuration is easily induced. Some have proposed the establishment of permanent external drainage. In a large number of cases of paresis in the advanced stage, hematoma of the dura exists; and the wisdom of removing such a collection is often questionable. The chronic leptomeningitis with adhesions that is so common a phenomenon can scarcely be improved by operation.

My own feeling is that the advantages of operation were for a time overestimated, because the remissions, so usual in paresis, had not been taken into sufficient account. The claim has even been made that in paresis recovery has followed a severe injury, suppuration, or an attack of erysipelas; hence, the deduction that it might follow the performing of a surgical operation. Personally, I doubt whether a genuine case of paresis has ever recovered; and I am inclined to believe that the cases of recovery reported have been either instances of marked and prolonged remission, or of pseudoparesis due to actual tertiary lesions, or that they belong in the category of those confusing cases in which trauma seems to have been a cause. Mickle believes that trauma does cause genuine paresis and asserts that one case out of fifteen is so caused.

Those who believe in traumatic paresis, may also believe that operation is occasionally curative, but many lean to the opinion that a diagnosis of traumatic paresis is scarcely proper; and that the probabilities are that so-called traumatic paresis is a condition in which the real degenerative lesions present in paresis do not exist, the condition being due to definite in-

jury, tumor, epilepsy, alcoholism, or syphilis. Of late years, operation in these cases has been practically abandoned, as there seems to be no real evidence that increased pressure is a constant factor in paresis. Furthermore in paresis the lesions are widespread; the pons and the medulla and sometimes the cord are affected as well as the cortex, and the lesions can not be removed. I do believe, however, that in a case in which convulsive seizures are marked and frequent, and in which there is evidence of exaggerated intracerebral pressure, operation may occasionally retard the progress of the case; but in a hopeless and incurable disease such as paresis one may, even granting this belief to be well founded, with reason inquire, "Cui bono?"

5. OPERATIONS FOR THE ORDINARY NON-TRAUMATIC INSANITIES AND PARANOIA.—By these designations one refers to cases in which there is no demonstrable causative organic change in the brain; such conditions as simple mania and melancholia, stuporous insanity, primary confusional insanity, and secondary dementia. It is perfectly useless to attempt any operation upon such patients with the idea of curing the insanity, although operation may be justified by the existence of some distinct symptom indicative of local brain-trouble. A. Voisin (*Journ. de Méd. de Paris*, 1896), reports a case of melancholia with suicidal tendencies in which there was severe and persistent headache in the left temporal region. A craniotomy of the left temporo-parietal region disclosed an area of pachymeningitis, and there was found a cyst in the motor region. Complete recovery from the mental symptoms followed this operation. This is an exceptional case, as cysts and meningitis are not commonly associated with melancholia.

Galien de Clérambault (Picqué and Dajonet: "*Chirurgie des Aliénés*," 1902), makes the extraordinary statement that mania, melancholia, and even paresis may greatly improve after operating upon othematoma. This seems to me to be a proceeding of the same degree of wisdom as tinkering at a weather-vane, in the hope of altering the direction of the wind; or attacking a thermometer for the purpose of regulating the existing temperature.

6. OPERATIONS FOR HYPOCHONDRIACAL DELUSIONS.—We

must bear in mind that a delusion pointing to a particular part is not proof that there is disease of that part. Some few delusions do have a visceral basis, but the fact that a delusion has a visceral basis is no proof that the insanity is due to visceral disease. In hypochondriacal insanities the attention is likely to be concentrated upon one region or upon one series of sensations, and physiological or pathological sensations undergo morbid magnification. To remove a region of disease may abolish or alter the sensations, but it cannot cure the morbid mind, for the delusion results from the insanity and does not cause it. Such an operation, however, may be followed by the shifting of the attention to another region. I have never seen the mental condition one whit improved by any procedure looking to the removal of sensations that held the attention. While assistant physician in the Blockley Lunatic Asylum, I used to be more enthusiastically hopeful than I am at present; and I tried upon one of the patients an experiment that, although not surgical in nature, may be regarded as analogous. The man complained of constant disagreeable sensations in the stomach, and became imbued with the idea that there was a kitten in his viscus. The large feline population of Blockley was called upon and a kitten was obtained. I administered an emetic to the patient, and showed him the kitten in a bucket. He seemed highly gratified, and went cheerfully out into the yard; but in less than an hour he returned to the ward and stated that he also had another object in his stomach, my recollection is that he said it was an eight-day clock. This is an illustration of the utter futility of surgical procedure in such cases.

Some surgeons and some neurologists think differently, however. Picqué and Feboré (*Arch. de Neur.* v. viii. 1899), say that sometimes physical suffering is wrongly interpreted by the patient, and that to correct the physical condition may lead to great improvement in mind. In patients with delusions secondary to hypochondriacal obsessions, however, while they claim that great improvement in the general condition may follow the arrest of a uterine hemorrhage, the correction of any other exhausting condition, or the prevention of



a debilitating intoxication, they admit that the primary mental disease will not be cured.

A series of cases in which operations were performed in hope of removing delusions is reported by J. Mallet (*"Indications opérations chez les aliénés,"* 1901). The first case shows the extraordinary length to which some surgeons would go in performing operations. The patient was a young woman with obsessions, who had been committed to the asylum on account of an attack of intermittent insanity. She thought that she had a deformity of her breasts, and this fixed idea persecuted her. In spite of assurances from various sources that her breasts were normal, she insisted upon having them removed. The medical attendant consented to her having this operation performed; but shortly afterwards the patient was seized with the idea that her fingers were deformed and ought to be removed. One is then rather surprised to learn that operations for the successive removal of individual phalanges were performed. This case shows how thoroughly futile are such procedures.

Case 2 was a girl of twenty-five years suffering with various obsessions. Her breasts were removed by a surgeon whom she deceived with a history of neuralgia. No benefit followed.

Case 3 was a woman operated upon for a strangulated hernia. An artificial anus was made. Soon after the operation she developed agitated melancholia with suicidal tendencies. The artificial anus was closed, and the patient recovered from her mental disease.

Case 4 was a woman with melancholia and hypochondriacal delusions. Alexander's operation was first performed, and then hysterectomy; because the patient's delusions referred to the abdominal organs. The operations were not followed by the slightest amelioration of the mental symptoms.

The fifth patient was a woman with hypochondriacal delusions, and several abdominal operations did her no good.

The sixth case was a man of twenty-five years of age who was suffering under paranoia with hypochondriacal delusions. He was operated upon for varicocele; then for the scar that resulted from this operation; and later for a hernia. There was no amelioration of the mental symptoms after operation; and, in fact, the patient developed tendencies to homicide and suicide.

It will be seen, then, that of these six cases, operation was followed by improvement or cure in but one; and there is not the slightest evidence that in this case the operation contributed to the cure. The author concludes that a patient suffering under obsessions with a solitary fixed idea should be operated upon, if there is a real lesion or malformation for which an operation is indicated. He then very wisely says that if the lesion is of little importance, one should abstain from operation; and that one should also abstain from operation if the fixed ideas are multiple. He thinks that a psychosis resulting from an obsession that is itself the result of an evident lesion will be improved or cured by operating. It seems probable to me, however, that the obsession is the result of the psychosis, rather than the psychosis that of the obsession. Mallet would not perform any operation for melancholia with hypochondriacal delusions, except possibly during the period of convalescence. He is uncertain whether surgery can be of benefit when there are persecutory delusions, especially in paranoia. He thinks, however, that they are rather contraindicated. From the cases reported by him, we can properly conclude that there is practically no evidence that operation is ever indicated.

7. OPERATIONS FOR HALLUCINATIONS.—A few years ago, Burckhardt made the rather remarkable suggestion that a surgical operation should be performed upon the brain in certain cases in which there are vivid and harassing hallucinations. In some cases he would remove the special-sense center; in others, divide the fibers of communication between the centers. He states that he has excised part of the verbal auditory center for hallucinations of hearing, with resulting diminution in the hallucinations and improvement in the mental condition. This operation seems excessively theoretical; for it assumes to know the seat of hallucinations with certainty. It is more than probable that insane hallucinations are of centric origin and arise in the cortex, but it is also known that they may be due to an oversupply of blood and that they may follow simple intoxications. Operation seems to promise so little and to be such a formidable affair that one would be inclined to apply to it the elder Mr. Weller's remark concerning

matrimony, in which he questioned whether it was worth while to go through so much to learn so little.

8. OPERATIONS FOR TRAUMATIC INSANITY.—By the term traumatic insanity may be meant either one of two distinct groups of cases. Those cases in which the traumatism has caused no gross lesion and in which, on account of trivial shock, mental or physical, the patient has developed a distinct neurosis, on the basis of which a psychosis has been constructed, belong to the first group. Such cases occur not infrequently after a railroad accident in which a person has been injured, possibly but slightly; has been subjected only to jarring and oscillation; or has merely received a mental shock. Such a person develops neurasthenia and often hysteria; and may then pass into a state of confusional insanity, melancholia, mania, stupor, hypochondria, or dementia. In this group of cases, operation is not to be thought of.

In the second group the injury, as Dr. A. B. Richardson (*Am. Jour. of Insanity*, July, 1903), remarks, is "the direct and sufficient" exciting cause. The insanity may arise immediately or quite soon after the injury, but more commonly it does not become apparent until weeks or months have elapsed. Patients with this form of traumatic insanity have almost all been hereditarily predisposed to insanity; indeed, Krafft-Ebing says that all have been, but this statement appears somewhat radical. One often finds that the friends or relatives of insane persons insist that a head-injury has been the cause of the condition. In discussing this matter some years ago, I made the following remarks: "It is often customary on the part of the relatives of a lunatic to assign traumatism as the cause, believing that by so doing they cover up the alleged disgrace of having an insane relative. The mere fact that an individual has had a blow or fall or shows a scar about his head is no proof that the insanity is traumatic in origin; and even when traumatism can be truly assigned as the cause, it is usually only one of many causes—an exciting cause acting, as a general thing, on a predisposed nervous system. The great predisposing causes of insanity are heredity, inebriety, and mental worry of some kind or other; and in the vast majority of so-called traumatic lunatics it will be found that one

or other of these causes has frequently, though not invariably, been present. I would not, however, deny the fact for a moment that even in the healthy brain an injury could establish the insane state." (The author's address on Surgery, delivered at the meeting of the Medical Society of the State of Pennsylvania, May 18, 1897.

An antecedent injury may have directly induced the alienation; it may have had no bearing at all upon the latter; or it may have produced an insanity by fear and shock, and not by creating a direct brain-lesion. Again, the head-injury, by increasing the individual's susceptibility to alcohol and to the effects of the sun, may, if this person drinks alcohol or exposes himself to the rays of the sun, be indirectly responsible for lunacy.

In insanity following an injury to the head there may be various supposed causative lesions: A fracture of the skull, with or without depression; the development of an exostosis; sclerosis or softening of the cortex; edema of the membranes or of the brain itself; cerebral hyperemia or congestion; thickening of the membranes; adhesion of the membranes to the skull, to each other, or to the brain; new growth; inflammation of the membranes; or minute, slowly developing, widespread, nutritive changes. The injury may be assumed to be the cause of the insanity if the insane condition becomes manifest almost at once or soon after the accident; but if the symptoms do not appear until long after the accident, the traumatism may be considered to be the directly exciting cause in some cases, and not in others. It may be blamed if, between the time of the accident and the appearance of the insanity, there has been a marked change in the patient's disposition, temperament, or character; if he has developed headache, insomnia, irritability, passionate outbreaks of temper, moodiness, or lapses of memory; if he has plunged into immorality or excesses in alcohol; if he has displayed a tendency to neglect business or family obligations; and if he has shown increased susceptibility to alcohol and to the sun. Sometimes epilepsy may develop during this period. (Richardson: *American Journal of Insanity*, July, 1903. The author's "Address on Surgery," delivered before the meeting of the Medical Society

of the State of Pennsylvania, May 18, 1897.) If there were none of these intermediate changes in the normal mode of thinking and way of acting, one cannot count the traumatism as causative. Many persons that have received severe head-injuries have shown these changes, but have never gone insane. I have been studying this point for a number of years, and have decided that quite a few patients that have been trephined for fracture or for meningeal hemorrhage have subsequently shown pronounced and permanent changes in character and disposition. Of the number that show such changes, many never go insane, but some do. Such an insanity is distinctly traumatic in origin.

The frequency of genuine traumatic insanity as compared with other insanities seems doubtful. Bevan Lewis thinks it quite common, and believes that a large number of recurrent insanities in males are traumatic in origin. While an assistant to Dr. John B. Chapin in the Pennsylvania Hospital for the Insane, I became interested in this subject; and, after considerable investigation, reached the conclusion that traumatism is not commonly a direct cause. It is the direct cause in probably not more than 2 per cent. of cases. Schlager claims 8 per cent. Kiernan found 45 traumatic cases among 2,200 lunatics.

Various forms of insanity may be developed by traumatism; automatism, stuporous insanity, mania with acute hallucinations and violent outbreaks, melancholia, paranoia, and organic dementia. Sometimes, in a middle-aged or even in a young person, the traumatism will be followed by a condition that seems to be identical with senile dementia. Traumatism may also induce a condition that closely resembles paresis; and some observers—notably Mickle—believe that it may induce genuine paresis.

Does traumatism produce any special type of insanity? I have never been able to persuade myself that it does. Clouston thinks that there is a special type, and maintains that typical cases have headache, vivid hallucinations, and motor symptoms (convulsions, slight hemiplegia, and speech-disorder); and that the mental condition is marked by irritability and impulsiveness, with advancing dementia or fixed delusions.

The prognosis of traumatic insanity is bad. Some patients get well after operation; others recover without operation. In some cases in which recovery followed trephining no causative lesion was disclosed by the operation. Some of the cases operated upon in which supposed causative lesions have been removed, have not recovered. That an operation sometimes cures, by removing a lesion, seems proved; for instance, by elevating a depressed portion of bone. This was demonstrated by Skae's celebrated case. Operation sometimes cures indirectly, by the effect of shock, etc.; and cure following an operation is sometimes merely a coincidence.

In which cases should operation be performed? In a case in which insanity has soon followed a head-injury, if the site of the trauma is indicated by a scar, a depression of bone, local tenderness, fixed headache, or some localizing symptom,—motor or sensory,—operation should positively be undertaken. In a case in which the insanity has developed later, in which the intermediate period between the injury and the development of the insanity has shown the change from the normal mode of thinking and way of acting previously alluded to, and in which the site of trauma is indicated by any of the evidences mentioned above,—operation should positively be performed. One should not operate upon a case simply because there is a dubious record of an antecedent fall or blow, which merely suggests the possibility of a traumatic origin for the insanity. In any case in which there are positive signs of increased pressure, it may be considered proper to trephine as a palliative measure.

9. ABDOMINAL, GYNECOLOGICAL AND GENITOURINARY OPERATIONS ON THE INSANE.—Some believe that such operations have a directly curative effect upon insanity. This is highly improbable, however; and the improbability becomes greater when one remembers that such operations do not cure epilepsy. Operations of this character may prove indirectly beneficial, by improving the general health, relieving pain, permitting sleep, and deviating the attention from morbid concentration upon a particular region.

Some insane women have pelvic disease. Some of them require operation, many do not. If an operation would be

esteemed necessary were the person sane, it is usually a proper procedure to undertake when the patient is insane; as the latter is as much entitled to relief from suffering as a sane person would be, and her mental condition may improve with the improvement in her physical state.

The diagnosis of pelvic disease in the insane is often difficult, as it must be made from objective phenomena alone; for the patient may volunteer no statements at all, or may make statements that are entirely unreliable. I have already discussed the question of operating with the idea of improving delusional conditions. We should lay it down as an absolute rule that no surgeon should remove a healthy organ because visceral delusions exist.

That laparotomy frequently does not benefit insanity at all is shown by a group of cases reported by Picqué (*Progrès méd.*, 1901, p. 209). In one of these, an ulcer of the stomach perforated. This patient had melancholia with suicidal tendencies. She recovered from the operation, but nothing is said of any improvement in her mental state. This author also operated upon a case of hæmosalpinx in a woman five months pregnant. She subsequently had a normal confinement, but no mention is made of improvement in her mental condition. He likewise operated upon a case of suppurative cholecystitis in a person suffering from alcoholism with suicidal tendencies, delusions of persecution, and hallucinations. There was recovery from the operation, but no improvement in the mental state is noted. The same remark applies to an operation for pyosalpinx and one for suppuration of the mastoid process, with cerebral abscess. As Picqué makes no mention of improvement in the mental condition following operation in any of these cases, one is justified in concluding that none took place.

A. T. Hobbs is a strong believer in operating upon the insane. He makes a report in the *Canadian Journal of Medicine and Surgery* for July, 1900, first commenting upon the difficulty in making the diagnosis in such persons. He shows that often there is no pain, although a like condition would produce pain in sane persons; and he points out how frequently, even in serious disease, an insane patient makes no complaint whatever. In making a medical examination he often gives

ether, but considers chloroform dangerous. He is impressed with the small amount of shock that follows operation on the insane, and with the fact that postoperative pain is so slight. Out of 211 insane women, 179 exhibited well-marked signs of pelvic disease. He operated upon 116 of these, with 2 deaths. Ninety-eight of these had tubal and ovarian disease of inflammatory character, including peritonitis. Of these, 51 per cent. were restored to mental health and 7 per cent. were markedly improved mentally. In the group of non-inflammatory troubles,—tearing of the perineum, uterine displacements, tumors, etc.—25.5 per cent. regained mental health and 31 per cent. improved. There were 70 of these non-inflammatory cases. Of the 112 recoveries, 51 patients had been insane for two years. This is the best set of results given by any author with whose paper I am familiar, in fact, these results are extraordinarily favorable.

Ernest Hall (*Pacific Medical Journal*, Feb., 1899) has reported the case of a woman fifty-two years of age. She was suffering from her second attack of melancholia, this attack having lasted three years. He operated, and found a retroverted uterus bound down by firm adhesions. The clitoris was loosened from adhesions, the uterus was dilated and curetted, the abdomen was opened, and omentum was found adherent to the belly over a large area. The pelvis was a mass of adhesions, and it was with great difficulty that the uterus could be freed from the sacrum and the bowels. The right ovary could not be found; but the left ovary and tube were removed. Ventro-fixation of the uterus was performed, and the abdomen was closed. On recovering from the anesthetic, the woman's mental state was found to be already improved; and subsequently to the third week after operation, she exhibited no indications of mental trouble. Nine months later, she was well, and had gained thirty-five pounds. It is, of course, doubtful whether this recovery will prove to be permanent, as it was the patient's second attack of melancholia, and there was a strong family history of insanity.

I have operated three times for strangulated hernia in insane men. Each one suffered from secondary dementia, and not one showed mental influence. In a case of empyema of



the gall-bladder in a patient with chronic delusional insanity distinct temporary improvement followed operation. In an operation for acute appendicitis performed upon a man suffering from melancholia and in the sixth month of a first attack, the melancholia gradually passed away within two months of the operation, but I do not think this was because of the operation.

The most notable improvement I have ever seen follow operation took place in a female the victim of hypochondriacal melancholia, who suffered from cancer of the breast. The improvement after operation was immediate and decided and lasted for four months, when she became as before.

J. Colombani ("*Chirurgie des Aliénés*," 1902) reports a urinary disease, and claims that operations for the latter frequently improve the mental trouble and sometimes remove it entirely. He believes that psychoses may be directly produced by disease of the genitalia; and that if they are so caused operation is indicated. He admits that the presence of the stigmata of degeneracy should make the surgeon careful about interfering; but thinks that when hypochondriasis is directly dependent upon the local disease, the patient will be greatly benefited by operation.

Royet read a paper on the Relation of Mental Diseases to Diseases of the Nasopharynx, before the Thirteenth Congress of Alienists and Neurologists. In this he claimed that treatment of and operation upon the disease of the nasopharynx may remove the mental disorder. He advocates systematically examining the nasopharynx of every insane patient.

In spite of these commendatory remarks from various specialists, I still believe that it should not be the rule to perform operations upon the abdomen, the genito-urinary organs, or the nasopharynx, with the hope of curing the insanity; but I freely admit that such operations should be done when the disease is of sufficient severity to call for interference, and that in some cases the performing of such operations may be followed by improvement in the mental condition.