

Atropin was used six months and the correcting glasses worn constantly, with the result that ten years later the eyes were straight and the vision binocular and normal.

*Case 4.*—Boy aged 8; convergent squint of the left eye, noticed when year and a half old as alternating but now fully fixed; ophthalmoscope revealed perfectly clear media, and a hyperopia in the right eye of two dioptics, and in the left of two and a half; vision of right eye 20-30; of the left 20-100. Glasses correcting the hyperopia, both straightened the eyes and substantially improved the vision of the fixed eye. This improvement continued till vision of the squinting eye was equal to that of the other, and nine years later the vision continued normal and the eyes perfectly straight.

The last two cases were clearly non-operable. True, a tenotomy would have rendered the eyes straight, but later they would have diverged.

To avoid complexity, simple hyperopic cases are selected, but cases of hyperopic astigmatism, simple or complicated with hyperopia obey the same laws.

It follows that in every case of uncomplicated squint, the question arises, Does it belong to the class of congenital amblyopias or no? If the answer be affirmative, the case can be operated upon at once for cosmetic effect—there being no hope of improving vision. If the answer be negative, we must separate the operable from the other cases. The following has been found a safe method of procedure:

1. Eliminate all cases of paralysis.
2. With the ophthalmoscope, detect all squints due to opacities in the refracting media and treat them by operations, as in congenital amblyopias, for cosmetic effect merely.
3. Determine the vision of each eye, and the kind and degree of ametropia under mydriasis.
4. Correct the full amount of ametropia, and if this renders the eyes nearly or quite straight, an operation is inadmissible and the cases will probably go on to full recovery, under the use of glasses and atropia.
5. If glasses and atropin produce no perceptible effect upon the squint, then a tenotomy of one or both recti is indicated, followed by the use of glasses to relieve the eye strain and retain the eyes in the position resulting from the operation. The securing of binocular vision in this class of cases is materially aided by gymnastic training of the weaker muscles, and the coöperation of all.
6. The time for operating upon convergent squint depends entirely upon the ability of the surgeon to separate the operable from the non-operable cases. An operable case is best treated as early as the coöperation of the patient can be assured—usually at about 6 years.
7. If glasses correcting the full ametropia be worn at an early date, the normal relations of convergence and accommodation are soon established, better developed during child growth, and the ultimate vision more perfect.
8. To secure the best results, calls for much attention to the management of these cases, during a period extending over months or even years.
9. As to the final balance of the internal to the external recti, a proportion of 4 to 1 has given the greatest comfort to patients, and the best vision under all circumstances.

#### CONCLUSIONS.

1. Strabismus is always a symptom of some morbid or congenital defect.
2. Success in its relief, has increased in direct proportion to our knowledge of these conditions and defects.

3. Strabismus due to opacities of the refracting media or to congenital amblyopia, can only be treated by operations, and solely for cosmetic effect.

4. Strabismus due to the combined action of hyperopia and normal recti, is treated by tenotomy or advancement, atropin mydriasis, suitable glasses and gymnastic or innervation exercises.

5. Binocular vision is to be sought for in all cases other than those due to opacities of the refracting media, congenital amblyopia or organic disease of the retina or optic nerve. With sufficient perseverance, it is attainable in a fair proportion of cases.

6. Recent studies of heterophorias afford substantial aid in the better management of squint, by the new standards of both operative and gymnastic work, by the more convenient and reliable instruments for examination, and finer ones for operation.

7. There yet remain a number of cases of squint not explicable by our present knowledge, or amenable to treatment by accepted methods. To bring these under definite law, both as to cause and management, remains for the student of ophthalmology.

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#### CONSERVATIVE BRAIN SURGERY.

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In "Lectures on Intracranial Surgery," published in this JOURNAL, June 8, 1895, by Dr. Emory Lanphear, certain statements are made that are not warranted by pathologic and alienistic knowledge, certain operations are recorded as having been performed that are not justified by the literature or experience of those most competent to judge; and the results of the operations being unfavorable, and in some instances causing death, the conclusions of the paper alluded to are improper, and if recklessly absorbed and acted upon by others may be productive of further discreditable surgical interferences, and revolt of the laity against "butchery," as many unsuccessful operations are styled, even when these are judiciously and justifiably done.

That Dr. Lanphear is a "brilliant operator" is well known, but when this ability is unassociated with other requisites it is like pyrotechnics near a powder magazine. He speaks of "insanity from softening of the brain." He can not find such an expression in any work on insanity worthy of the name. At this date, to speak of "softening of the brain" as any kind of insanity, would place the physician who used the term upon the level of the public, untrained in any kind of medical information. "Softening" is not an initial lesion, but merely a consequence, and where found associated with cerebral defects, mental, motor or sensory, it is subsequent to hemorrhage, compression, contusion, plugging of arteries or veins that originated such defects. Extensive softening may exist without insanity, and often, when found in the brains of the insane, is not related to the insanity in the remotest degree.

Trephining to relieve compression of a cortical, or even to reach a reasonably accessible subcortical neoplasm, either of meningeal or neuroglial origin, or to raise a depressed piece of bone, or remove an exostosis, or to evacuate an abscess that can be reached without running the risk of murder, no one should find fault with, but when it is proposed to open the brain for an embolism situated usually near the cerebral base, most often in some Sylvian artery branch,

an embolism that may be resorbed if nothing whatever is done, is surgery worthy of the Middle Ages.

Dr. Lanphear is surprised that he "can find no published reports of operations for epileptic insanity," and supplies the void by telling of two cases operated upon by Dr. A. B. Shaw, both of which availed nothing. This operation for "insanity from softening of the brain—complete relief," describes an aphasic who had a few symptoms of traumatic insanity and who consented to the operation. "He was discharged in excellent condition, mentally and physically." It is too bad that no statement of his *present* condition three years after the operation is afforded us. It is safe to assert that, if living, the patient is worse than before the interference, not necessarily from the operation, but from the natural unrelieved course of such derangements.

The Doctor quotes an author whose reputation is quasi-scientific and popular—Maudsley, on the "Pathology of General Paresis" (paretic dementia): "Morbid adhesions of inflammatory origin, slowly spreading between the cortex and its investing membranes," and says: "If, then, by surgical means, we can arrest the spread of the trouble while it still involves that part of the brain which presides over," etc., etc. Ten years ago Spitzka, in his "Manual of Insanity" elaborated the pathologic anatomy of paretic dementia, and such conditions as Dr. Lanphear quotes from Maudsley are not mentioned, but other things are, such as intense degenerative processes in the brain and cord, pial adhesions to the cortex, cystic degeneration of the cortex, sclerosed and obliterated blood vessels, granular change in the ventricle endyma, the nerve cell degeneration and formation of the "spider-shaped cells of Meynert," the most constant and intense changes being *in the pons and medulla oblongata*, sclerosis of the cortical vessels, kinked, distorted, aneurysmal, plugged vascular channels, and, in short, "there is scarcely a ganglion or fiber tract that may not be affected." (Spitzka p. 228). Or, take the older English work of Mickle, "General Paralysis of the Insane," with the specified individual autopsies showing extensive general brain alterations, and the quotation from Maudsley becomes insignificant as a pathologic suggestion for cerebral surgery; as well attempt the diversion of Niagara River by opening a faucet.

Remember, also, that remissions of weeks or months and, in extremely rare cases, of years, have occurred in paretic dementia histories, and the temporary improvements after operations in a few cases may be accounted for. The reduction of one case to dementia proper by trephining can scarcely be called a success, for such an interpretation we can place upon Rey's case, which "afterward remained calm and quiet." . . . "The subsequent history is unknown." One can be "quieted" with a brick. In another, "there was great improvement but the patient died in six weeks." In this case there was *cerebral atrophy*. How could trephining be expected to relieve atrophy of the brain?

As for syphilitic insanity, common sense would suggest a fair trial of K. I. before operating to relieve gummatous membranes. He says: "Manifestly, some of them can be readily removed by the knife." But how about those which can not?

Under the head of "syphilitic insanity," the Doctor narrates an epileptic insanity case, not considering that both these psychoses have separate and dis-

tinct clinical peculiarities. The operation "was characterized as a gross outrage" by the asylum physician; the patient died nine months afterward. "Had an operation been performed upon the right side of the head, subsequent to the one upon the left, the probabilities are that cure might have resulted." By what reasoning does Dr. Lanphear arrive at this conclusion? If removal of the "greater portion of the left parietal bone" was not sufficient, why, in the absence of any focal indications should the right also be removed, any more than the frontal and occipital? Unchecked, unchallenged, our "brilliant operators" will be removing the temporals and sphenoids next.

The quotation from Horsley is misapplied. Remove an affected area by all means, if well made out by focal or other definite symptoms to be in an accessible part, but for diffuse syphilis of the brain, or idiopathic epilepsy, in most cases, it is little short of homicide to attempt cerebral surgery where the operation becomes but an aggravation of inflammatory or allied states, beyond reach, as multiple gummata are likely to be.

Burkhardt's six cases of paranoia are cited. A fanciful psychology of the association paths of the brain was invented to warrant the cutting. "Ideogenic areas" are familiarly mentioned as though definitely localized. "A portion of the frontal and parietal lobes before and behind the ascending convolutions were removed with very satisfactory results in one case." What the "very satisfactory results" were, are not mentioned. "The other died from convulsions on the sixth day." "Satisfactory results" were obtained in three other cases. In one, "recovery from the paranoia was perfect."

The imperfect record in most of these cases, the ambiguity as to the effects of the operations, the neglect of detailed accounts of the condition of the patients for any period, short or long, after the surgery, and the general "altogetherness" the *tout ensemble*, reminds one of "Alice in Wonderland" narratives, written to startle and entertain, rather than to contribute seriously to science.

The Doctor's twelve rules seem to have been hastily written. The importance of the errors in them make it necessary to call attention to the dangers of following such blind leadership.

#### "RULES FOR TREPHINING FOR INSANITY."

"1. Every depressed fracture of the skull should be subjected to operation at the time of the accident, regardless of the amount of depression and irrespective of pressure symptoms."

This rule might apply to any case of obvious fracture. Insanity is rarely demonstrable immediately after a fracture of the skull.

"2. Every case of prolonged unconsciousness following a blow in the frontal region should be trephined for exploratory purposes; upon both sides, if necessary."

How long is "prolonged?" Ordinary cerebral concussion may be attended with prolonged unconsciousness and the occipital region may be injured by a frontal blow. It might be brilliant to trephine over *contre-coup* locations. The removal of the entire skull would be thoroughly exploratory.

"3. The skull should be opened in all cases of insanity dependent upon trauma, at the earliest possible moment after development of the mental symptoms."

Symptoms usually develop in such cases many years after the injury. Should the mental part of the brain be opened up, and if so where is it? When insanity supervenes from trauma the brain, in the vast majority of cases, has undergone permanent change without definite localization. What good would opening the skull do, aside from making a fee?

"4. Operation is justifiable in every case of serious suspicion of tumor, abscess, or softening of the frontal (or any other accessible) region."

*Stet*, with the exception of the word "every," which is too sweeping.

5. "Operation is advisable in every insanity following cerebral or meningeal hemorrhage in which localization is possible, the clot accessible and the mental trouble of recent development."

Such combinations are extremely rare, and there is nothing in medical or surgical literature to cause enthusiasm over trephining cases of cerebral hemorrhage. The suspicion attaches that death has been precipitated by many such operations, while expectant treatment has been rewarded by a fair number of recoveries, and a large number of partial recoveries. Sometimes the operation has restarted a deep-seated hemorrhage and the usual inability to differentiate cortical from basilar or subcortical and inaccessible recent ruptures of vessels make the operation exploratory, which, of itself, is adding to a trouble without reasonable certainty or assurance of benefit. The chances for aggravation by trephining outweigh the possibilities of relieving.

"6. Every case of insanity developing in the history of otitis media suppurativa deserves immediate exposure of the favorite site of cerebral abscess."

In fact, the simple operation of taking away the temporal bone or a large part of it. Exploration of the middle ear, the mastoid cells and a careful study of the case had better precede opening the temporal region. The bones may be found carious, an abscess may be evacuated in that neighborhood, but the chances are that an extensive meningo-encephalitis is the pathologic condition, in which case less harsh measures would be of more avail, and decidedly less dangerous.

"7. Trephining for the purpose of breaking up adhesions of an old meningitis has been successfully practiced though it is not to be strongly advised."

Particularly, if the meningitis is basilar or universal or even covering a large brain area. The mere matter of tearing off a few inches of cortex with the adhesions might have some attention. Certainty of a very circumscribed, easily accessible and small pachymeningitis offers chances for operating, but more study should previously be accorded the case than the rash operator indulges.

"8. Establishment of permanent drainage beneath the scalp is permissible in the beginning of a terminal dementia succeeding chronic hydrocephalus."

What earthly benefit can accrue from interfering with the brain, or even the scalp, of a terminal dement, when the hydrocephalus is compensatory, the cerebral lobes shrunken, *atrophied*, *sclerosed*, every vestige of hope of return of reason vanished as though the head were cut off? The fluid merely fills the space between the shrunken brain and the meninges.

"9. Operation for epileptic insanity is advisable whenever there are symptoms pointing to a focal lesion."

This could apply to any Jacksonian epilepsy of cortical origin. Such instances are one in a thousand among the insane and the brain disorganization is too advanced to make it a warrantable operation. Observe the extravasations, the leucocytic exudates that have organized at the brain base, the universal heavy dense membranes and adhesions found in epileptic insane autopsies, and then, even with a focal lesion, which is not the only brain trouble, what hope is there from an operation?

"10. Experimental trephining in the early stage of general paralysis of the insane is considered worthy of further trial."

Every such experiment has been a wretched failure, beside too many cases of general paralysis of the insane (paretic dementia) have been improperly diagnosed as such. An alienist would feel like throttling an operator who cut into the skull of a maniac, whose chances of recovery are excellent, through mistaking his case for one of paretic dementia, which has been repeatedly done.

"11. Operation should be done for even a suspicion of the existence of a gummy deposit in the bone or meninges."

If gummata are in one area they are probably in another; a favorite site is about the pons and in the course of the sixth pair of nerves. The removal of a single gumma or group of gummas from one part does not check the disease. A vigorous saturation with K. I. would be all that is primarily warranted and particularly where only a "suspicion" of a gumma existed.

"12. The formation of fenestræ in the skull is permissible whenever there is evidence of intracranial pressure, even of unknown origin. "Sometimes cerebral pressure is from constipation. We have such articles as cathartics, ergot, iodid of potassium, and a neurologist might hit upon some other means of relieving intracranial pressure, if the term intracranial is meant in the sense in which we use the word intrauterine. In another intracranial meaning an exostosis, or what is sometimes improperly called an endostosis, may produce brain pressure and the fenestra might help, or it might afford an opportunity for hernia cerebri, which is scarcely desirable."

There is something in Lannelongue's craniotomy (not craniectomy) in cases of primary synostosis to allow the brain room to expand, and if surgeons would allow the alienist to select cases of idiocy and imbecility suitable for operation, instead of rushing into craniotomy with the average surgical unfamiliarity with the insanity, the percentage of successful results would undoubtedly rise. Where the brain has undergone permanent retrogradation, and of this the alienist is the best judge, there can be no hope from any treatment.

Imagine the resentment of the surgeon were some neurologist to venture advice in a case of intestinal resection, but the alienist has as good a right to feel insulted when a surgeon, who has but the most superficial ideas of psychiatry, promptly takes up his knife and trephine and proceeds to "cure" incurable dementes, imbeciles, and other comparatively brainless unfortunates, without seeking advice from those who make such matters a life study. There are vast experimental fields left over from the last century in clitoridectomy, circumcision, rectus muscle snipping for insanity, in spite of the failure of the great Chicago "orificialist" with his sphincter cut-

ting for mental and all other troubles, including baldness and corns, and notwithstanding the controversy between the State Board of Charities and another "officialist" who castrated a lunatic now in the Elgin Hospital for the Insane.

Castration, oöphorectomy, sphincter, and ocular rectus muscle cutting, clitoridectomy and other reflex pleasantries, can earn fees at less risk to the patient, just as well as brain surgery with inferior knowledge of psychiatry and cerebral pathology, even when performed by a "brilliant operator."

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## THE AURAL MASSEUR IN THE MANHATTAN EYE AND EAR HOSPITAL.

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The aural masseur described by me in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION of May 11, 1895, had given me such good results in the treatment of defective hearing and tinnitus aurium, in cases of otitis media catarrhalis chronica, that I sent an instrument like my own, some six months ago to Dr. D. B. St. John Roosa for a thorough trial and opinion on its merits. He placed the instrument in the Manhattan Eye and Ear Hospital, where it was tested thoroughly in charge of Dr. Bretano Clemens who has sent me the following report:

I submit to you some results of my observations of the use of your electro-pneumatic masseur in cases of tinnitus aurium. Of late years so many instruments have been brought to the notice of the profession for the relief of this distressing affliction, and the advantages of each have been so strongly maintained by their various supporters, that I undertook the task of ascertaining the special field of usefulness of your masseur with some prejudice against it. The relief obtained in a number of cases in which other known methods and remedies had failed, however, has convinced me of the merits of the instrument, and of the correctness of the principle upon which it is founded. My tests of it have been made in all classes of cases of non-suppurative ear disease associated with tinnitus aurium, viz., otitis media catarrhalis chronica, including, the hypertrophic and the atrophic forms; disease of the auditory nerve, and in the mixed form where the sound-conducting and sound-perceiving apparatus are simultaneously involved. It will be seen from the details hereafter given, that some cases were more promptly benefited than others, and that in a few, the tinnitus was so much intensified that further use of the method was out of the question.

In applying the instrument, I was particularly cautious *not* to depend upon a patient's statement that the machine was "working," but by substituting the pneumatic speculum of Sieglé for the ear tip you sent with the masseur, I could distinctly observe the movements of the membrana tympani and malleus to my entire satisfaction.

The usual hyperemic conditions observed after using the Delstanche masseur, I have never witnessed after an application of your instrument.

Premising, that upon the whole, the use of your instrument has demonstrated its value to my mind, the following are the details of a few cases which I

have been able to observe, and which will serve to facilitate the further study of its application:

*Case 1.*—Male, physician, aged 55. Applied for relief of tinnitus on Feb. 5, 1895. History: distressingly loud tinnitus, like escaping steam, and distressed for past ten years; occasional attacks of vertigo which are slight; plethoric, and unsteady in walking. Objective examination: both membranes very opaque, some retraction and hyperemia along the malleus handle.

Tests: watch R., 0-60; L. 0-60; whispered voice R. 0. L. 0; no improvement after inflation. Absolutely no bone conduction for forks C1, C2, C3 and C4. C fork was perceived only for an instant. Slight aerial conduction of low tones only.

This patient had been treated by many famous otologists of this country, but derived no benefit from their efforts. Removal of the ossicles was advised several times, but absolutely refused. The masseur was used with no effect for several weeks, applications being made tri-weekly, but on March 15 he reported with much glee that the noise had suddenly left him the night before for the first time in many years, and remained away for twenty-four hours. He is much improved; the noises though present, are not distressingly loud. This treatment was continued for several weeks longer, and he then departed for Augustine, Fla., much better and freer from tinnitus than ever before.

Six cases similar to the one quoted have been much benefited, the tinnitus becoming intermittent or remaining continuous with less intensity.

*Case 2.*—O. M. C. C. Female, aged 22, general housework, applied for relief of tinnitus aurium and deafness on Feb. 28, 1895. History: deafness principally in left ear, for past two years and rapidly growing worse. Tinnitus constant, and of pulsating variety, intensified by recumbent position. Deafness right ear for past two months—tinnitus ringing, not constant. Hears better in quiet place. Objective examination: right ear, membrana tympani cloudy, dull, and slightly retracted. Left ear, membrana tympani very much retracted, so that the malleus handle is nearly horizontal; cloudy, slightly hyperemic. Sieglé shows malleus to be rigid. Nose: rhinitis hypertrophica chronica. Luschka tonsil slightly enlarged. Eustachian tubes closed.

Tests: watch R., 5-60 after catheterization 12-60; L., c-60, after catheterization, 3-60. Right ear, C, 23-21; C1, 18-10; C2, 23-20; C3, 18-10; C4, 25-12. Left ear, C, 8-25; C1, 8-12; C2, 15-25; C3, 13-10; C4, 15-10.

Treatment: Eustachian catheter and menthol vapor. The pneumatic masseur was used, but each application increased the intensity of the tinnitus in the left ear, to such an extent that further use of it had to be discontinued.

In another case, exactly similar to the one first quoted, the result was equally unfavorable after using the masseur. Therefore, in twenty-two cases of otitis media catarrhalis chronica, associated with tinnitus aurium and treated with your masseur, two cases were unfavorably influenced, and twenty more or less benefited.

The following brief report will show how quickly relief follows the application of the masseur in some cases of O. M. C. C.:

*Case 3.*—Female, aged 35, servant; came to the hospital on Jan. 15, 1895 for treatment. History: deafness followed an attack of scarlet fever fifteen years ago, and is gradually growing worse. Tinnitus aurium in right ear. Hears better in noisy place. Objective examination: right membrana tympani moderately retracted, cloudy. In left ear the local appearances are similar.

Watch R.,  $\frac{1}{2}$ -60; L.c.-60. No improvement after inflation. Whispered voice, right, three inches; left whispered voice, six inches. Forks: right C, 0-33; C1, 5-11; C2, 14-23; C3, 8-12; C4, 10-8. Left C, 15-33; C1, 7-12; C2, 16-21; C3, 12-12; C4, 15-8. Vertex test heard better in left ear.

Treatment: the electro-pneumatic masseur relieved the tinnitus at once. After three applications the noises disappeared, and have not returned up to the present time. The deafness remained uninfluenced.