

other hand are there any instances of Dengue occurring in severe form in the case of patients who have recently suffered from Seven-day fever?

Information on these points would be of some help in forming a definite opinion as to the identity of the two diseases, and as there seems to be considerable difficulty in determining the causal organism in both types of disease, it is possible that the question must be decided by an appeal to the less certain evidence of symptomatology and of etiology.

There is some reason to suspect that Dengue in some of its forms is not uncommon in the inland stations of India especially in those not far away from the coast though it seems to find the ideal conditions for its spread in the large seaports.

Even if it does not become widespread inland, there must from time to time be cases imported from the seaports, so that it is of importance that the nature of the disease should be clearly established and its symptomatology commonly known by the medical profession throughout India.

While I am compelled to differ from Major Rogers regarding the nature of Seven-day Fever, I entirely concur with him in looking on it as a specific non-malarial fever, and I consider that the whole medical profession of Calcutta owes him a debt of gratitude for clearly describing the fever and for establishing its existence as a separate and definite entity.

A NOTE ON THE OPERATION OF OPTICO-CILIARY NEURECTOMY.

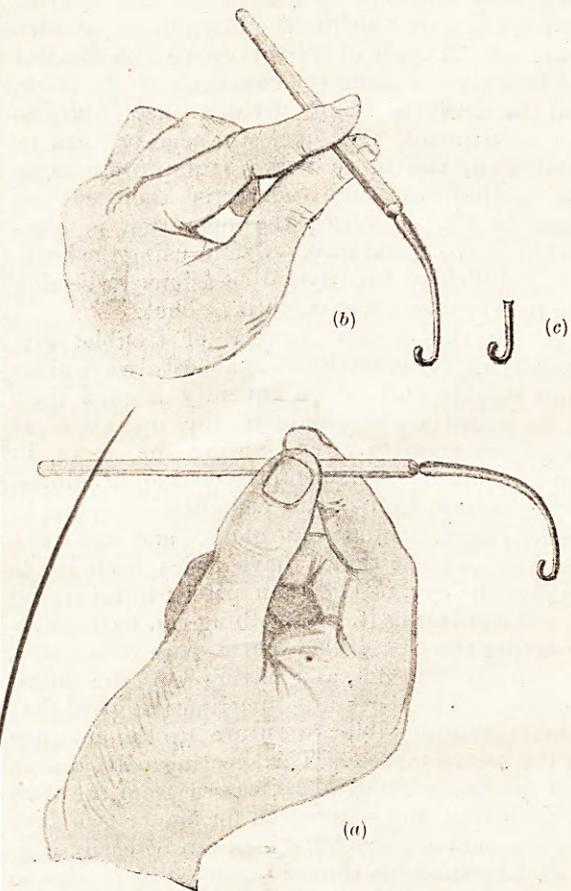
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IN the past two years, I have operated on nineteen eyes, by performing optico-ciliary neurectomy, and on three by performing optico-ciliary neurotomy. The indication has in every case been the presence of a blind, painful eye-ball. The native of India is very averse to parting with an eye, if this can be avoided, so that an operation, which leaves the organ apparently intact, and at the same time relieves the sufferer of all pain, is a very valuable addition to our resources. I am not aware that any cases of these operations have been previously published in India, and therefore think this record may be of some interest.

Under the influence of Golowin, whom I met in Moscow three and a half years ago, I adopted an external incision in my earlier cases, and closely followed the Russian method, which I described in the *Indian Medical Gazette* for May 1903. Anatomical considerations, re-inforced by the difficulty often experienced in seizing the nerve, and in rotating the eye-ball led me back to the earlier (Boucheron, Schöler) method described in

Fuchs' and other text-books, and I have found it a good deal the easier method of performing what, at the best of times, is a very difficult operation.



ELLIOT'S OPTICO-CILIARY NEURECTOMY HOOK.

(a) Shown sideways. (b) Shown endways on, foreshortened.
(c) The end of the hook shown facing towards the observer.

The two real difficulties of the operation lie (1) in catching the nerve, without unduly disturbing the surrounding parts, and (2) in dealing with the troublesome hæmorrhage which follows the nerve-section.

To meet the former, I have had a special hook constructed. It is of one piece of steel; has a handle like a strabismus hook; is 10 cm. long in the handle, and 5 cm. long in the blade. The latter presents at its end a large curve, which has been carefully moulded on the antero-posterior curve of an average eye, and corresponds to a little less than half the extent of such a curve. The extremity is bent back on itself 4 mm. on the plane of the curve (*vide* drawings). The mode of using it is simple. As soon as the internal rectus has been divided, the hook is slid round the eye-ball, to which purpose its large curve is obviously adapted, till the insertion of the optic nerve is passed; a slight rotation of the axis of the handle brings the concavity of the hook opposite the nerve, which is at once caught, when the instrument is gently

withdrawn a few mm. length. Whilst passing the hook, it is essential to have a firm hold on the eye, and to keep it in the axial position, so that the exact position of the nerve insertion may be known. That the hook has engaged the nerve may be easily ascertained by the control over the eye movements the instrument at once possesses. A pair of scissors curved on the flat are now passed along the *convexity* of the hook, and the nerve is easily divided *proximally* to the instrument. At once the eye-ball can be rotated till the optic nerve stump presents in the wound, and the nerve is then cut off close to the sclerotic; the operation is completed in the usual way. Before using the hook, I had difficulty on several occasions in seizing the nerve; now I can catch it at once.

As to the second source of trouble, *viz.*, hæmorrhage after section; this almost always gives some trouble, and not infrequently a good deal. It is essential to complete the operation as rapidly as possible after dividing the nerve, in order to minimise the troublesome exophthalmos-copeia which occurs; this complication is due to hæmorrhage behind the globe, and the eye becomes so tense that I have twice been led to remove the eye, rather than persist in returning it, and bandaging it. Something can be done by inserting the closed blades of a pair of scissors, curved on the flat, and letting out the blood thereby. The tension is sometimes so great that may it be impossible to suture up the cut ends of the rectus muscle. The shooting pain, due to the disease in the eye-ball, ceases from the time of operation, and in its stead for one or two days is some amount of ache, which can be easily controlled by morphia if need be, and which is due to the tension. Both this and its cause rapidly subside and the patient is soon left free of all pain, and greatly relieved by the operation. The statistics which follow are self-explanatory. I am of opinion that in the two cases which ended in enucleation, I might have saved the eye, had I had the courage, which has since been born of experience, to boldly return it and employ firm pressure. In my last few cases, I have freely used adrenalin, and this has greatly reduced the hæmorrhage and its attendant trouble.

It is not an operation one enters light-heartedly upon, but on the other hand in selected cases, it justifies its inception by the very satisfactory results it yields. I employ it for blind painful eye-balls (usually glaucomatous), when the patient evinces a strong desire to retain the organ. The subsequent cosmetic results are excellent, especially if it is possible to suture up the cut ends of the rectus muscle; but even where this cannot be done, the appearance is often much better than can be obtained with an artificial eye. One need not mention the saving of expense to the patient which is a no small consideration to a poor native hospital patient.

The recent literature of this procedure is scanty. Recently Golowin published 13 cases

in the "Zeitschrift für Augenheilkunde" Band V (1901); and De Britto 8 cases in "La Clinique Ophthalmologique," 25 about 1904. The latter used Warlomemnt's forceps-scissors, which I have not hitherto been able to obtain. Both found trouble with the hæmorrhage.

Four additional recent cases of neurectomy are still under treatment in the hospital.

AN ANALYSIS OF 19 CASES OF OPTICO CILIARY NEURECTOMY.

Males	15	Right eyes	6	Ages of patients 9 yrs., 1; 25 yrs., 1; 30 yrs., 1; 40-50 yrs., 5; over 50 yrs., 11; Total 19.
Females	4	Left eyes	13	
Total	19	Total	19	

INDICATIONS FOR UNDERTAKING THE OPERATION.

Glaucoma secondary to swelling of a cataractous lens	...	...	in 1
Do. do. to penetrating injuries of the eye	...	...	in 5
Do. do. to irido-cyclitis	...	...	in 3
Secondary glaucoma, of which the cause was unknown or escaped note	...	...	in 4
Primary glaucoma	...	...	in 6
TOTAL			19

METHOD OF OPERATIONS.

By Golowin's method	...	in 8 cases	{ (All my earlier operations.)
By internal incision, with the use of forceps to seize the nerve	...	in 2 cases.	
By internal incision with the aid of my hook	...	in 9 cases.	
Total		...	19 cases.

RESULT OF OPERATIONS.

Failure in 3 cases.
Success in 16 cases.

N.B.—Of the 3 failures 2 cases were operated on by Golowin's method. With my present experience, I would have replaced the globes, disregarding the high tension due to hæmorrhage; I feel sure that, had I boldly done so, the result would have been success. They were among my very early cases, were done without the hook, and I enucleated the balls, thinking there was no hope of a favourable issue. Adrenalin was not used.

In the third case, the eye-ball was greatly elongated due to myopia, and was extensively adherent to the surrounding parts. After division of the nerve I found it impossible to rotate the eye forward, and accordingly enucleated. In this case, there was probably nothing else to be done.

Of the successes 6 were operated on by Golowin's method, and 10 by the internal incision method. Two cases were followed for over a year, one for 6 months, 3 for one month, and the rest left for their homes about a fortnight after operation, and could not be traced. All were relieved of all pain when last seen.

I desire to emphasise the point, that failure to perform this operation simply means that one

has to fall back on enucleation, which in any case we would otherwise have had to resort to.

LENGTH OF NERVE RESECTED.

In 2 cases	2 mm. of nerve were resected.
In 3 cases	4 mm. ditto.
In 4 cases	6 mm. ditto.
In 3 cases	8 mm. ditto.
In 1 case	10 mm. ditto.
In 2 cases	12 mm. ditto.
In 1 case	14 mm. ditto.
In 3 cases	the amount resected has unfortunately escaped note.
Total No. of cases 19	

Of the 3 cases of optico-ciliary neurotomy, one (a painful blind glaucomatous eye-ball) has been under observation 2 years since the operation without return of pain; one (corneal ulceration, and irido-cyclitis leading to a painful eye-ball) went home free of pain after 17 days, and has not been seen since; the third (a painful blind glaucomatous eye-ball) is still under treatment, one month after operation, and is doing well.

Optico-ciliary neurotomy is much easier than the neurectomy, and in spite of what has been said about it, I am inclined to give it a fuller trial in the future.

ADDRESS ON THE EPIDEMIOLOGY OF PLAGUE.

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I ACKNOWLEDGE gratefully the privilege conferred by the Executive of the American Medical Association in extending to me its courteous invitation to deliver an address on plague; and I have accepted it with the less hesitation that in Sydney we have had the good fortune to watch successive epidemics under conditions so favourable to complete observation, that probably we may have been enabled to see some things clearly which elsewhere would have remained obscure. On behalf of the medical profession in New South Wales who have taken their part in the work and whom, on this occasion, I poorly represent before you, as well as on behalf of my accomplished colleagues of the medical staff of Government, I thank you, and for myself bespeak your indulgence.

I.—INTRODUCTION.

1. *Discordant views on the etiology of plague, and their causes.*

It is now twelve years since it first became possible to study plague by modern methods, and yet no conclusion on its etiology has been reached which has met with general acceptance. Two causes, as it seems to me, have chiefly contributed to this disappointment. One consists

in the appeal which has been persistently made to bacteriology for lights which in fact are not in its power to shed; the other is neglect of the epidemiological method, or at least failure to apply it effectively. In consequence, a field has been occupied by the bacteriologist which could not be profitably laboured by him. The epidemiologist has not seriously disputed this usurpation of his domain, and for his apparent apathy he has not been without excuses of some weight.

2. *Limitation of previous epidemiological investigation into plague.*

Plague has almost always appeared importantly in countries inhabited by races foreign to the observer in their language and modes of thought, who were of little instruction, of an education limited to ancient and immutable conventions, and who lived for the most part under conditions which unavoidably obscured the phenomena. It has thus often been impossible to acquire that exact and complete knowledge of all the circumstances under which the infection had been received by each person attacked, which is the foundation of all investigations into the etiology of disease by the epidemiological method.

The conditions adverted to notoriously existed at Hongkong, and in India; they made themselves more or less completely felt in New Caledonia, in Madagascar, in Mauritius, in Egypt, and in parts at least of South America; and they obtained effectively in South Africa where, although the ruling population is English, the burden of disease fell on the natives and on immigrants from the East. But plague has visited some places where the conditions were more favourable to investigation, and from them (as well as from those thus mentioned by name) much information of clinical, pathological, and administrative value has been forthcoming; but there the principles and uses of the epidemiological method seem to have been greatly overlooked.

3. *Relative absence of such limitation at Sydney.*

At Sydney the conditions happened to be much more favourable to its employment. The invaded population numbered about half-a-million. It was not merely wholly white, of English extraction and speech, and fully civilised, but intelligent, instructed, and orderly, accustomed to direction and amenable to it. Management of the outbreaks rested solely with the Central Department of Public Health, which had not merely wide statutory powers, but in unforeseen contingencies had the practically unlimited authority which the Executive Government occasionally conferred upon it. It enjoyed a measure of absolute power, therefore; and I need not tell those who have in mind the brilliant sanitary campaigns of Havana, Manila, the Isthmus, and New Orleans, that our knowledge can be used to full advantage of gravely afflicted communities only when some such power is entrusted to the supreme health authority.