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IN

OPHTHALMIC PRACTICE

BY

KARL GROSSMANN, M.D., F.R.C.S. EDIN.

CONSULTING OPHTHALMIC SURGEON TO THE STANLEY HOSPITAL, LIVERPOOL.

Reprinted from THE LANCET, January 16, 1909



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FIBROLYSIN IN OPHTHALMIC PRACTICE.¹

FIBROLYSIN, introduced three years ago, is a preparation which seems to be destined to take an important place in the Pharmacopœia. Produced on the continent, it appears to have been very little employed, in fact hardly known in this country up to the present, although the range of its utility promises to be a very wide one.

As far back as 1892 Dr. von Hebra published the favourable results which he had obtained in the healing of lupus and of cicatricial tissue by means of thiosinamine, a preparation made from the oil of mustard, smelling strongly of garlic, and of the chemical composition of allyl-sulpho-urea. These good results were verified by others, but the remedy, in spite of its valuable properties which I shall mention presently, did not become popular, and this for one very good reason—namely, the almost complete insolubility of the preparation in water. Dosage per os not having been found suitable it had to be applied by injection and for this purpose had to be dissolved in alcohol. These injections were, however, so intensely painful that the application became altogether impracticable until, in 1905, Dr. Mendel of Essen suggested a modification of thiosinamine which at one stroke changed the future of this remedy.

Fibrolysin represents a combination of one molecule of thiosinamine with half a molecule of salicylate of sodium. Its principal advantage over thiosinamine is the easy solubility in water and the absence of any irritant effect when injected subcutaneously. The drug itself is a white crystalline substance with a bitter taste. It decomposes easily

¹ A paper read at the Liverpool Medical Institution on Nov. 19th, 1908.

when exposed to air and light and is therefore put up in closed tubes of brown glass in doses of 2·3 cubic centimetres of a 15 per cent. aqueous solution, equivalent to two decigrammes (three grains) of thiosinamine.

The effect of fibrolysin on cicatricial tissue is very remarkable; turgescence takes place, the individual fibres lose their sharpness of outline, the nuclei are pushed asunder, and the tissue appears more succulent and swollen and altogether enlarged. The whole scar becomes more relaxed and permits of movements altogether impossible before injection. This effect is considered to be due to a serous infiltration or flooding which slackens the old inflammatory and now hardened fascicles similarly to the hyperæmia of the Bier method, and renders them thereby more readily amenable to absorption by the increased lymph stream. This result, transient at first, becomes more and more permanent by repeated injections. It is noteworthy that fibrolysin has this effect only on pathological connective tissue.

The mode of application is by injection, either intravenous, intramuscular, or subcutaneous. The intravenous method would be suitable only where a very rapid effect is desired and it would be advisable to select for this purpose large veins, where the danger of thrombosis from injury to the epithelium is comparatively small. Secondly, there is the intra-muscular injection, and as the best locality for injection the glutæi have been recommended. But this appears to me unnecessarily inconvenient for the patient both physically and psychically and affording no advantage over the third method, which alone I have applied—namely, that of hypodermic injection. As for locality, I have in all cases chosen the upper arm as likely to cause the least amount of inconvenience.

With regard to the favourable results obtained, I originally intended to give only those obtained by myself in ophthalmic cases, but on noticing that the title of my communication has been put down on the programme more generally “on fibrolysin” I think it might help the discussion if before giving my own experience I were to allude shortly to the kind of cases of internal medicine and surgery which have been reported in the literature on the subject.

First, I must mention the treatment of strictures and

stenoses due to inflammatory and cicatricial contractions, amongst them those of the œsophagus and pylorus due to injuries from caustic fluids, &c. Under the influence of the drug dilatation by bougies became possible and ultimately remained permanent. Similarly urethral strictures as well as prostatitis after gonorrhœa yielded satisfactorily to the treatment. It may here be mentioned that the urethroscopic examination presents an excellent means of watching the immediate effect of the injections on the scar tissue, which from being pale and tense changes to a hyperæmic and softened appearance. In this respect the action of fibrolysin reminds us of that of dionin when applied locally to the conjunctiva. Cases of chronic arthritis have been greatly benefited and noticeably those where adhesions existed in the cavity of the joint. To mention internal medicine, Roos reports good results in three cases of mitral insufficiency of inflammatory origin. Neuritis and neuralgia due to cicatricial changes of the nerve sheaths showed marked improvement in cases where the nerve fibres themselves had not been already destroyed; and there is also a case of locomotor ataxia reported² in which distinct improvement resulted. When, therefore, a few months ago the following case came under my notice it occurred to me that fibrolysin ought to have a trial. The following is a short account of the case.

The patient, a man, aged 40 years, gave the following history. On April 13th, 1908, the left side of the face, the left upper and slightly the lower eyelids, and both the hands were scalded with oil at 280° C. The patient was taken to the hospital where he remained as an in-patient until May 2nd; then he attended as an out-patient until May 23rd, when he was told that he was cured and need not attend any further. The left eyelid had been healing more slowly than the other parts. On June 4th his employers sent him to me asking whether any improvement could be obtained. On examination I found traces of scalding of the left side of the forehead and of both hands. The left upper eyelid had been scalded much more severely, also the left lower lid, though in a lesser degree. The temporal half of the eyebrow was pulled down with the supercilia mostly

² Brit. Med. Jour., 1907, p. 1471.

gone or displaced. The middle part of the upper lid was contracted upwards by a broad, tough, thickened band, the lashes missing in the centre and displaced towards both the inner and outer canthus. The eye neither opened well nor closed completely and this state had evidently caused the corneal ulcer, which was situated horizontally in the lower quadrant of the cornea. The scars being still red and the scar tissue having been formed within the last six weeks it was certain that further and much greater contractions would take place within the course of the next few months. Any plastic operation would have been premature at that time, and I therefore tried to get the corneal ulcer healed first. This being done, I resolved to try fibrolysin. The accompanying illustrations, Figs. 1 and 2 (the left eye open and closed respectively), were taken at that time. On June 27th I gave the first injection, beginning with 1 cubic centimetre. This was so well borne and without the slightest unpleasant symptom that on June 30th I gave a full dose (2.3 cubic centimetres) and continued at fairly equal intervals until August 11th, when the tenth and last injection was given. The result was surprising indeed. The lower eyelid soon became quite normal in appearance and equally so the skin of the left side of the forehead and of both hands. The left upper eyelid, instead of undergoing the shrinkage which ordinarily would have taken place, became more moveable and normal in appearance, the thick band in the central part gradually softening and thinning so that the eyelid when open had practically a normal appearance. Figs. 3 and 4 were taken on Oct. 10th. In Fig. 3 (the left eye looking upwards) shows how well the upper eyelid folds backwards, no stiffness or contraction marring the folding. Fig. 4 shows the eyelids closed. When it is considered what a large defect of normal palpebral skin had been caused through the burning the final result after the subsequent suppuration is eminently satisfactory, and I am glad that there is no excuse, let alone a need, for resorting to what is euphemistically called a "plastic operation" of the upper eyelid.

Encouraged by the result of this case I have tried fibrolysin in other ophthalmic cases which I will mention briefly. One

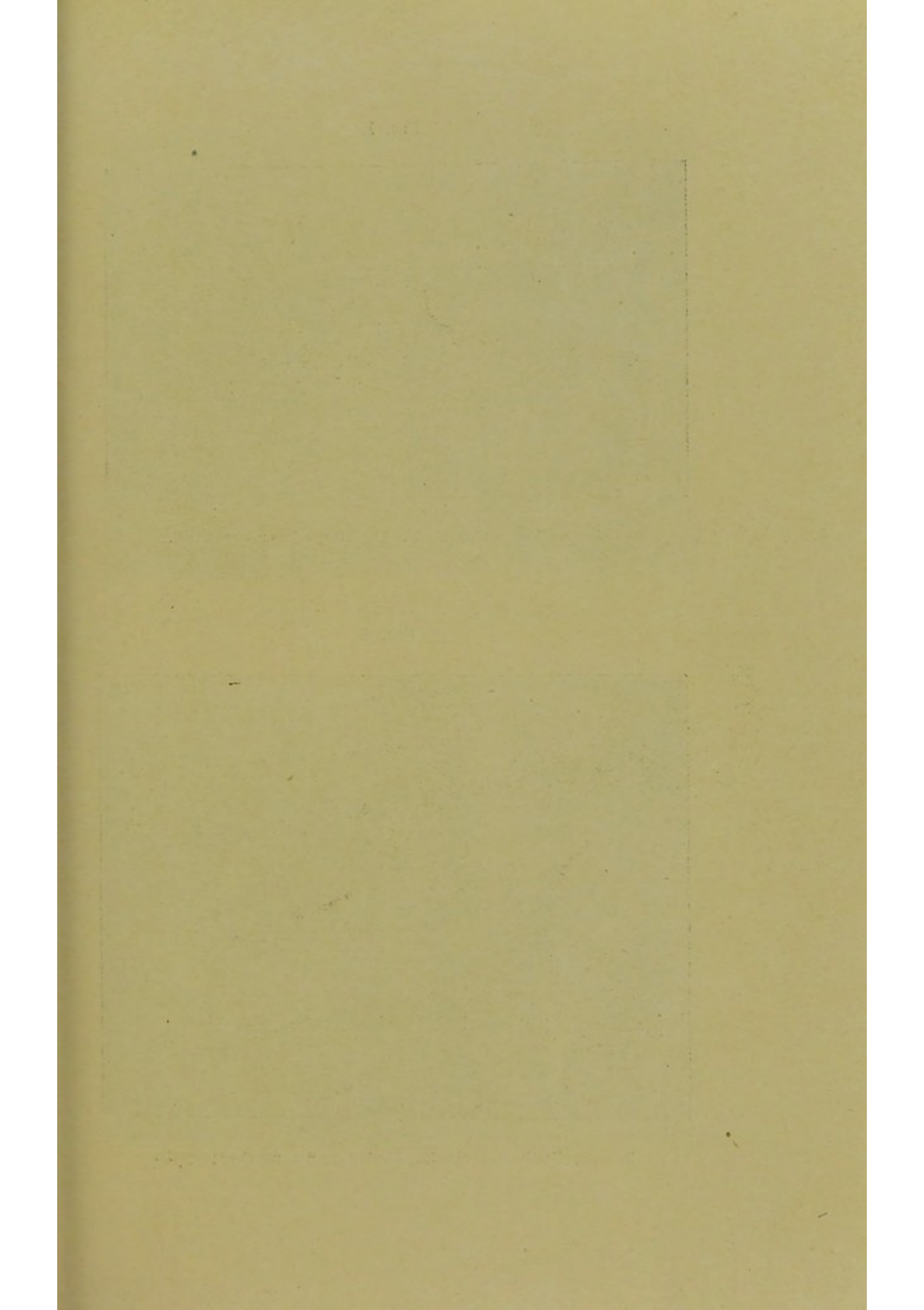
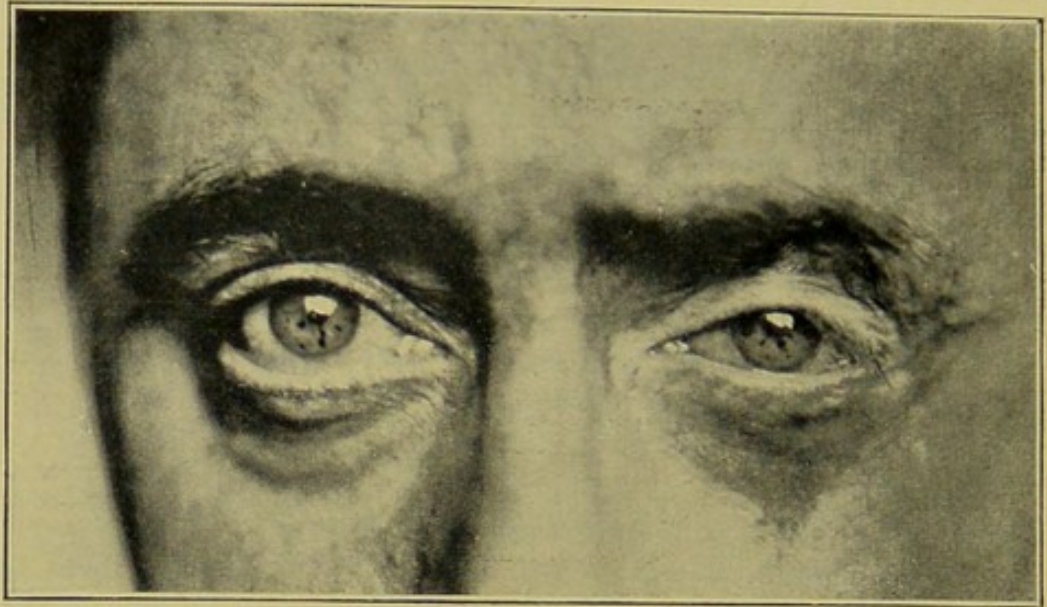
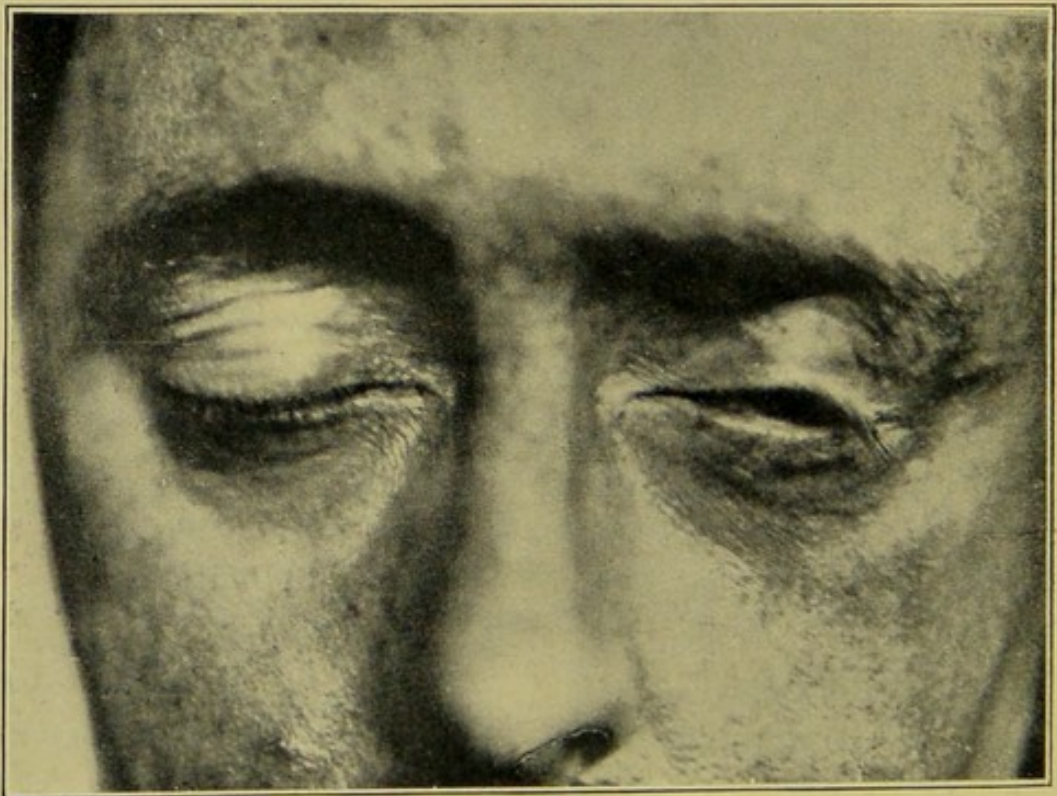


FIG. 1.



Before application of fibrolysin. The left eye does not open well.

FIG. 2.



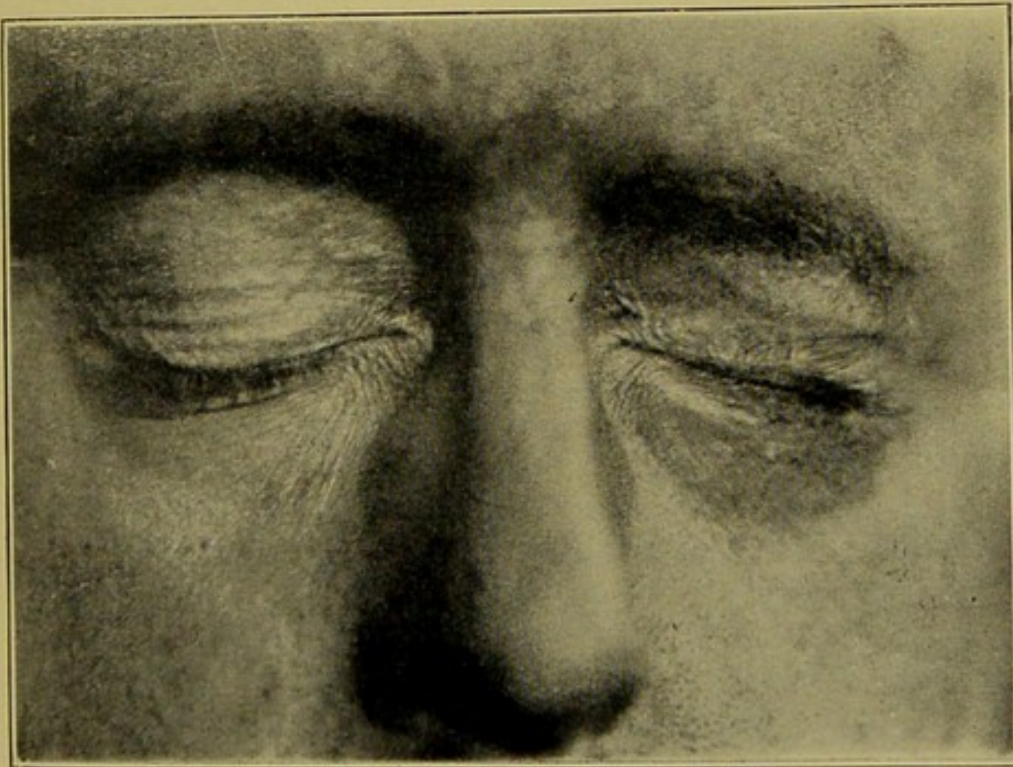
Before application of fibrolysin. The left eye does not close properly.

FIG. 3.



After ten injections of fibrolysin. The left eye opens well.

FIG. 4.



After ten injections of fibrolysin. The left eye closes well.



case of retrobulbar optic neuritis after influenza appeared suitable and I gave six injections. The result was thoroughly satisfactory; I am, however, unable to say whether the good result was due to the fibrolysin or to the strychnine and mercury or to the combination of all three. Fortunately these cases are not frequent and I shall certainly try fibrolysin in any future cases before resorting to operative interference with the optic sheath.

With regard to clearing up of corneal opacities my results have not been all equally good. The case given above has thus far been the most successful; the ulcer in the lower quadrant had healed with a scar of nearly 3 millimetres in length and this scar is now only point-shaped. I have also tried three cases of fairly dense corneal opacities, all three of long standing, in patients of middle age (35, 38, and 45 years respectively). They all certainly improved a little, but the progress being rather slow I also applied the dionin treatment, which is perhaps mainly responsible for the improvement ultimately obtained. Great success followed in two cases of posterior synechiæ of old iritis of rheumatic origin, the one a woman of 40 years and the other a man of 35 years. In neither of them did atropine produce any dilatation of the pupil until after some injections of fibrolysin, when in both cases the atropine succeeded in effecting dilatation.

In analogy of the cases of urethral strictures that have been described I have used fibrolysin in a case of lacrymal stenosis due to stricture of the soft tissues. In this case probing after three injections has been so far successful that for the last four weeks no probing was necessary, and stillitidium was stopped which had been constantly troublesome for the last three years.

From these comparatively few cases I have already—and I do not think rashly—gained the conviction that in fibrolysin we have a very valuable addition to our resources. It is certain that without it the left upper eyelid of the patient I showed here to-night would never have regained its practically normal function and its complete pliability. A plastic operation would at best have had a very poor result compared with the present state, and I shall in future apply the drug in every ophthalmic case in which any cicatricial





