

in the opacity of the left cornea. This was later combined with fibrolysin without any noticeable influence. During the past year and a half, several blebs have appeared at different times at the ends of the band in the right eye and upon their disappearance have left behind an increase in the size of the band and added irregularity of the corneal surface.

This picture is somewhat unusual, but is rather complete, the beginning stage

PRIMARY EPITHELIOMA OF THE CORNEA WITH TREATMENT.

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The following case is of particular interest; first, because of the rarity of primary malignant growths of the cornea; second, because it demonstrates the feasibility of exposing the eye to

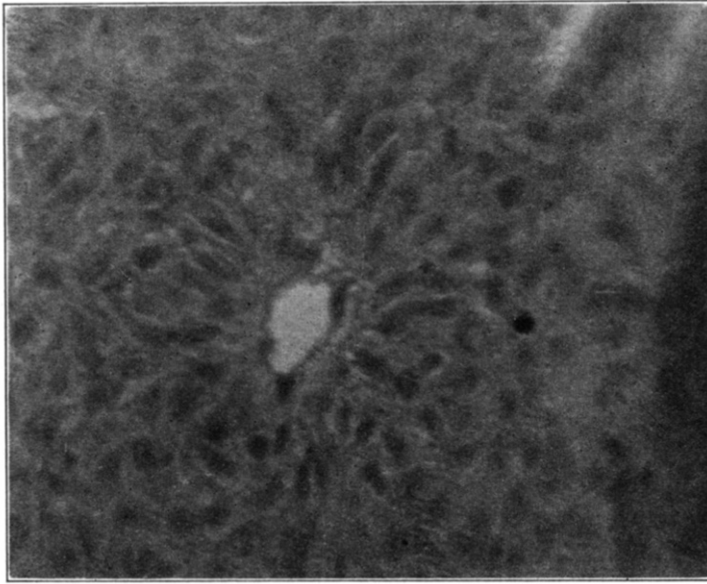


Fig. 1.—Section of corneal growth composed chiefly of epithelial cells, some arranged concentrically. Diagnosis epithelioma.

being represented in the right eye and the terminal stage in the left eye. From some unknown cause, the epithelium of the cornea, at first a short distance from the limbus, forms a bleb and subsequently, this disturbed epithelium becomes vascularized from the neighboring conjunctiva. In all probability the bleb does not rupture, but its contents are simply absorbed. The undisturbed epithelium as seen by the slit-lamp speaks against any solution of continuity. The disappearance of the bleb is followed by the uniform opacity of the underlying cornea, probably due to toxins of the vesicular contents. The process repeats and the opacity increases in size. The cause cannot be determined; but the eventual outcome is loss of vision, unless the process can be checked.

fairly large doses of radium without injurious effect; and third, because of the most excellent result obtained in this case.

W. E. K. Case No. 1094. Male, Age 60. Occupation, Stationary Engineer. Referred to me May 20, 1919 by Dr. Frank W. Miller, whose report is as follows:

"W. E. K. reported May 15, 1919, that he had noticed a small red spot in the left eye, dating back probably three months. This spot became elevated and gradually increased in size. There was no pain nor distress except mild conjunctival irritative symptoms. On examination a small pediculated and partly movable, spherical growth, 3 mm. in diameter, was found at the inner corneal limbus. This growth was thoroly re-

moved and a small funnel shaped opening was left, deep in the tissues. (See Dr. Hill's report.) Patient was immediately sent to Dr. Rex Duncan for Radium treatment. At the present time two years after treatment, there has been no recurrence. The scar is soft and small and he has a perfectly functioning eye."

Pathological examination of the tissues removed was made by Dr. R. B. Hill, whose report is as follows:

"The specimen is a small piece of tissue about the size of a split pea. Sections show it to be made up almost entirely of epithelial cells, which are fairly uniform in size and shape; they are for the most part squamous in type and take the stain deeply. Many of them show mitotic figures. In places the cells are concentrically arranged, suggesting "pearl" formation. There is a very scant connective tissue stroma (See Figure 1).

Diagnosis: Epithelioma.

Radium treatment was given as follows: Five days following the excision an applicator consisting of a tube of 100 millicuries of radium emanation, screened with 0.5 mm. of platinum; 1 mm. of pure rubber gum tubing, was applied directly over the wound and retained in position one hour. Four such applications were made, totaling 400 millicurie hours. The eye was thoroly cocainized preceding each application and the eye lids separated in such a manner as to protect them from the rays. A few days following treatment there resulted some mild inflammatory reaction, which gradually subsided during the following four weeks leaving the eye apparently normal.

This case has been seen frequently by Dr. Miller and myself and there is apparently a perfect result.

A RECORDING SCOTOMETER.

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The desire to combine the advantages of the Bjerrum screen and the registering perimeter has given rise to several modifications of the Bjerrum screen with which the writer is acquainted. So

far as he is aware the device now put forward has not previously been utilised. None of the instruments in use appear to be entirely automatic—either concentric circles or meridians or both requiring to be read off and marked on the chart, or noted and later plotted on the chart. Moreover the instruments all work in circles or meridians a feature which usually shows itself in the peculiar outlines of the scotomata as charted, and is a handicap in following the outline of a scotomata when under investigation.

The present instrument, which is really a recording attachment for a Bjerrum screen, has been designed to obviate these defects by providing a test object which moves freely about the field in any direction while providing a means of automatically recording on a chart the position of the test object in reference to the fixation point.

It has been constructed to a scale to suit the ordinary Bjerrum curtain, and at a working distance of one meter can record to beyond the 30 degrees circle on a chart 8 inches square. By using charts drawn to corresponding scales the same instrument could if desired be used for other working distances. It has been designed for a curtain 15 meters square, but the same device could be utilized for smaller or larger instruments.

The mechanical principle adopted is that familiar to draughtsmen in the reducing instrument known as the pantagraph. It is both simple and mathematically exact in theory. Any error that occurs must be due to faulty construction or use, or to that predominant factor in any subjective examination—the patient.

The instrument consists of a suitable base from which springs a vertical standard to a height of six feet. Supported by a bracket and a round hole in the top of the standard, a rod projects horizontally six feet and has attached to it the black velveteen curtain. By pushing the rod horizontally thru the hole in the standard, or by twisting it in the manner of a roller blind the position of the curtain (and fixation object) may be adjusted to the rest of the instrument. Attached to the standard, 4 feet