very careful and competent oculist, and that the refraction of the eye had changed is shown not only by his findings in these tests, but by the fact that when asthenopic symptoms became so unbearable in 1886, the patient's distant vision was reduced to $\frac{3}{16}$ + and could only be raised to normal by supplying the cylindrical glasses.

That it was acquired static lenticular astigmatism is shown by the effect of the atropia, the former known condition of refraction, and the result obtained by supplying the required lens. Whether or not this case was of the nature I suppose, the question of proper position of lenses is one of the most important that can engage the attention of those who undertake refractive work, and a large proportion of the time of oculists, must of necessity, be devoted to such examinations. I have known of instances where a most conscientious and skillful examination of the eyes has been made and the whole object of the oculist thwarted by the optician who filled the prescription. Even the most noted opticians often pay little attention to the measurements for frames that are furnished by the oculist, and these measurements are often, I believe, far too hastily and imperfectly made. Almost no attention is paid to that rotation of the lenses that is required to bring their principal axis to correspond with the line of vision, and often we find them set half an inch or so farther forward than they should be, and elevated to the eyebrows, or set down upon the cheeks. In this way great injustice is done to the oculist, who is alone held responsible if annoyance results to the patient, who often never gives him an opportunity to examine the glasses, and correct the faulty position resulting from a disregard of his directions.

One of the most important aids to work of this kind will be the construction of such trial lenses and frames as to allow lenses to be placed in a proper position while tests are being made. Another will be the device of some more suitable adjustable frame for readily making the measurements for the guidance of the optician in making the frames and mounting the lenses prescribed. That some ingenious mechanic will apply himself to this task and give us that which many of us so long have sought, is earnestly wished by not a few whose time is so taxed by the present methods commonly adopted in practice. Whoever trusts this work of fitting the frames to an optician will often find his prescription nullified, and his reputation injured by the incompetence or unfaithfulness of the spectacle venders who style themselves opticians.

I have no doubt that many cases of astigmatism of a low degree may be acquired by a faulty position of spectacles, and that we fail to relieve many cases of asthenopia, either because we do not pay sufficient attention to the position of the lenses while making the test, or in measuring for

frames, or because the optician has disregarded our directions in the matter.

DR. RANDALL called attention to the fact that the change in astigmatism has been proved by the ophthalmometric measurement. Ciliary action is, therefore, excluded, as well as lenticular obliquity. It has been shown that "astigmatism against the rule" is extremely frequent in glaucoma; and further, both clinical and experimental study has shown increase or occurrence of this form of astigmatism with the rise of tension. It may, therefore, be an important prodromal sign of glaucoma.

DR. FROTHINGHAM in closing the discussion said: I have presented this case for the reason that I think it may be of some value in the settlement of this theory. I admit it wants the element of certainty that can only exist where the curvature of the lens is accurately measured both before and after the appearance of the astigmatism. In ordinary practice this measurement of curvature is not made. In this case, however, an altered form of the lens is the only rational explanation that harmonizes with all the observed facts. The paper will furnish my answer to most of the questions raised.

It may possibly be true that corneal astigmatism may have developed in this case, but the direction of the axes of greatest and least refraction do not correspond to what we would expect from corneal change while they do with the theory of acquired lenticular astigmatism from the cause supposed. The degree of astigmatism acquired also just corresponded with the theory advanced. It would be a strange coincidence if changes of the cornea should extend to just this degree, and in meridians to correspond to this.

LENS MEASURER.

Read in the Section of Ophthalmology at the Forty-first Annual Meeting of the American Medical Association, Nashville, Tenn., May, 1890.

BY ROBERT TILLEY, M.D.,
OF CHICAGO, ILL.

The instrument I have to exhibit to you is not my invention. It is a device for the practical ready and accurate measurement of the curvature of lenses, and indirectly, of course, the measurement of the focal lengths of lenses of the average size used in optical devices for the amelioration of defective vision. It is of interest to us in the ready means it affords of checking formulæ for glasses, and in readily and accurately determining the combination of lenses which may come under our observation in our daily dealings with patients. It is not an easy matter to determine, by the method of neutralization, the combination of a compound lens. At any rate, I do not blush to acknowledge that it is not an easy matter for

me. Take any example at random: $S. + 4.00 \text{ } \odot + 1.00 \text{ c. ax. } 180^\circ$; or, $S. - 2.25 \text{ } \odot - 0.75 \text{ c. ax. } 45^\circ$. It is not difficult to determine the axis of a cylinder, but this device renders it easier, and at the same moment, with a single turn of the hand, it gives us the radius of curvature, and by inference, the focal power.

I will first explain, by a diagram, the general principle on which the instrument is constructed, and then it will be evident to you that it is capable of doing the work it claims to do, and then the instrument will be handed to you for your own personal demonstration. I have brought a few lenses with me for that purpose.

The diagram (Fig. 1) shows the face of the in-

FIGURE 1.

strument. It is represented as measuring a plano-convex lens of $+ 3$ dioptrics. The highest part of the dial is marked 0. The space on either side down to the corresponding part below is divided similarly, the divisions gradually but slightly decreasing. On the face is a movable pointer. When this pointer is directed to zero it means that the surface being measured is a plane, or that the special part of the lens being measured is the axis of a cylinder. The left hand division, you will see, is marked plus and measures the plus lenses; the right hand division in a similar way indicates the minus lenses. The inventor tells me that in his design the order of plus and minus was reversed, but that the manufacturer, without his consent, changed it. That, however, is a detail of no practical importance, although in conformity with mathematical use of plus and minus it had been better the other way.

From the other diagram¹ you will see the mechanism by which the pointer is moved, from which, also, the reason will become plain why the divisions of the dial are not equal. In the upper part of the figure you will see three small rods. They do not need to be specially designated. They are ground to blunt points on the upper parts. The two outside rods are fixed, but can

be moved if it is desirable at any time to adjust the instrument. The middle rod is attached to a solid bar which slides up and down in a slot in the ground plate (A) of the instrument. In the figure this bar is marked B. To the bar is attached a knife-edged chain in contact with the short arm of the rack D. The fixed point of the rack is at E, and is made adjustable by the screw device, shown in the figure at F. At the lower part of the rack are the cogs which work the pinion to which the pointer is attached. The hair-spring is used to take up what is technically called "back lash," to prevent lost motion in the rack and pinion. I will add that whilst the instrument readily measures the curvature of the lens, the dial is so graduated as to show the focal lengths, being specially adjusted for lenses of crown glass; and if a variation is observed in a given lens it may be suspected that the lens is flint and not crown glass. The indices of refraction of pebbles correspond practically with that of crown glass.

It only remains for me to demonstrate the working of the instrument on a few lenses to show how rapidly and with what certainty it can be done.

ON INFECTIOUS DYSPEPSIA AND ITS RATIONAL TREATMENT BY THE ANTISEPTIC METHOD.

Read by invitation before the Mississippi Valley Medical Association at its Sixteenth Annual Meeting, Louisville, Ky., October 8, 1890.

BY FRANK WOODBURY, A.M., M.D.,

FELLOW OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA, HON. PROFESSOR OF CLINICAL MEDICINE IN THE MEDICO-CHIRURGICAL COLLEGE, ETC., ETC.

A cynical Frenchman declared that the treatment of consumption was "opium and lies;" and at times we are tempted to say that the treatment of dyspepsia is the same—minus the opium. If we confine our judgment to the numerous proprietary "sure cures for dyspepsia," now so widely advertised, this conclusion would probably be nearly correct. I hope, however, that the methods of rational medicine may so commend themselves to our favor as to escape condemnation to this category, especially when we may see our patients, by adopting them, cured safely, quickly and more or less pleasantly.

It is proper to state, at the outset, that our present consideration of the subject is limited to dyspepsia solely as related to the stomach; no reference is attempted, or intended to be made to intestinal indigestion, or to the so-called intestinal dyspepsia.

It must be very obvious to all that dyspepsia occupies a very important place in popular nosology; it is as familiar as household words. On the contrary, there is a strong disposition among many of our systematic writers on medicine to ignore the term dyspepsia, or simply to discuss it

¹ The drawing of this diagram having been mislaid, we are unable to reproduce it here.