showed both lenses dislocated upward and inward, but the borders still in the line of vision. Both lenses were free of opacities. In Rachel, aged 5, it was impossible to get vision, as the child was exceedingly shy and lacking mentally. With the ophthalmoscope both lenses were seen to be dislocated upward and outward, but out of the line of vision, and the refraction was highly hyperopic. There is another child, Tom, aged 6, whose vision is said to be all right.

These four are only one of many series that have been reported as showing the effects of heredity on the development of the eye. It is impossible for us to explain the peculiarity that causes the unequal length of the suspensory ligaments, nor why it should be too long above in one case and below in another. If we may assume, as has been done in several reported series, that the poor vision of the mother was due to dislocated lenses, we have here three generations with the same anomaly.

To return to the first two cases, it was pointed out in the report made in 1894, that the dangers of such a condition lay in the possibility of the lens becoming loosened from its attachment to the ciliary processes by the atrophy and rupture of the suspensory ligament; and in the liability of such lenses to become cataractous, owing to the poor nourishment.

It will be remembered that it was stated in the report that the lenses of J. E.'s eyes showed spicules of opacity. Since 1893 this opacity has gradually increased, so that both lenses are now opaque. This perhaps would not be of much importance to him, as the lenses were out of the line of vision, were it not that the other possibility, that is, the rupture of the suspensory ligament, has also taken place in the left, the useful eye.

Strange to say, the zonule ruptured below, that is, on the short side, leaving the attachment to the ciliary processes only a narrow band to the upper and temporal portion. When the zonule gave way below, the lens was drawn up by the tension of the unruptured upper portion, so that the opaque mass was placed in the line of vision and the sight was reduced to perception of light. Mr. E. discovered, however, that if he bent his head far to the left or far back, the opaque lens floated out of the visual line, and he could see again as well as ever. But soon after assuming the normal position, the lens again came back behind the pupil and the vision was reduced to perception of light. Besides the terrible annoyance of such a condition, a great danger threatens this patient's eyes, from the irritation set up by the floating lens, through pressure on the ciliary processes. Already he has had several attacks of pain, lachrymation and redness, showing that a cyclitis is developing, which may destroy not only the left eye, but also the right.

In 1893, Miss Rose's eyes showed the lenses dislocated downward, but the edges still in the line of vision, and the refraction highly myopic. About 1895 she found that she could see much better without her glasses than with them, and in 1896 she consulted an oculist in another city, who prescribed +8.50 for both eyes, and she has worn these ever since; that is from being highly myopic, she became highly hyperopic. I examined her eyes again in August, 1899, and found that the zonules of both eyes had ruptured above, allowing the lenses to sink out of the visual line, that is, the long side of the zonule ruptured in this case instead of the short side, as in her brother's. The rupture, however, is not as yet very extensive apparently, so that there seems little danger from pressure on the ciliary processes. Nor is there any effect like a "trap-door," as in her brother's case. Also, these lenses, free of opacity in 1893, now show

many lines of opacity extending from the periphery toward the center.

The question of treatment in Mr. J. E.'s case is a simple one. The lens must be removed; but the operation is a very difficult one, and there is great danger of doing damage to the eye. The difficulty lies in getting hold of the lens in order to extract it. Being loose, it is sure to float out of sight if not fixed behind the pupil before the eye is opened, or the patient placed lying on his stomach, so that the lens will float into the pupil, the operator working from below. I am inclined to use the Agnew bident for fixation, and hope to report a successful extraction in the near future.

It is only fair to assume that the lenses in Miss Rose's eyes will slowly become more and more separated from the ciliary processes, and I am in doubt as to what course to advise. Extraction at present would be much easier than when luxation is more advanced, yet if I could be sure that no further luxation would take place, I certainly should not advise operative interference. For a time at least, they will be carefully watched for evidences of further rupture.

The outcome of these two cases being so characteristic of certain changes in the zonule, warns us to be careful as to our prognosis in the case of the children. So far as could be seen at the time of examination, neither of the children's eyes showed any evidence of stretching or rupture of the zonule beyond what one would expect from the luxated lenses.

EXTENSION MASSAGE OF THE OSSICLES WITH A NEW AURAL MASSEUR.*

BY HAMILTON STILLSON, M.D.

SEATTLE, WASH.

The fibrous bands thrown across the middle ear in hyperplastic otitis media form for the aurist a "pons asinorum." When a sclerotic case presents itself we usually break to the patient the interesting intelligence that nothing can be done for him. Politzer¹ says: "adhesive inflammation of the middle ear does not admit of a restitution of the function of hearing." Gruber² says: "the prognosis in plastic inflammation of the middle ear is upon the whole unfavorable." Dench³ assures us: "the usual course is steadily progressive."

Yet it is the business of the aurist to benefit such cases. And it has always seemed to the writer that the various operative procedures suggested and practiced by various aurists for the relief of these cases were futile because irrational. Certainly all aurists agree that ankylosis of the foot plate of the stapes with the bony wall of the fenestra ovalis is inoperable. Logically an ankylosis between any two of the ossicula would also be inoperable—or rather let us say that any operation to succeed would look to the entire removal of the offending ossicula. Such an operation "proves too much." It is much more rational to endeavor to absorb the ankylosis while saving intact the natural structures.

Such effort is made in the use of the instrument described in this paper. It is constructed as follows: A soft iron "core" is wrapped in a coil of insulated wire and enclosed in a cylinder. Near each end of the core is placed a metal diaphragm which has air-tight packing between the edge of the diaphragm and the cylinder.

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¹ Diseases of the Ear, p. 354.

² Diseases of the Ear, p. 401.

³ Diseases of the Ear, p. 380.

The ends of the cylinder are sealed, leaving an air-chamber between the diaphragm and the ends of the cylinder. There are thus produced three air-chambers, the central one, the one between the diaphragms, enclosing the magnet, and one at each end of the cylinder between the diaphragms and the ends of the cylinder. Leading from the central one is a tube which ends in an ear nozzle. Manifestly, if an interrupted current of electricity be sent through the coil, the diaphragms will be alternately attracted and released. Since both are attracted at the same time, the air in the central chamber will be compressed from both diaphragms and forced outward through the ear nozzle. When the current is released, both diaphragms will spring back into place, compressing the hitherto rarefied air in outer air-chambers and rarefying the air in the central chamber. This to-and-fro movement in the diaphragm thus causes a pumping

or churning of the air in the ear nozzle. The rapidity of the movement will depend on the rapidity of the vibrations or interruptions in the current, and the length and strength of the stroke will depend on the size and tension of the diaphragms. To regulate the rapidity of the interruptions to the current, an interrupter is thrown into the circuit, consisting of a soft iron core wrapped with insulated wire and having a vibrator at each end. On one of the vibrators is a projecting rod with a movable weight. The rate of its vibrations will thus depend on the position of the weight on the rod, slow when the weight is near the outer end of the rod and fast when near the magnet. For a battery, a few dry cells suffice. The regular Westinghouse alternating current with a suitable "transformer" offers a most excellent current.

There remains one very important part of the apparatus yet to be described, and that is the means of put-

ting the ankylosis or adhesive bands on stretch while such ankyloses are being vibrated. Connected with the air-chambers, and hence with the air in the ear nozzle, is a stout rubber bulb which is compressed just previous to the nozzle being inserted into the external auditory meatus; and when the nozzle is thus inserted into the meatus, hermetically closing the meatus, the bulb is released, thus sucking the membrana tympani more or less forcibly outward. Any vibrations of the air in the external meatus would then vibrate the membrane and the ossicula and the ankyloses and the adhesive bands *while they were already on tension*. This is one of the distinctive features of the instrument and one of its principal advantages. In all the many forms of instruments known to the writer that are used to create vibrations in the membrana tympani and its ossicula, none of them do more than to vibrate the membrane to and fro. But the membrane, if it be flaccid, can flap to and fro without vibrating the ossicula in the least. The instrument above described first puts the offending sclerosed tissues on the stretch and then more or less rapidly jerks them loose, so to speak. If, as sometimes appears desirable, the tension should be inward instead of outward, the operator has only to compress the bulb after inserting the nozzle, instead of releasing it as described above. The membrana will thus be pushed inward, where it may be vibrated. In all cases of ankylosis of the ossicula, this latter procedure is to be occasionally used.

I have used this instrument for the last ten years, modifying it in some particulars from time to time, and in its present form it is giving most excellent results. Tinnitus not due to congestion is often quickly relieved. The hearing distance in suitable cases increases steadily, and in cases of recent standing a few applications sometimes suffice to restore the hearing. Other indications besides the scleroses mentioned have to be met by suitable treatment in conjunction with the use of the instrument, and in old and very chronic cases the applications have to be repeated for a long time. But by properly selecting the cases for its application, and by persistently and intelligently applying it, the instrument will be found very beneficial in a hitherto almost hopeless class of cases.

SARCOMA OF FACE AND TEMPORAL REGION.

EXCISION HEMORRHAGE CONTROLLED BY TEMPORARY CLOSURE OF THE COMMON CAROTID ARTERY BY MEANS OF A COMPRESS AND LIGATURE.*

BY JOSEPH H. BRANHAM, M.D.

BALTIMORE.

Peter R., colored, aged 32, single, was admitted to the National Temperance Hospital of Baltimore, September 20, 1898. His family history is unimportant, none of his ancestors, so far as can be learned, having suffered from malignant growth.

He had had the usual diseases of children. When 14 years of age, he noticed a swelling on the left side of the lower jaw; does not remember that he had received an injury on this part of the face. This gradually grew until he was 19 years of age, when it was nearly as large as a man's fist. At this time he entered the City Hospital of Baltimore and had the left part of the interior maxilla, from the symphysis, to the upper part of the ramus, removed—the operation was done by the late Prof. O. J.

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