Hæmorrhage from the ears may, of course, be from other causes than fracture; but time or the careful examination of an aurist will usually settle this point.

Hæmorrhage from the nose may also be due to other causes than fracture. It is very common in all injuries to the head. If the blood is mingled with cerebro-spinal fluid, the diagnosis is practically settled, as well as by long continued bleeding, and often by hæmorrhage from the pharynx vault.

Ecchymosis of the lids is not at all diagnostic. It was Dr. R. M. Hodges, I believe, who first pointed out the fact that subconjunctival hæmorrhage is a vastly more important factor.

A perfectly familiar sign of fracture of the occiput which is often overlooked is ecchymosis in the mastoid region. Many cases, of course, die too soon for this evidence to be of value. When it appears, it usually does so in from two to five days after the injury.

There are undoubtedly many cases of fracture where no external hæmorrhage is seen, and where pressure symptoms alone must be relied on. These are too uncertain to use in evidence here.

Almost without exception hæmorrhage, more or less extensive, is the great source of danger in these cases, as in those of fracture of the vault. I refer, of course, to the experience of civil practice: the fearful mangling of the brain so common in actual warfare is almost unknown except occasionally in railway surgery.

This matter of hæmorrhage and its relief is the key-note to the whole subject of treatment and prognosis in those cases which are not immediately fatal; and it is most interesting to note that, in very many of those cases where free hæmorrhage external exists, this is cause for congratulation. Of the 27 cases which recovered, 20 had profuse hæmorrhage from the ears, and five from the nose or nose and ears together. Two had slight hæmorrhages into the orbit and mastoid region, the lesion in both those cases being apparently trivial. Out of the total number of base fractures, 75, or more than 50%, had hæmorrhage from the ear, so that we may say that, given fracture of the base with hæmorrhage from the ear, one-third of the cases recover.

This is rather a remarkable showing and the deduction is obvious; namely, that in fractures of the base free drainage is the one great essential for recovery. That fact was not always recognized at the time of the injury when these records were written, which makes the unconscious evidence of the writers of greater value. In these cases I find it very frequently reported that the hæmorrhage was profuse, was copious, and was long continued.

Writers in recent years have dwelt much on the necessity of the antiseptic treatment of these wounds of the base, and that procedure is certainly a very proper one; but the fact that even in pre-antiseptic days so few of these cases died of sepsis — three out of 108, as shown by autopsy — goes to demonstrate that sepsis must be considered a very remote danger. In the detail of antiseptic dressings to these base fractures great care must be taken to facilitate free drainage. I have seen the ear stuffed so tight with sterilized cotton that the plug entirely checked the external hæmorrhage. A slight gauze wick, frequent irrigation and a large, loose external pad make the most suitable dressings in these cases.

When the hæmorrhage comes from the nose or pharynx, there is less danger of doing damage by plugging; but it is also much more difficult or impossible to render the parts aseptic. Frequent douches, drying powders and gauze drains may, however, be used with advantage.

When all the mild and palliative measures have been used, the important question of drainage still remains to be met, and though our data are not yet large enough to admit of laying down a hard and fast rule, such cases as we have go to show that always when fracture of the base is apparent, when the source of hæmorrhage is not beyond exploration, and when the patient's strength admits, the trephine should be used. A few notable cases have already been reported where success followed the operation, and these cases should encourage the surgeon under similar circumstances.

I have not attempted in this sketch to do more than follow out the obvious lines of thought suggested by the records. Incomplete as these records necessarily are, their significance seems to me unquestionable: that the bone injury in itself is insignificant, that the danger of sepsis is remote when the membranes are intact, that base fractures are not necessarily fatal, and that removal of pressure and free drainage is the one great essential in the surgeon's treatment of all cases.

## NOTES ON THE CENTENNIAL ANNIVERSARY OF THE DISCOVERY OF ASTIGMATISM.[1]

BY DAVID COGGIN, M.D., SALEM, MASS.

IN 1793, exactly one century ago, Thomas Young, an English medical student only twenty years of age, found there was a want of symmetry in the dioptric system of his eyes. He did not name this defect, and being interested in other fields of science, it is likely he died without realizing the great importance of his discovery. Not much is recorded of this anomaly till fifty years later, although astronomer-royal Airy, in 1827, only two years before the decease of Dr. Young, had cylindrical glasses ground that corrected this refractive error in his own eyes, which was afterwards called astigmatism by Rev. Dr. Whewell, Master of Trinity, Cambridge. But cylinder-glasses for its relief were rarely used prior to 1860, or thereabouts.

When the late Dr. Dix, of Boston, wrote his Boylston prize-essay in 1848 ("Morbid Sensibility of the Retina"), astigmatism was apparently unknown in this vicinity — "myopy" and "presbyopy" being the only recognized refractive errors. But in the midst of our Civil War, the late Professor Donders, of Utrecht, in his "Refraction and Accommodation of the Eye" (New Sydenham Society, London), described astigmatism clearly, and with it the almost as important malformation of the eye-ball which he termed hypermetropia (the eye being turnip-shaped, to use a bucolic simile).

In the same year, it may be remarked, there was founded in New York City, the American Ophthalmological Society, now the oldest of the dozen societies of specialists that hold triennial meetings in Washington. Eight of the original members survive, of whom five live in Boston.

With the appearance of Donders's treatise, ophthalmology took rapid strides forward. Ophthalmic surgeons soon found that patients, and oftentimes very

[1] Read before the Essex South District Medical Society, January 10, 1893.

youthful ones, having flat-shaped eyes could use them without fatigue on wearing convex glasses, while other patients, whose cornea were ellipsoidal in form, or, as Donders defined it, where there existed "an aberration dependent on the difference in focal length of the different meridians of the light-refracting system," could get the same amount of relief on wearing cylindrical glasses. At first, in England at least, astigmatic lenses were large, and they were inserted in round frames so they could be readily rotated by the wearer till the proper axis should be found that would correct the corneal asymmetry, but such temporary mountings have passed by and especially in this country, where all optical work is both well done and well charged for. It appears, therefore, that American ophthalmic surgeons have been quietly prescribing cylindrical glasses in cases of astigmatism, as a matter of almost daily routine, for about thirty years, so it is somewhat remarkable that it is only within the last few years that cases of eye-strain due to this defect have been more commonly referred to them by general practitioners, than was the case previously. Doubtless this awakening has been largely due to the enthusiastic teachings of the members of the Neurological, one of the oldest of our special societies. As is well known, they frequently refer their patients to an oculist for the appropriate treatment of refractive and muscular troubles, and so do their followers in town and country.

Now you are aware that Essex County is so densely populated that it can be likened to a great workshop, for in its cities and towns there is a large number of skilled artisans, of both sexes, employed in numerous shoe and other manufacturing establishments. At best, their occupations are fatiguing; and if their vision is below par, their work becomes wellnigh unbearable; so they finally seek relief from the ophthalmic surgeon — and they ordinarily get it.

Of the new patients seen by the reader in the year several belonged to this class, and of these 181 (16 per cent.) had regular corneal astigmatism, for the correction of which cylindrical spectacles were prescribed (and it is believed that almost invariably this advice was followed).[2] Astigmatic glasses were not ordered for over eighty other astigmatic patients, who were either averse to glasses or their astigmatism was too irregular to be corrected. It is a matter of wonder how frequently such patients will persistently decline glasses preferring, like Felix, to wait for a more convenient season. If young and in health, and so situated in life that they need not tax their eyes much, they get along fairly well. But after the lapse of some years, and with the approach of old-sight, they reluctantly consent to put on the rejected glasses. In the past year, more than a dozen old patients returned for the formulæ of the cylindrical glasses that had once been rejected. Without doubt you all can recall instances where it has been far from easy to induce such cases to seek relief from an oculist.

Not infrequently, in incipient cataract a lenticular astigmatism is developed, for the correction of which certain opticians will fit cylinder-glasses. The same lenses can rarely be worn long, which should be considered before ordering them, for poor patients at least. After the extraction of a cataract, a lens having one surface cylindrical will occasionally aid vision very materially. In the writer's experience such cases have been infrequent, however.

In closing this brief sketch, it may be said, it seems likely that astigmatism, like the poor, is always with us. Indeed, it has been affirmed that it is ordinarily to be found in the human eye. It is certain that if the refractive surfaces of Clarke's great lenses were as irregular as are those of our eyes they would be immediately condemned; and, in our day at least, we could not hope to become familiar with the topography of Mars, but like the old Hebrew prophet we should die without having seen the promised land.

[2] While the subjoined figures are too small in number to be of much statistical value, they are given in the belief that they are not altogether without interest:

| | Females | Males |
|---|---|---|
| Ah | 30 | 12 |
| Ah (one eye) | 9 | 15 |
| H + Ah | 10 | 10 |
| H + Ah (one eye) | 11 | 5 |
| Am | 26 | 15 |
| Am (one eye) | 8 | 10 |
| M + Am | 6 | 6 |
| M + Am (one eye) | 1 | 4 |
| Ahm | 2 | |
| Am (o. s.) / M + AM (o. d.) | | 1 |
| | 103 | 78 |

In nearly all of the 63 cases in which a cylinder-glass was ordered for one eye, its fellow had normal vision, and so it was provided with a plane-glass, if with any.

# Clinical Department.

## TWO CASES OF TREPHINING FOR INTRA-CRANIAL HÆMORRHAGE.[1]

BY J. W. ELLIOT, M.D.

CASE I. *Middle Meningeal Hæmorrhage in a case of extensive fracture of the right side of the skull involving the base; trephining and ligature of the artery; recovery.*

The patient had fallen on his head from a distance of twelve feet, and had been picked up unconscious, but had partially regained consciousness when he arrived at the Massachusetts General Hospital. Between seven and nine o'clock his pulse had fallen from 68 to 40; his pupils had ceased to respond to light, and the right one had become dilated. He had had convulsive movements and had sunk into deep coma with stertorous breathing. The probable diagnosis of middle meningeal hæmorrhage was reached.

No fracture of the skull was seen until the scalp had been reflected, when a linear fracture was found running from the parietal eminence down into the base of the skull. I trephined, without ether, just above the ear, and found a black clot (extra dural) as large as a small fist running back as far as the parietal eminence. The middle meningeal artery was seen spurting in the trephine opening, and was tied by passing a curved needle through the dura. The large blood-clot was removed with fingers and a spoon. The brain was compressed more than an inch below its normal level and did not return when the clot was removed. Consequently, this large space between the dura and the skull immediately refilled with blood. The hæmorrhage continued to be serious until the whole space was packed with gauze.

The pulse rose from 40 to 100 during the operation, and the patient became somewhat sensitive to pain and moved his arms and legs.

On the second day he began to recover his intelligence and continued to improve. The wound healed rapidly and the patient made a complete recovery.

[1] Read before the Surgical Section of the Suffolk District Medical Society, December 7, 1892.