nothing before unknown is here discovered, the sections are well worth study to those who are endeavouring to master the intricate topography of the nose and adjacent regions.

In the second part Onodi states that as far back as the first half of the eighteenth century a new artificial passage into the nose was recommended in cases of obstruction of the duct, and that the causal relation between pathological conditions of this structure and the nose has long been well known, about 90 per cent. of these troubles being referable to its nasal environment. The various ways in which the duct can be involved are discussed, which practically results in a reference to all intra-nasal disease.

As regards treatment, of course the nasal lesion, if giving rise to offence and able to be remedied, should be the first objective, and failing this means of approach, other direct methods are described and compared. This latter portion does not, however, lend itself to abstraction, and the original should be consulted by those interested in the subject. *Alex. R. Tweedie.*

Loeb, Virgil.—Cubic Capacity and Superficial Area of the Maxillary Sinus. "Journ. Amer. Med. Assoc.," August 3, 1912.

To determine the cubic capacity and superficial area of the antrum of Highmore horizontal sections of twenty-one decalcified heads were made. The casts obtained were mounted in pairs, and gave a clear idea of the size, form and irregular contour of the sinuses. By measuring the displacement of water resulting from the immersion of these casts, rendered impervious to water by melted paraffin, the cubic capacity, which averaged 12·94 c.c., was determined.

The superficial area was obtained by taking a strip of adhesive equalling 25 sq. in., from which pieces were cut and fitted on each cast until it was entirely covered. The general average was found to be 31·68 sq. in., and the two sides showed a marked uniformity.

Birkett (Rogers).

Loeb, H. W.—The Cubical Capacity and Superficial Area of the Sphenoidal Sinus. "Annals of Otol., Rhinol., and Laryngol.," vol. xxi, p. 1.

An interesting investigation illustrated by fifty figures. Plaster casts were taken after section of the head preserved in formalin. The casts prepared show the cubical capacity in the twenty sinuses examined to vary from 0·6 to 11·8 c.cm., with an average of 5·145 c.cm.; and the superficial area from 2·4 to 28·2 c.cm., with an average of 16·65 c.cm. A formula is suggested for estimating the superficial area from a known cubical capacity. This formula is: $Y = 0{\cdot}2\,X + 4{\cdot}4$; X is the volume, and Y the superficial area divided by the volume. In order to determine the superficial area, the value of Y must be multiplied by the already known volume of the sinus. *Macleod Yearsley.*

EAR.

Lüders, Carl.—Hæmorrhage following Paracentesis of the Tympanic Membrane. "Zeitschr. f. Ohrenheilk.," Bd. lxvi, No. 2.

The writer describes a case in which severe and repeated hæmorrhage followed paracentesis of the tympanic membrane, resulting in death from pyæmia. Summarising an investigation into this matter, he states that certain constitutional and infectious diseases may give rise to severe

hæmorrhage after paracentesis not uncommonly, but bleeding of such a degree as to endanger life is extremely rare. A search through the literature has only brought to light eight such cases, and in all these cases the source of the hæmorrhage was the jugular bulb, which has bulged through into the middle ear; in no case did the hæmorrhage arise from the internal carotid. The danger to life arises not so much from the injury to a big blood-vessel as to the fact that the middle ear is septic, and, therefore, pyæmia may result (twice in eight cases). In the second of the writer's cases the bleeding recurred several times, and an operation was undertaken to control it, the lateral sinus being exposed and packed above and below as far as the jugular bulb. Pyæmia, however, occurred, and the patient died. The author concludes that in such cases the jugular vein should be ligatured in the neck at the same time.

Lindley Sewell.

Haynes, Irving S., M.D.—The Surgical Treatment of Meningitis. "Laryngoscope," June, 1912.

The lethal effects of meningitis are due to three factors—the toxins manufactured by the bacteria, the toxins generated in the tissues as the result of bacterial activity on them, and the mechanical effects of the pressure produced within the skull by the products of inflammation. Medical treatment has hitherto proved unavailing, and surgical aid has not been resorted to until the patient is moribund. Death is caused finally by the increase of intra-cranial pressure progressing to such a point as to finally shut off the blood-supply from the vital centres, and can only be averted by removal of this increased pressure. Attempts to achieve this end have been made by the operations of ventricular puncture, lumbar puncture and laminectomy. Ventricular puncture, however, cannot drain pus from the base, may not relieve pressure, and adds the danger of infection of meninges, cortex and ventricles. Lumbar puncture is valuable for the positive diagnostic findings it may give, but fails as a therapeutic measure, except in cases of serous meningitis, owing to the uncertain drainage and the risk of plugging of the foramen magnum by the brain stem. The same objection applies to laminectomy. To get over these defects, the author has devised an operation for draining the cisterna magna. This cavity, the largest subarachnoid space, is in very free communication with the other spaces without the brain and cord, and especially with the ventricular cavities, through the foramen of Magendie, which is always large and seldom if ever closed. The operation also has the advantage of causing no hernia, and so drainage is not interfered with. It should be performed directly a diagnosis is made, valuable early signs being a rising blood-pressure, œdema of the optic papilla, absence of carbohydrates from the cerebro-spinal fluid, and an irritable or clouding sensorium. The operation is performed as follows: The head having been shaved, the patient is placed prone on the table with the head flexed, projecting over the end of the table, and resting on a head-rest. The anæsthetic is administered through nasal tubes. Through an incision in the middle line, from the occipital protuberance to the spine of the axis, the tissues are divided down to the occipital bone and the posterior arch of the atlas. Periosteum and muscles are stripped from the occipital bone on each side of the middle line down to the foramen magnum. The sides being held apart by a self-retaining retractor, a $\frac{3}{8}$-in. trephine hole is made in the middle line about 1 in. from the foramen magnum, and the dura being raised, a wedge of bone is removed down to the foramen magnum with De Villbis forceps, being

rather broader at the margin of the foramen than above. The dura and arachnoid are punctured, and the cerebro-spinal fluid allowed to escape slowly. These membranes are then divided for the whole length of bone gap, a drain of gutta-percha tissue inserted, and the wound sutured round it. The author has operated by this method in three cases of suppurative meningitis, all in the last stages, and they all died, but the operation was easily and rapidly performed, drainage was free to the end and all the symptoms were ameliorated.

A fourth case of otitic streptococcal meningitis operated on by Kopetzky also died, but without stupor, slowed pulse, or choked disc cure being prevented by the extent of the infection.

The author states that with early diagnosis and operation some lives will be saved. *A. J. Wright.*

BOOKS RECEIVED.

Meningitis, Sinus Thrombosis and Abscess of the Brain. By *John Wyllie, M.D.* Pp. ix + 258, post 8vo. Price 6*s.* 6*d.* net. London: H. K. Lewis, 1911.

Handbuch der speziellen Chirurgie, etc. Von *L. Katz, H. Preysing,* und *F. Blumenfeld.* Band iv, Lief. 7. Würzburg: Kurt Kabitsch. 1913.

Transactions of the Thirty-fourth Annual Meeting of the American Laryngological Association. New York: Published for the Association, May, 1912.

NOTA SUBSCRIPTA.

Paracusis Willisii and the Motor Car.—The following advertisement appeared a few weeks ago in a well-known London newspaper (names are suppressed):

An owner writes: "You are aware that although I have been a supporter of your firm from its first inception and am still perfectly satisfied with the recent six cylinder car of your make in my possession, I have lately purchased a new four cylinder chassis of foreign manufacture at a price scarcely inferior, if at all, to that which your own so fully justifies. I write, therefore, to explain to yourselves why I have done so.

"Your cars are now recognised all the world over as unrivalled, especially perhaps in the matter of silence. Each year finds them more and more perfect in this respect. Each year finds me more and more deaf.

"I find, however, *I can hear much better in a car that makes a noise.* Amid the hum of shaft, gears, and timing wheels, the tapping of valves, the puffing of exhaust, and the banging of the cut-out, I once again experience the *old familiar charm of each varying inflection of the human voice.*

"My new car is amply accommodated in all these details.

"If you consider that in regaining one of my senses, I am bereft of the rest, you will, I know, find an ever increasing number of the public to agree with you."