refers to the peculiarities of formation of the sinuses. In 10 per cent. of maxillary sinuses there is an accessory ostium below the uncinate process and behind the common ostium. Also large anterior ethmoidal cells may occupy the place of the frontal sinus, and when present they may interfere with the fronto-nasal duct.

The interesting relationship of the sphenoidal sinus to the olfactory, optic and spheno-palatine nerves and the reflex infra-orbital neuralgia which is often associated with sphenoidal sinusitis do not escape the author's attention.

The paper is intended to deal with suppurative diseases of the sinuses only, and closes with a *resumé* of forty-three cases which have passed under the writer's observation in private practice. Of these, eight are noted as frontal, nine as maxillary, twelve as ethmoidal, one as sphenoidal, and the remaining thirteen as a combination of diseased conditions in two or more of the sinuses.

The last case, No. 43, the writer makes a special note upon. The patient, male, aged twenty-nine, had suffered for years from terrible headaches in both frontal regions. During this period his physician had frequently given him injections of morphine when the pain became unbearable. The attacks were intermittent, formerly every four or six weeks, latterly two or three times a week, lasting for many hours until relieved by natural or acquired sleep.

The nasal discharge was thick and yellow, but free from odour. There was very slight optical defect. When first examined by the writer there was no discharge, and the nose was remarkably free from obstruction. The right middle turbinal was rather close to the septum and slightly coated. Transillumination showed right antrum and frontal sinus darker than the left. On washing, a teaspoonful of odourless pus was washed from right antrum, but none from the left or from the frontal sinus. Several days later patient had a burst of blood and pus from his nose. On washing antrum again no pus was obtained. While discharge was free the headache was relieved, but pain returned on cessation of the flow.

It was then decided to remove the entire middle turbinal and some of the posterior ethmoid cells. A week later the patient felt much better. A further curetting was done, but no pus found. This time the cure of the headache was complete. *Price-Brown.*

EAR.

Frey, Hugo.—The Auditory Apparatus in relation to Syphilis and Anti-syphilitic Therapy. "Die Heilkunde," Jahrg. 1911, No. 11.

Primary sores in relation to the ear are not so rare as might be imagined. That most commonly met with is in the neighbourhood of the pharyngeal orifice of the Eustachian tube, the virus having been transmitted by an infected catheter. Though macules and papules may occasionally be observed in the external auditory meatus or on the membrana tympani, secondary syphilitic manifestations in the ear are usually of a catarrhal nature and secondary to a specific lesion in the nose or naso-pharynx. The same applies to tertiary lesions in these regions. Early treatment will prevent such sequelæ. Syphilitic affections of the inner ear may be either labyrinthine or retro-labyrinthine, and may manifest themselves at an early or late period of the disease. The accompanying symptoms and a functional examination of the internal ear will indicate whether the vestibular or cochlear branch of the nerve

is mainly involved. The acoustic nerve is sometimes implicated in syphilitic basal meningitis. Deafness is one of the cardinal symptoms of hereditary syphilis, and may be accompanied by labyrinth symptoms, either sudden or gradual in onset. Syphilis is a prolific source of deaf-mutism. Forty per cent. of cases of inner ear disease examined by various authors have given a positive Wassermann reaction. The results obtained by treating recent syphilitic ear disease with salvarsan have been decidedly encouraging. It has been contended by some authorities that internal ear disease, which appeared shortly after the injection of salvarsan, was due to direct toxic action of this drug upon the acoustic nerve. This is however, not the case. Slight lesions of the nerve probably existed in these cases before the drug was exhibited. The subsequent exacerbation may be compared to Herxheimer's skin reaction, but owing to the anatomical position of the nerve the inflammation takes longer to subside and a somewhat different clinical picture is accordingly produced. When the nerve becomes affected from one to three months after the injection, there are three arguments used to show that the drug is to blame: (1) Other arsenical preparations exert a toxic influence on the vestibular nerve. (2) In the older methods of treatment affections of the internal, ear in cases of recent syphilis were "almost unknown." (3) That the Wassermann reaction was often negative in these cases. Though vestibular symptoms were produced in animals by arsacetin, such symptoms were wanting in the same animals when given arsenobenzol. The amount of arsenic in arsacetin which produced toxic symptoms was larger out of all proportion to the amount given therapeutically in salvarsan. We are now aware that syphilitic manifestations may occur even though the Wassermann reaction is not always positive. There are numerous cases on record in the literature to prove that affections of the inner ear in recent syphilis were not "almost unknown" in the pre-salvarsan period. These cases did not excite sufficient interest—especially regarding their time relation to infection—to justify their publication. The functional examination of the inner ear has only recently attained clinical accuracy and importance. Ehrlich maintains that the syphilitic virus may remain pent up in an active condition in the nerve owing to an endarteritis of the nerve-vessels which prevents the salvarsan from sterilising these foci; the latter may be responsible for subsequent nerve symptoms, though unable, owing to their isolation, to influence the Wassermann reaction. It has yet to be proved that this drug can injure the acoustic nerve and it

Olsho, S. L.—Untoward Effects of Salvarsan referable to the Eye and Ear. "Therapeutic Gazette," No. 6, June, 1912.

A summary of the evidence on the by-effects on the sense-organs of sight and hearing, attributable to the toxic action of salvarsan.

Auditory and labyrinth disturbances have been reported by many observers. Von Zumbusch collected 9 cases among a total of 7000 cases treated. Beck found 3 cases among 100 syphilitics in Urbantschitsch's clinic.

In the latter series the symptoms appeared in from five to nine weeks after treatment, and in one other case Ménièriform changes appeared four months after injection. In none of these cases did the symptoms yield to treatment. Beck remarks that ear affections in untreated syphilis are comparatively rare, while they have become unusually common since the introduction of salvarsan. Mayer, basing his observations on cases of

syphilis observed before the introduction of salvarsan, states that the auditory nerve is liable to become affected as early as six weeks after infection, and that auditory trouble is most common in the first six weeks.

Ehrmann, Frey and Wechselmann are quoted as of opinion that these changes are directly due to the specific infection. Ehrlich claims that the disturbances occurred only in patients treated subcutaneously, namely by a single dose, not followed by forced administration of salvarsan; that the patients were always within two to eight months of infection, and in most of the cases the Wassermann reaction was negative. He states that the same symptoms are observed in recent syphilitics treated with mercury; that the physicians who used the largest doses of salvarsan did not observe these disturbances; and that some of the cases were benefited by antisyphilitic remedies or even by additional salvarsan.

Ehrlich concludes that optic and acoustic disturbances are natural phenomena in recent syphilis, and are not manifestations of the toxicity of salvarsan. *Knowles Renshaw.*

PHARYNX.

Scales, J. L.—(? Epithelioma cured by Salvarsan.) Pharyngeal Ulcer: Report of a Case with Unusual Features. "New Orleans Med. and Surg. Journ.," November, 1912.

The patient gave a history of sore throat for six months. When seen there was an ulcer involving most of the posterior pharyngeal wall and the posterior pillars of the fauces. The character of the edge of the ulcer is not described, but the surface was covered with necrotic tissue and extremely foul. The patient denied syphilis, but apparently he had been receiving anti-syphilitic treatment. A small piece of tissue from the ulcer was sent to be examined histologically. The Wassermann reaction was also tested, and found to be positive. "606" was then administered intra-venously, with marvellous result; the ulcer healed rapidly, and the patient gained 20 lb. in weight in a few weeks. A few days after the injection, the pathologist who had examined the tissue from the ulcer reported that it was an epithelioma. The subsequent history of the case, which would be most interesting, is not given. *Knowles Renshaw.*

REVIEWS.

Vicious Circles in Disease. By JAMIESON B. HURRY, M.A., M.D. Cantab. With illustrations. Second and enlarged edition. London: J. & A. Churchill, 1913.

An erudite and finished account of the many vicious circles in disease. Perhaps the account is a little too complete in one direction and not quite complete enough in another, for the impression it left upon at least one reader's mind was that pathological processes in general are solely made up of a complicated series of morbid gyrations. This, of course, may be the impression Dr. Hurry intends to convey. In that case, however, the doubting Thomas would want to know whether morbid processes in the living body do not sometimes move straight to their goal; and if so, why the author does not allude to this other variety, merely by way of balance or proportion, if for no other reason.

Be this as it may, the book undoubtedly fills a gap—this is the second