

rhinologists of Denver it was the consensus of opinion that cases of atrophic rhinitis developing there were seldom encountered. The vast majority of cases seen there were in people who had lived in a low, moist climate, and in whom atrophic rhinitis had already developed before coming to Colorado. Subjects of atrophic rhinitis were more uncomfortable in Denver owing to the diminution of the humidity of the air. The turbinate bodies must throw out more fluid, and, their inability to do so, resulted in an increase of crust formation. However, he had seen many cases of vasomotor rhinitis develop in the high and dry climate. The cause of this was not yet known and the disease was peculiarly rebellious. It was certainly not due to the flora in different altitudes as it occurred throughout the year without any amelioration, the patient remaining in the same place. He had seen remarkable results from sending the patients to the sea shore. The effect was very complex, but the good results probably came through the local influence of the air upon the nasal membrane plus the general effect upon the blood vessels and nervous system.

Dr. ROBERT LEVY (Denver, Col.), did not believe atrophic rhinitis occurred rarely in Denver. It was mainly a disease originating in childhood. The cause was still in doubt. As a matter of fact, children with atrophic rhinitis were found in Denver, but, in his experience, the condition was not confined to children. It was more common in children than hypertrophic rhinitis. His clinical assistant, Dr. Cooper, was making a study of cases of atrophic rhinitis in children and adults, and he had enough cases to make a presentable showing. He had seen enough cases in the clinic alone, aside from those in private practice, to warrant his going on with the study. It was not, however, as frequently found in Denver as elsewhere.

Dr. COCKS in closing, answered Dr. Cott's question in regard to dust by stating that, in his opinion, the results of the tests made in the experimental chambers were not influenced by contamination with a dusty atmosphere. The physical conditions in experimental chambers were practically ideal. Nobody was allowed in the rooms except the observers and the subjects of the experiments.

(To be continued.)

Abstracts.

E.A.R.

Orientation and Equilibration.—A. B. DUEL. New York Academy of Medicine: Meeting of December 16, 1916.

The opening paper reviewed our physiological knowledge of the subject, and his most interesting remark is that such deaf-mutes as are born without a vestibule are incapable of feeling sea-sickness.

In the discussion which followed, H. PIKE pointed out that in studying morbid affections of the cerebrum, cerebellum, and vestibule, experimental data are more reliable than clinical. For the latter are befogged by coincident causes. Thus in cerebral or cerebellar abscess it is difficult to exclude the effect of toxins; and in tumours, of raised intracranial pressure. As we ascend the scale of species, the anterior, cerebral end of the neural axis becomes relatively more important, and the cerebellum in the higher mammalian forms attains an increasing control of orientation.

M. Withney pointed out that in deaf-mutes with both labyrinths destroyed, compensation by other senses is incomplete; thus, the patient cannot keep his direction when swimming. Hæmorrhage into the labyrinth is followed by a definite triad of tinnitus, deafness, and vertigo *in a definite direction*. Hysterical vertigo has no definite direction.

H. Lawson Whale.

Sonorous Vibrations in the Treatment of Diseases of the Ear. Lester-Head Hubly (New York). "Journ. Amer. Med. Assoc.," December 19, 1914.

The author quotes at length various figures to show the utility of sonorous vibrations in treating catarrhal and suppurative otitis media and otosclerosis.

For low notes the improvement in hearing obtained is feeble; indeed, the perception of these may even diminish with the treatment.

Besides the improvement attained in hearing, tinnitus, paræsthesia acoustica, otalgia, and sensations of fulness in the ears may be relieved. This treatment is contra-indicated in acute suppurative otitis media, any form of internal otitis, extreme nervous exhaustion, and absolute middle-ear deafness.

H. Lawson Whale.

NOSE.

Intranasal Operation on the Frontal Sinus.—O. T. Freer. "Laryngoscope," December, 1915, p. 803.

Freer points out that in the dry frontal bone the openings of the frontal sinuses are quite large enough for drainage. The ethmoidal cells, however narrow the outlet, while the ostium lies at a lower level than that of the opening in the frontal bone itself at the bottom of a funnel formed by the walls of the anterior ethmoidal cells and the internal angular process of the frontal bone. Exceptionally an anterior ethmoidal cell lies between the ostium and the nasal crest. Externally and posteriorly an ethmoidal cell (or cells) lie between the ostium and the orbit. The uppermost of the ethmoidal cells are incomplete in the ethmoid bone and are only completed when roofed in by the innermost portion of the orbital plate of the frontal which borders the incisura ethmoidalis. Internally the ostium is bounded by the expanded plate of the anterior superior nasal spine of the frontal. At the posterior part of the inner wall of the "ostium funnel" is situated the thin orbital process of the frontal, which forms the anterior boundary of the olfactory fossa. The orbital plate may project into the frontal sinus—the crista olfactoria of Boenninghaus. This region is dangerous and therefore no cutting should be done in an inward direction. Freer holds that it is not safe to cut forward as is usually advocated because the hard bone of the nasal crest requires strong instruments, the forcible manipulation of which may endanger the overhanging posterior sinus wall. Usually the space obtained by cutting forward is not of itself enough for drainage and may be lost by the formation of granulations. However, a great increase in the size of the ostium can be obtained by working backwards and removing the "foveal cells." Powerful instruments are not required, but merely light curettes. In this way the anterior ethmoidal cells, which form the obstacle to drainage, can be removed. Further, the enlargement is made in a more capacious part of the nasal cavity while the mucous

membrane of the opened ethmoidal cells serve to line the new channel and thus prevents contraction.

The orbital plate of the frontal bone as seen in the floor of the anterior cranial fossa, rises gently from the edge of the cribriform plate in its posterior part, but more and more steeply in front. The orbital plate then bends over in a horizontal direction to cover the "foveal cells" for a distance of about three-eighths of an inch. A backward extension of the frontal sinus (*Recessus para-cribrosus*) may displace the foremost foveal cells. In many cases the foveolæ of the foremost cells become cavities penetrating the orbital plate in the form of fronto-ethmoidal cells. The foremost may be much larger than the frontal sinus, so that it looks like a second frontal sinus. The outer wall of the operative field is the lacrymal bone in front and the "paper plate" of the ethmoid behind.

This wall is frail and liable to perforation. Freer knows of two cases in which blindness followed such perforation. Internally the operative field is bounded by the turbinal wall which is continuous above with the lateral wall of the olfactory fossa in the cranial cavity, so that a fissure created here might lead to meningitis. Below, the terminal wall terminates in the middle turbinate.

The surgical passage of approach to the frontal sinus lies between the parallel walls mentioned above—orbital and turbinal. Antero-posteriorly the surgical passage extends from the ascending frontal process of the superior maxilla in front to the lamella of the middle turbinate behind. This lamella separates the operative field from the posterior ethmoidal cells. At its narrowest part the passage is from one-fourth to one-half inch wide.

Steps of Freer's Operation.—A previous resection of the anterior part of the middle turbinate is usually necessary. A probe is introduced as a guide into the sinus after clearing away obstructing ethmoidal cells if this be necessary. The probe may pass into an infundibular ostium or the ostium may lie in front of the infundibulum. (Freer holds that the frontal sinus probe should thicken evenly like a trout-rod from its distal end towards the butt. Such probes are best made of copper.) The next step of the operation is the removal of the anterior ethmoidal cells up the sinus floor. Freer begins this part by breaking into the ethmoidal bulla which is a constant structure. Before entering the bulla, however, it may be necessary to resect a prominent uncinatè process by means of Freer's septum knives. The bulla is entered with the cutting edge of the curette turned forwards because this permits of vigorous work, as it aims at the strong bone of the ascending process of the superior maxilla. This procedure at once admits the probe into the sinus, even if it would not pass before. Remnants of the anterior ethmoidal cells are cut away with punch forceps. In most cases the removal of these cells breaks away the posterior part of the frontal sinus floor and so at once establishes a good opening. Sometimes, however, the sinus floor is resistant all round the ostium, and for such cases Freer has devised a probe curette which is passed into the frontal sinus and cuts its way downwards and backwards to make room for a larger but similar curette. Freer also used a curette which cuts downwards and forwards to remove a cell which may lie between the ostium and the internal nasal crest. He admits, however, that the dental burr may be indispensable in some cases.

Freer does not approve of curetting away the mucous lining of the frontal sinus, because, if in spite of intranasal drainage the suppuration and headache continue, external operation is required. In most cases the

new channel into the sinus is so large that it remains permanently open, but occasionally the introduction of a drainage-tube is necessary. In such cases Freer uses a self-retaining rubber tube with two rubber flanges. This tube is stretched over the introducer, lubricated, and passed into the sinus. The tube is then cut off in the nose. As a rule, no after-treatment is needed, but the sinus may be washed out through the tube, if necessary. Freer does not believe in the passage of bougies to prevent adhesions.

J. S. Fraser.

MISCELLANEOUS.

The Treatment of Hay-fever, with Pollen Solutions and Calcium Chloride.—Wilson. "The Laryngoscope," June, 1916.

The author states that the symptoms of hay-fever are: *A. characteristic*: (1) Itching, redness, and swelling of the skin or mucous membranes of the body, throat, nose, eyes, etc. (2) Sneezing, lachrymation, rhinorrhœa. (3) Asthma. *B. miscellaneous*: (1) Fever, malaise, asthenia. (2) Vomiting, diarrhœa, cardiac disturbances, swelling of lymph nodes.

There are more than fifty plants to the pollen of which hay-fever subjects are sensitive. To this we may add many fruits, such as strawberries, raspberries, pears, bananas, etc; vegetables, such as tomatoes, celery, spinach; shell-fish, *e. g.* lobsters, crabs, and oysters; eggs, milk, various meats, etc. All these substances contain special protein bodies, which are the active agents in causing the symptoms in question. This same symptom-complex may be caused by substances which contain no protein whatever, such as quinine, iodine, ipecac, and salol. The vasomotor mechanism concerned in the production of the sensitisation-syndrome may be set in operation in more than one manner. Physiological (pathological?) chemistry is at the bottom of the whole series of phenomena. Sensitisation appears to be closely related to what we know as anaphylis, and to alterations in the relations of the endocrine glands.

Treatment by Pollen Vaccine.—Having ground a weighed portion of the dried pollen in an agate mortar with a small amount of water or saline solution, more salt solution is added, and the whole incubated for twenty-four hours. The mixture is centrifuged, and the clear supernatant fluid used as a basis for subsequent dilutions. The term "pollen-unit" means the soluble protein contained in 0.000,001 grm. of dried pollen. As regards dosage, it is quite safe to begin with one or two units. In many cases considerably more than 1000 units may be safely given after a sufficiently extended preliminary desensitisation. Injections should be given at intervals of three to five days.

Results obtained with Pollen Vaccine.—Wilson states that of eleven patients treated in 1914 with pollen solutions, none were absolutely relieved, and only two could be said to have shown "marked improvement." Of ten patients treated with pollen solutions in 1915, one (in her second year of treatment) had absolute relief, and one marked improvement. These results are not as brilliant as those reported by other writers, probably because Wilson is unable to accept anything short of marked relief from hay-fever symptoms as definitely due to treatment, and even this degree of improvement, if it is more or less transitory, may arise from other causes. Multiple sensitisation is a frequent phenomenon in hay-fever subjects, and its existence may

account for many failures in the treatment by means of pollen solutions.

The Treatment of Hay-fever by Calcium Chloride.—*Dosage:* Calcium chloride crystals, 100. Distilled water, enough to make 500. S.: Take one teaspoonful in sufficient water, with or after each meal. *Mode of action:* The salts of calcium are said to increase bodily energy and resistance; relieve insomnia; relieve tendency to nasal catarrh, bronchitis, etc.; inhibit auto-intoxication. Lime salts have an important part in the activation of certain body ferments, such as rennin, thrombin, and trypsinogen. Calcium salts lower the irritability of nervous tissue, especially of the vasomotor system.

The results of the treatment with calcium chloride have been more satisfactory than those of treatment with pollen solutions. There seems to be no definite contra-indications to the daily ingestion of 3.0 to 6.0 grms. of calcium chloride. Anyone taking one or two pints of milk daily, will get as much calcium.

J. S. Fraser.

REVIEWS.

Medical Annual. A Year Book of Treatment and Practitioners' Index, 1917 (thirty-fifth year). Bristol: Wright & Sons, Ltd.

The "Medical Annual" is as hardy as ever and is again full of good things. It need hardly be repeated that the sections on diseases of the throat, nose, and ear get more interesting and instructive all the time in the hands of Mr. J. Fraser of Edinburgh. We can see no sign so far of the "staleness" which is apt to develop in the compiler or abstractor who has worked so long. In fact the articles seem to reach a higher standard each year. The specialist will find the ground thoroughly explored, and he will be exceptionally well up in the special work of the past year if he does not meet with references which he has overlooked.

Among the many outstanding attractions of the Annual for the specialist are the references to conditions outside our specialty which produce symptoms usually associated (by us) with diseases of our "special" organs, or which have an important bearing on the course, treatment, and prognosis of these diseases. In a word the "breadth of view" for which we ought to strive is distinctly fostered by the study of the "Medical Annual." Many illustrations of these views will "jump to the eyes" of him who goes through the admirable index of the present volume and consults the text at the appropriate passages. If he is a junior he will find much suggestive guidance, and if a senior, much to explain many of his unexplained experiences.

Dundas Grant.

Index of Differential Diagnosis of Main Symptoms. By various writers. Edited by HERBERT FRENCH, M.A., M.D., F.R.C.P. Second edition. Pp. 912. With 37 coloured plates and over 300 illustrations in the text. Bristol: John Wright & Sons, Ltd. London: Simpkin, Marshall, Hamilton, Kent & Co., Ltd. Toronto: The Macmillan Company of Canada, Ltd. New York: Wm. Wood & Co. 1917.

It was in 1912 that the first edition of this *magnum opus* made its appearance, and it is with great pleasure that we commend to our readers the second one. There have been several reprints of the former, but in