Assoc.," April, 1896, p. 24), crypto-laryngoscope—a fluorescent screen by means of the X-rays applied to the interior of the mouth for examination of the larynx. De Santi ("Lar. Soc.," London, May, 1896, p. 91) describes a new tracheotomy tube for patients who have to wear it permanently, and in whom there is sufficient space to expire through the larynx, though not room for inspiratory effort with valve. Kirstein's autoscope has been used with advantage in a number of cases. Van Anrooy ("Dutch Soc. Lar., Rhin., Otol.," May, 1896, p. 219) tried this instrument, and was able to find a large papilloma in the right vocal cord. He made use of it in other conditions of the larynx. Meyer ("Berlin Lar. Soc.," Nov., 1895, p. 223) also records favourable results with this instrument. Women he considers to be more suitable for the operation than men, and age of no importance. Heymann ("Berlin Lar. Soc.," Jan., 1896, p. 291) records removal of a polypus with this instrument. Katzenstein ("Berlin Lar. Soc.," Jan., 1896, p. 291) describes a new laryngeal mirror to give upright images, called the orthoscope.

(*Figures refer to this* JOURNAL *of this year when not otherwise stated.*)

OTOLOGY.

BY DUNDAS GRANT, M.D., F.R.C.S.

The retrospect presented below is founded almost exclusively on the otological material published in the JOURNAL for 1896, Volumes X. and XI. The reader is requested to note particularly the nature of the abbreviations explained in the list at the end. In each instance the reference to the pages of the JOURNAL OF LARYNGOLOGY is given. This makes the length of each reference unpleasantly clumsy, but the writer has felt it necessary in the reader's interest, in view of the division of the year's JOURNALS into two volumes, whereby the search for the papers or abstracts referred to is rendered more difficult than in previous years.

AURICLE AND EXTERNAL EAR MALFORMATIONS.—*Coloboma of the Auricle* was successfully treated by a plastic operation by Gruber ("Aust. Ot. Soc.," "J. L.," X., 322); and Max ("Aust. Ot. Soc.," "J. L.," XI., 206) rectified a *Malformation in the Form of a Cleft* by paring the edges and stitching. Other cases of malformation are described by Politzer ("Aust. Ot. Soc.," "J. L.," X., 192) and Bezold ("A. of O.," XXV., No. 2, "J. L.," XI., 172), the latter giving the results of the investigation of *the Hearing Power in Cases of Bilateral Atresia of the Auditory Canal with Rudimentary Auricle.*

NEW GROWTHS, &C.—Several interesting cases of *Non-Malignant New Growths of the Auricle* are published by Gruber ("Aust. Ot. Soc.," "J. L.," XI., 203), Urbantschitsch ("Aust. Ot. Soc.," "J. L.," X., 151), and others; and *Malignant Disease* is illustrated in cases under Gruber ("Aust. Ot. Soc.," "J. L.," X., 194), Denker ("A. of O.," XXV., No. 2), Hennebert ("Belg. Soc.," "J. L.," XI., 210), and Dench ("N. Y. Eye and Ear Infirm. Rep.," Jan., 1896, "J. L.," XI., 174).

GANGRENE *of the Ear* was observed by Bishop ("Journ. Am. Med. Assoc.,' March 28, 1896, "J. L.," X., 278) in a child two years of age: and

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a peculiar ***Periotic Subcutaneous Phlegmonous Œdema*** by Gelle ("Fr. Soc.," "J. L.," X., 67). The gravity of the ***Prognosis of Insanity complicated by Hæmatoma Aurium*** is dwelt on by Pierce Clark ("Am. Med. Laryn. Bull.," Aug. 22, 1896, "J. L.," XI., 357).

FOREIGN BODIES receive general attention from Milligan ("Med. Chron.," March, 1896, "J. L.," X., 282) and Barclay ("Med. News," Jan. 11, 1896, X., 215). Braislin saw ***Living Larvæ in the Ear without Previous Suppuration*** ("A. of O.,"XXV., No. 1, "J. L., X.,"351); as also did Richardson ("A. of O.," XXIV., 3 and 4, "J. L.," X., 217); while Armitage ("L.," Oct. 12, 1895, "J. L.," X., 90) removed ***A Large Insect from the Human Ear.*** MacNaughton Jones showed drawings and described the appearances in a remarkable case in which ***a Hay-seed had sprouted from the Wall of the Meatus close to the Membrane*** ("B. L. R. A.," "J. L.," X., 305). In a case under Raoult ("Fr. Soc.," "J. L.," XI., 144), recourse was had to ***Opening of the Tympanum for the Extraction of a Foreign Body.***

EXTERNAL AUDITORY MEATUS.—***Exostoses*** occurred in interesting cases described by Politzer ("Aust. Ot. Soc.," "J. L.," X., 151) and Urbantschitsch ("Aust. Ot. Soc.," "J. L.," X., 150) and Rutten ("Belg. Soc.," "J. L.," X., 244; and ***Hyperostosis*** in one by Law ("B. L. R. A.," "J. L.," X., 307), the last being brought before the British Laryngological and Otological Association, where operation was deprecated. Scheibe, in a paper on ***Some Tumours of the Ear*** ("A. of O.," XXIV., Nos. 3 and 4), describes hairy polypi; and Pegler brought before the British Laryngological, Rhinological, and Otological Association a section of a ***Polypoid Growth of Unusual Character from the External Surface of the Membrana Tympani*** ("B. L., R. A.," "J. L.," X., 116), showing this rare peculiarity. Courtade ("Ann. des Mal.," Dec., 1895, "J. L.," X., 352) restored the passage in a case of ***Occlusion of the Auditory Meatus*** resulting from injury to the ear by forceps at birth. A singular case of ***Acute Hæmatoma of the Left External Auditory Canal***, apparently due to a vocal strain in an elderly alcoholic subject, is narrated by Arslan ("Arch. Ital. di Otol., etc.," Jan. 1, 1896, "J. L.," X., 277). ***Hæmorrhage from the External Auditory Canal***, apparently exuding from the orifices of the ceruminal glands, is considered by Richardson to have been "genuine" in a case under his observation ("Ann. Ophth. and Otol.," July, 1896, "J. L.," XI., 304).

NON-SUPPURATIVE INFLAMMATIONS OF THE MIDDLE EAR.—Any objective addition to our knowlege of the diagnosis of insidious sclerosis of the middle ear, with confirmation by means of *post-mortem* examination, is invaluable, and such is Bezold's ***Further Case of Anchylosis of the Stapes diagnosed in Life, with Autopsy, and Manometric and Histological Examination*** ("A. of O.," XXV., No. 1, "J. L.," X., 351). In this case Weber's test was positive; Rinné's negative. Bone conduction for low tones was increased; there was extensive defect for air conduction at the lower end of the scale, etc. Hill ("B. M. J.," May 2, 1896, "J. L.," XI., 31) advocates a more frequent use of the Eustachian bougie before giving an absolutely unfavourable *Prognosis in Chronic Non-Suppurativ*

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Catarrh of the Middle Ear. Willetts ("Pittsburgh Med. Rec.," July, 1895, "J. L.," X., 283) directs attention to the probable *Disorganization of the Stapedius Muscle* in some so-called chronic catarrhs, and deprecates too free employment of Politzerization as a routine. The freer use of pilocarpin in chronic aural catarrh is recommended by Martin ("Charlotte Med. Journ.," May, 1896, "J. L.," XI., 303). We can only endorse this opinion in a very restricted number of cases. Miot ("Fr. Soc.," "J. L.," XI., 146) recommends removal of the membrane and the handle only of the malleus as a practicable means of producing a *Permanent Artificial Perforation in the Membrana Tympani. A Typical Change in the Tension of the Membrana Tympani in Valvelike Action of the Eustachian Tube*, consisting in a bulging of the postero-superior segment, is described by Gompertz ("Aust. Soc.," "J. L.," XI., 267), and is said to be remedied by treatment of the Eustachian tube, not by incisions in the bulging membrane. The observation is instructive, as explaining the possible mechanism of the positive barometric pressure in the tympanum postulated by Secchi (*vide* JOURNAL, 1895) as the only means of producing the outward convexity of the radial fibres of the membrane.

The occurrence of *Rupture of the Drum from Hanging* is discussed by Lannois ("Fr. Soc.," "J. L.," X., 70). *Double Otorrhagia in the Course of Typhoid Fever* is recorded by Daunig and Malinie ("Fr. Soc.," "J. L.," X., 74).

SUPPURATIVE INFLAMMATION OF THE MIDDLE EAR. ACUTE.—The *Dry Method*, called by Pes and Gradenigo the "rational" treatment, has been tried by Hamon du Fougeray ("Fr. Soc.," "J. L.," X., 68) in a number of cases, the methodical purification of the auricle and meatus, and plugging of the latter with iodoform gauze, having given very excellent results. Huysman ("Dutch Soc.," "J. L.," XI., 218) also supports this. Escat ("Fr. Soc.," "J. L.," X., 67) describes a number of *Cases with Bulging of the Postero-Superior Segment* of the membrane, in which he advises incision, suction with Siegel's speculum, antiseptic dressing, and plugging with sterilized cotton-wool. [The writer has seen such appearances arising from various conditions, and giving rise to the utmost difficulty in diagnosis and prognosis. To start with, the appearance is that of a polypoid granulation, and it may be the form of suppurative inflammation referred to; but, on the other hand, it may be periostitis of the meatus or acute "attic" inflammation.—D. G.] Geronzi points out ("Arch. Ital.," 1895, 328, "J. L.," X., 279) the frequency with which *Facial Hemiplegia has as its cause Acute Inflammation of the Middle Ear* if the latter is only sought for. A plea on behalf of greater attention to *Asepsis and Antisepsis in Otology* is uttered by Hollinger ("Journ. Amer. Med. Assoc.," Jan. 18, 1896, "J. L.," X., 31). Acute suppuration of the middle ear, as a *Complication of Typhoid Fever*, has been investigated by Hengst ("Amer. L., R. and O. S., "J. L.," XI., 105), who found it present in a little over two per cent. of the cases. Heath ("Med. Age," Jan. 10, 1896) refers to its occurrence *as a Sequela of Influenza*, and advises early leeching and the administration of iodide of potassium. *A New Form of Influenza Otitis*, characterized by the

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formation of several granulation growths on the membrane, leaving pantherlike rings, is described by Koerner ("A. of O.," XXIV., 3 and 4), the previously known forms being those in which there are hæmorrhagic bullæ or a teat-like projection on the membrane or central mastoiditis. The *Bacteriology of Suppurative Otitis Media* has been investigated by Stern ("A. of O.," XXV., No. 2, "J. L.," XI., 177), but, like Zaufal, he finds no marked relation between certain bacteria and special forms of the disease.

Danziger ("Therap. Monats.," June, 1896, "J. L.," XI., 173) dwells on the importance of attending to the *Nose and Naso-Pharynx* in cases of unilateral otitis, there being sometimes a unilateral naso-pharyngeal or nasal affection maintaining the chronicity. Among other remedies, *Acetanilide as an Antiseptic* is recommended by Somers ("Med. News," April 4, 1896, "J. L.," XI., 55); *Styrone*—a combination of storax and balsam of Peru—by Bolt ("Dutch Soc.," "J. L., "XI., 220): and *Alcohol* by Couetoux ("Ann. des Mal.," Oct., 1895, "J. L.," X., 35). Bean ("L.," Nov. 9, 1895, "J. L.," X., 90), in discussing *Otorrhœa and some of its Complications*, dwells on the need for antiseptic precautions in all the minor aural operations.

Lake ("Med. Press and Circ.," Feb. 26, 1896, "J. L.," X., 280) discusses the question of *Excision of the Ossicles and Membrane* in chronic suppuration of the middle ear; and Moure ("Flor. Cong.," "J. L.," X., 20) describes a case of *Removal of the Drumhead in a Case of Intractable Otorrhœa.* He dwells on the value of cocaine, and on the necessity for antiseptic precautions. Cure effected only after *Removal of the Malleus* is recorded by Bing ("Aust. Ot. Soc.," XI., 205); and Urbantschitsch ("Aust. Ot. Soc.," "J. L.," X., 150) has observed the *Favourable Influence of Extraction of the Malleus on the Auditory Function of the Opposite Ear* secondarily affected. In another case of Bing's a cure was brought about after long duration of the disease by means of the "conservative" treatment. [We presume this consisted chiefly of the local insufflation of boric acid or other antiseptic powder.] The "*Radical Operation*" for the cure of chronic suppuration of the middle ear is discussed by Politzer ("Aust. Ot. Soc.," "J. L.," X., 153, and XI., 256), Clemens ("Rep.," Jan., 1895, "J. L.," X., 161), Bronner ("B. L. R. A.," "J. L.," X., 297; "B. M. A.," "J. L.," X., 259), Guément ("Ann. de la Policlin. de Bordeaux, July, 1895, No. 27, "J. L.," X., 280), and others. Bronner deals particularly with disease of the attic. He recommends that the detachment of the auricle should be effected from above by an incision extending lower down in front than is usually made. The subject of *Cholesteatoma* as a cause of chronicity of suppuration, as well as of danger to life, is of especial importance. Politzer ("Aust. Ot. Soc.," "J. L.," X., 192) brought two pathological preparations illustrating the condition before the Austrian Otological Society. In a case of Lacoarret's ("Fr. Soc.," "J. L.," X., 66) there were well-marked Ménière's symptoms. In a contribution to the diagnosis and treatment of cholesteatoma in otitis media purulenta chronica, Arno Scheibe ("A. of O.," XXV., No. 2, "J. L.," XI., 176) brings evidence in support of Bezold's views that cholesteatoma only follows perforations which are marginal and not central.

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Aural Polypi and their treatment are considered by Pritchard ("A. of O.," XXV., No. 1, "J. L.," X., 354) and Wilkin ("Clin. Jour.n," March 25, 1896). Pritchard describes the Listerian antiseptic precautions advisable before operating. Wilkin extols pyoktanin as an application to malignant polypi. Moure ("Flor. Cong.," "J. L.," X., 20) narrates a case of alarming hæmorrhage attending the extraction of a polypus, which turned out to be a *Cavernous Angioma.*

Primary Tuberculosis of the Middle Ear is stated by Bernstein ("Charlotte Med. Journ.," June, 1896, XI., 302) to have occurred twice in his practice.

Residue of Suppurative Inflammation of the Middle Ear. —*The Closure of Old Perforations* by means of repeated applications of trichloracetic acid, as recommended by Okunneff, has been the subject of experiment with favourable result by Gompertz ("Aust. Ot. Soc.," "J. L.," XI., 268).

The Dangerous Sequelæ of Suppuration of the Middle Ear.—*Subdural Suppuration* is described by Kaufmann ("Aust. Ot. Soc.," "J. L.," XI., 34) in the perisinusal groove, giving rise to pyæmia, and yielding to operation. Lichtenberg ("Hung. O. and L. Soc.," "J. L.," X., 188), and Clayton ("Ann. Oph. and Otol.," July, 1896, "J. L.." XI. 304) have also recorded cases.

Otitic Pyæmia, which forms the subject of a large and exhaustive monograph by Prof. Hessler, is illustrated by many cases. Thus we have many *with Sinus Phlebitis* from the practice of Hollinger ("Clin. Med. Rec.," Dec., 1895, "J. L.," X., 217), Walker ("B. M. J.," April 13, 1895, "J. L.," X., 218), Turner ("J. L.," X., 92), Politzer "Aust. Ot. Soc.," "J. L.," XI., 204), Delsaux ("Belg. Soc.," "J. L.," XI., 208), Adams ("N. Y. Med. Journ.," Aug. 29, 1896, "J. L.," XI., 302), Wall ("Ann. Oph. and Otol.," July, 1896, "J. L.," XI., 304), Lucas ("Birm. Med. Rec.," Jan., 1892, "J. L.," X., 281), Bernard Pitts ("L.," Aug. 10, 1895, "J. L.," X., 91), and Denker ("M. of O.," Sept., 1896, XI., 387). Others have occurred *without Sinus Phlebitis*, as recorded by Deansley ("B.M.J.," April 13, 1895, "J. L.," X., 162), and Giffard Nash ("L.," Aug. 3, 1895, "J. L.," X., 162). The results are most encouraging, and it is a striking fact that otitic pyæmia with metastasis runs a more favourable course than otitic septicæmia without metastasis.

The *Exploration of the Lateral Sinus* is frequently performed as a matter of routine for diagnostic as well as therapeutic purposes. Green ("Bost. Med. and Surg. Journ.," Nov. 21, 1895, "J. L.," X., 162) mentions three cases, in all of which the sinus was found healthy, and the patients all recovered. Langenbuch ("Bull. Med.," Jan. 6, 1896, "J. L.," X., 280) is reported by Lacoarret as recommending the *Ligature of the Jugular Vein* without hesitation in cases where there exists with otorrhœa an obvious source of pyæmic infection. This is surely too absolute a rule, and we believe it is generally held that ligature of the jugular should not be performed unless the sinus is at the same time opened, cleared out, and obliterated in response to the indications afforded by exploration. The diagnosis of *Phlebitis of the Bulb of the Jugular Vein* is still a

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matter of considerable difficulty (*experto crede!*), as it may coexist with an apparently normal state of the sigmoid sinus, as shown by exploration and aspiration. Prof. Gruber ("Aust. Ot. Soc.," "J. L.," X., 198) describes an interesting case in which it resulted from acute suppuration of the middle ear without perforation. In relation to this, Kretschmann's description of a *Distinct Form of Tympanic Suppuration* ("Germ. O. S., "J. L.," X., 263) affecting the depression in the floor of the tympanum exactly over the sinus for the jugular bulb is peculiarly interesting.

CEREBRAL AND CEREBELLAR ABSCESSES have received considerable notice, and records of cases are given by Lannois and Jaboulay ("Fr Soc.," "J. L.," XI., 29), Poulsen ("Hos. Tid.," 1895, No. 38, "J. L.," XI. 119), Gradenigo ("Arch. Otol.," 1893, 484, "J. L.," XI., 34), Hubbell ("Med. Journ.," May, 1896, "J. L.," XI., 174), Bacon ("A. of O.," July, 1895, "J. L.," XI., 355), Treitel ("A. of O.," XXIV., 3 and 4, "J. L.," X., 92), Marchant ("Sem. Med.," Jan. 3, 1895, "J. L.," X., 282), Urbantschitsch ("Aust. Ot. Soc.," "J. L.," X., 323), and Ackland and Ballance ("St. Thomas' Hosp. Rep.," XXIII., 1894, "J. L.," X., 350). Lannois and Jaboulay's case was characterized by hemianopsia, a symptom which enabled them to localize the abscess as affecting the occipital lobe. Treitel discusses multiple cerebral abscesses. Urbantschitsch showed a case of cerebral abscess without focal symptoms, and another of focal symptoms without cerebral abscess! Ackland and Ballance append to the full description of a case of cerebellar abscess successfully treated by operation a *résumé* of all the published cases, and an exhaustive discussion of all the clinical data on which the diagnosis can be found. This is one of the most valuable contributions of the year. Papers and cases dealing with and illustrating the various dangerous complications of ear diseases have been brought forward by Dench ("Amer. L., R., O., Soc.," "J. L.," XI., 107), Gruber ("Aust. Ot. Soc.," "J. L.," X., 195), Mansell Moullin ("L.," Nov. 23, 1895, "J. L.," X., 91), and Pooley.("Amer. L., R., O., Soc.," "J. L.," XI., 93). Gruber dissects the statistics derived from the records of forty thousand and seventy-three *post-mortem* examinations. Pooley pleads for greater attention to the condition of the fundus oculi in suppurative inflammation of the middle ear, with threatening intracranial complications. Vacher narrates ("Fr. Soc.," "J. L.," X., 69) a case in which the most violent "head symptoms" yielded to paracentesis, leeching, and other antiphlogistic treatment. The unusual occurrence of cerebral abscess as a sequela of an acute suppuration of the middle ear is illustrated in cases recorded by Gorham, Bacon ("N. Y. Med. Journ.," Aug. 15, 1896, "J. L.," XI., 302) and Milligan ("A. of O.," July, 1896, "J. L.," XI., 360).

MALIGNANT DISEASE is illustrated by Hennebert's case ("Belg. Soc.," "J. L.," X., 242, and XI., 210), in which *Epithelioma of the Ear and Temporal Bone* seemed to have been initiated by the irritation set up by a foreign body—a piece of slate pencil—in the meatus, and by Dench's cases of *Neoplasms of the Ear* ("N. Y. Eye and Ear Infirm. Rep.," Jan., 1896, "J. L.," XI., 174), which include typical sarcomata.

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MALFORMATIONS of the temporal bone of practical as well as anatomical interest have been described by various writers. Gruber ("Aust. Ot. Soc.," "J. L.," X., 197) showed a specimen of an *Abnormal Opening in the Squamous Portion of the Temporal Bone*, such as might have been caused by the pressure of an aneurism of the middle meningeal artery; also one of an *Abnormal Fissure in the Roof of the Tympanic Cavity* (*loc. cit.*); also one of an *Abnormal Cavity in the Petrous Portion* intruding on the groove for the lateral sinus. Politzer brought forward a specimen of *Abnormally Wide Fossa Jugularis* ("Aust. Ot. Soc.," "J. L.," X., 197), a condition favouring puncture of the bulb in paracentesis of the tympanic membrane; and Hartmann various *Dehiscences in the Temporal Bone* ("Germ. O .S.," "J. L.," X., 263). [An acquaintance with these various possible abnormalities is necessary for the understanding of un usual extension of inflammatory process, and of unfamiliar appearances met with during operations.]

INTRATYMPANIC OPERATIONS.—The removal of ossicles in persistent suppuration continues to be frequently practised with encouraging results. Buller reports five cases ("Montreal Med. Journ.," Oct., 1895, "J. L.," X., 90). Urbantschitsch reports one ("Aust. Ot. Soc.," "J. L.," X., 150) of *Extraction of the Malleus arresting the Vertigo and Progressive Deafness*, and another in which it exercised a *Favourable Influence on the Hearing Power of the other* (*secondarily affected*) *Ear*. To *Prevent Readhesion of the Top of the Manubrium to the Promontory after Separation*, Gompertz inserts a fine strip of celluloid ("Aust. Ot. Soc.," "J. L.," X., 191).

MASTOID PROCESS.—Means of judging before operation of the condition and structure of the mastoid and petrous bones are naturally much to be desired. Garnault ("Gaz. des Hôp.," March 28, 1895, "J. L.," X., 279), as the result of a large number of measurements, states that there is *no Possibility of determining from the Form of the Cranium of Analomical Dispositions which render Operations on the Temporal more or less Dangerous*. Okunneff ("Flor. Cong.," "J. L.," X., 17) professes to have obtained indications from *Auscultation of the Mastoid Process with regard to Sclerosis*, a vibrating tuning-fork being placed on the bone at the same time as a flexible stethoscope. Bolt recommends *Percussion of the Mastoid* ("Dutch Soc.," "J. L.," XI., 215). He found a dull sound on percussion in two cases, and on that account suggested operation. This was declined, and after simple paracentesis of the membrane both recovered perfectly. [The value of the method, therefore, remains so far in doubt. But we would remind our readers that the experiments of Koerner and Wild showed that a duller sound was obtained on percussion when the mastoid was hollowed out than when it was filled with paraffin, and that diminution of the normal resonance on percussion indicated disease of the bone itself, no solidification of its cavities.—D. G. Moure ("Fr. Soc.," "J. L.," XI., 29) found the mastoid eburnated fifteen times in thirty-four cases.

BEZOLD'S MASTOIDITIS.—Perforation of the inner surface of the mastoid process, allowing of the escape of pus into the digastric fossa

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and thence downwards between the layers of the cervical fasciæ first described by Bezold, is illustrated by a number of cases in the practice of Burnell ("Philad. Polyclin.," Nov. 23, 1895, "J. L.," X., 90), Luc (Par. Soc.," "J. L.," XI., 326). Mendel (", Fr. Soc.," "J. L , XI., 248) and Lichtwitz ("Par, Soc.," "J. E.," XI., 326). In Burnell's there was burrowing of pus into the pharynx. Such a condition is apt to be mistaken for retropharyngeal abscess. Luc gives a study of nineteen published cases, adding a fresh one of his own. Holt's ("Am. L. R. O. Soc.," "J. L.," II., 100) case of "*Unusual*" *Perforation of the Mastoid* was one in which pus found its way into the digastric fossa.

Cases in which Mastoid Symptoms subsided without Surgical Interference were published by Mandelstamm ("Ann. des Mal.," March, 1896, "J. L.," XI., 175) and Vacher ("Fr. Soc.," "J. L.," XI., 144), the latter using ice applications and irrigations with weak peroxide of hydrogen. Marchant ("Bull. Med.," Jan. 3, 1895, "J. L." X., 282) points out the comparative rarity with which otitis is followed by intracranial complications, and counsels great hesitation before adopting severe surgical measures.

Mastoid disease *associated with Diabetes Mellitus* was illustrated in two cases under Urquhart ("Med. News," March 21, 1896, "J. L.," X., 355); and with *Influenza* in one under Szenes ("Hung. Soc.," "J. L.," XI., 42). Spira describes a case of *Central Osteitis of the Mastoid Process running a Latent Course and Presenting the Symptoms of Trigeminal Neuralgia* ("Aust. Ot. Soc.," "J. L.," XI., 249). Another difficulty in diagnosis is illustrated by Sheppard's case of *Hysterical Affection of the Mastoid* ("Am. L. R. O. Soc.," "J. L.," XI., 100). The term *Latent Empyema of the Antrum* is applied by Raugé ("Bull. Med.," June 24, 1896, "J. L.," XI., 111 and 176) to those cases in which there is a persistent otorrhœa, due to antral suppuration, without external signs of mastoid disease. Lubet-Barhon points out that the *Localization of Inflammatory Processes in the Temporal Bone* ("Flor. Cong." J. L.," I., 75) is sometimes limited by the elements out of which the bone is developed, but not by any means as a rule.

Courtade ("Ann. des. Mal.," Feb., 1896, "J. L.," XI., 173) made the observation in a case of mastoiditis with sero-mucous effusion into the mastoid that he could force out the liquid by means of *Siegel's Speculum used not for Suction but for Compression.*

THE MASTOID OPERATION.—One of the most instructive papers of the year was read before the French Society of Laryngology, etc., by Luc ("Fr. Soc.," "J. L.," X., 71) in which he gave the *Results of a Series of Fourteen Cases of Extensive Opening of the Cavities of the Middle Ear by the Stacke-Zaufal Method for the Radical Cure of Obstinate Otorrhœa.* He formulates very excellent rules for the selection, according to the case, of the method of immediate closure, of postponed closure, and of permanent opening. He found the best results to follow frequent dressings. Other communications have been published by Politzer, Bronner ("L.," Nov. 9, 1895, "J. L.," X., 90), Knapp ("A. of O.," XXV., No. 1, "J. L.," X., 352), Guye ("Dutch Soc.," "J. L.," XI., 215), Moll ("Dutch Soc.,"

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"J. L.," X., 202, and XI., 217), Gompertz ("Aust. Ot. Soc.," "J. L.," X., 193), Castex ("Fr. Soc.," "J. L.," XI., 140), Reinhard ("Dutch Soc.," "J. L.," X., 201), and others. Knapp discusses further *the Indication for Mastoid Operations in Acute Purulent Otitis Media and its Complications*, which are from the nature of things necessarily somewhat indefinite. He considers cranial exploration free from danger, and to be promptly carried out. Above all, he reminds us of the necessity for exploring the cells of the mastoid process down to the very tip, where, in acute cases, the purulent focus may sometimes be discovered. This is in accord with Politzer's views in regard to the localization of the disease, and of the operation in acute cases, such as those following influenza. Lubet-Barbon publishes a case illustrating this principle ("Fr. Soc.," "J. L.," XI., 28) described as a *Mastoid Abscess without Suppuration of the Tympanum*. The pus was found in the cells nearest the tip of the process. Bronner describes the various modes of operating on the mastoid and their several indications. Moll in his case followed Zaufal's plan of cutting away the membranous postero-superior part of the meatus, which Reinhard considers a waste of epidermic tissue, that might well be employed for papering the cavity. The results seem to be less affected by this than one would be apt *à priori* to expect. Gompertz and Politzer showed cases in which they had employed Koerner's flaps with advantage.

The retention of a *Permanent Mastoid Opening* was practised by Burger ("Dutch Soc.," "J. L.," XI., 219), and in his case there was a permanent closure of the Eustachian tube at its tympanic extremity, of advantage in preventing infection from the naso-pharynx. Urbantschitsch showed *Eight Cases of Radical Operation in which the Retro-Auricular Opening had closed* ("Aust. Ot. Soc.," "J. L.," XI., 202) with satisfactory result.

For the Preservation of a Retro-Auricular Opening and the lining of the mastoid cavity, some modifications of Siebenmann's classical operation have been introduced. Marmaduke Shield ("L.," Feb. 8, 1896, "J. L.," X., 282) makes a narrow tongue-shaped flap from the skin on the mastoid, with its attachment above. Passaw ("J. L.," XI., 56) does the same, combined with an ingenious but more complicated arrangement of flaps.

Novel Modifications of the mastoid operation have been brought forward by Gellé and Alderton. The former ("Par. Soc.," "J. L.," XI., 325) proposes the use of a chain saw for removing as much as is safe of the posterior wall of the osseous meatus. The latter ("A. of O.," July, 1896, "J. L.," XI., 355) describes a new "antrotome." Lake has put into practice what we consider a most excellent *New Method of dealing with the External Meatus in Operations on the Mastoid* ("A. of O.," July, 1896, "J. L.," XI., 358), namely, the removal of the cartilage of that part of the meatus from which the flaps are to be formed, leaving a non-resilient therein and sufficient epidermic lining. Guye narrates an interesting case in which he treated, by the modern more radical methods a recurrence after a temporarily successful employment of conservative measures twenty years previously ("Dutch Soc.," "J. L.," XI., 215). Politzer gives ("Aust. Ot. Soc.," "J. L.," XI., 258) a *Description of the Methods*

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of Operation, and of the Modifications indicated by the Different Pathological Conditions in the Temporal Bone; also Contributions ("Aust. Ot. Soc.," "J. L.," XI., 25) *to the Operative Opening of the Cavities of the Middle Ear.* In these he shows the advantages of the modern modifications over the original operation as devised by Schwartze, and which made such a noteworthy epoch in the development of otology. He further warns his junior against forming too optimistic expectations as to the curative effect of radical operations. Urbantschitsch ("Aust. Ot. Soc.," "J. L.," XI., 259) gives the results of seventy-two cases of the radical operation observed by him during a year and a half. In general, the views expressed by Luc in the paper above referred to find support.

Bevan reminds us ("Journ. Am. Med. Assoc.," April 11, 1896, "J. L.," X., 351) that the facial nerve lies in a plate of bone between the external meatus and an opening directly into the antrum, whence the necessity for caution in chiselling, as already familiar to the readers of Gellé's detailed account of the "casing" of the facial nerve in a former volume of this JOURNAL. Rousseau and Hennebert ("Belg. Soc.," "J. L.," XI., 211) offer, among other points, a new guide in the operation of *Antrectomy*, viz., that the floor of the aditus to the antrum is in the same horizontal plane as the highest point of the attachment of the membranous to the osseous meatus, and that the centre of the antrum lies five millimètres behind the posterior wall of the meatus. *Accidental Opening of the Lateral Sinus in Mastoid Operations* is illustrated by the histories of four cases given by Chiucini ("J. L.," X., 278, "Hidi Otol." (*sic*), 1895, p. 55), in which the hæmorrhage came during the curetting, and was successfully checked in every instance by plugging with iodoform gauze. The *Late-stitch* (postponed suture) *after Artificial Opening of the Mastoid*, proposed by Gruber, continues to give him satisfaction ("Aust. Ot. Soc.," "J. L.," X., 196).

INTERNAL EAR.—Randall points out the *Importance of Recognizing Labyrinthine Deafness* ("Philad. Polyclin.," Feb. 8, 1896, "J. L.," X., 282) in view of the damage done by inflation if such cases are erroneously treated as obstructive. Similarly, Ostman warns us against committing error and injustice by leaving it out of account when testing with a view to detecting suspected malingering ("M. f. O.," Sept., 1896, "J. L.," XI., 360).

Anæmia of the Labyrinth is diagnosed by Lermoyez when inhalation of nitrite of amyl produces improvement ("Fr. Soc.," "J. L.," XI., 29). Milligan describes a case of *Cochlear Apoplexy* ("B. L. R. A.," "J. L.," X., 113).

Bonnier has studied the *Variations of the Patellar Reflex in certain Labyrinthine Affections* ("Sem. Med.," No. 3, 1896, "J. L.," XI., 192). and *the Mutual Relations of the Ampullary Apparatus of the Internal Ear and the Oculo-Motor Centres* ("Bull. Med.," May 18, 1895, "J. L.," X., 278).

Necrosis of the Labyrinth is reported by Connal ("Glasg. Med. Journ.," Sept., 1895, "J. L.," X., 161), by Rueda ("Rev. de Laryng.," March 15, 1896, "J. L.," XI., 120), and Urbantschitsch ("Aust. Ot. Soc.," "J. L.," X., 324) with important observations on the hearing power.

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Labyrinthine Disease due to Constitutional Affections is illustrated by Dasque's *Two Cases of Deafness following Mumps* ("Gaz. Hem. de la Soc. Med., Bordeaux," Feb. 3, 1895; "J. L.," X., 278). Downie's *Case of Total Deafness of Sudden Onset*, of syphilitic origin, with autopsy ("Glasg. Med. Journ.," Jan., 1896; "A. of O.," XXV., No. 1; "J, L.," X., 279 and 356). Falt reports the *Post-Mortem Appearances in a Case of Ménière's Disease due to Leukhæmia* ("Aust. Ot. Soc.," "J. L.," XI., 36), n which the auditory nerve had chiefly suffered, although the account of the cochlea seems rather unsatisfactory. Compaired ("Rev. de Laryng.," May 16, 1896; "J. L.," XI., 118) makes interesting remarks on the diagnosis of *Infantile Labyrinthitis* from typhoid and from meningitis.

Cases of *Ménière's Disease* are reported by Kaufmann ("Aust. Ot. Soc.," "J. L.," X., 193) and Gevaert ("Belg. Soc.," "J. L.," XI., 336). Lemairey found *Ménière's Syndroma cured by Pilocarpin* ("Ann. des Mal.," Nov., 1895, "J. L.," X., 281), but in our abstract there is no definite statement as to the cure of the deafness. Alt describes *an Apoplectiform Labyrinthine Disease in Caisson Workers*, with an interesting discussion as to the mechanism ("Aust. Ot. Soc.," "J. L.," XI., 264); and Politzer *a Case of Traumatic Lesion of the Labyrinth, showing Ménière's Complex of Symptoms, with Demonstration of the Histological Appearances* ("Aust. Ot. Soc.," "J. L.," XI., 251). Gruber proposes limiting the use of the term "Morbus Ménièrei" to the typical cases of effusion into the labyrinth, and to the many cases of other nature he would apply the name of the disease with the additional terms "with Ménière's symptoms" ("Aust. Ot. Soc.," "J. L.," X., 153). [We have found the term "pseudo-Ménière's disease" easily understood.—D. G.]

AUDITORY NERVE AND CENTRES.—Cases of PSYCHICAL DEAFNESS were brought before the Austrian Otological Society by Heller ("J. L.," XI., 198), Urbantschitsch ("J. L.," XI, 200), and Dalby ("B. M. J.," Mar. 16, 1895; "J. L.," X., 162). Ransom ("B. M. J.," May 4, 1895; "J. L.," X., 163) and Deknatel ("M. f. O.," 1895, No. 12; "J. L.," X., 216) have reported instructive cases of *Hysterical and Functional Deafness*. A remarkable *Case of Bilateral Facial Paralysis with Absolute Deafness*, following typhoid, but in a syphilitic subject, is reported by Middleton ("Glasg. Med. Chir. Soc.," Oct. 18, 1895; "J. L.," X., 255).

Kreidl demonstrates the uncertain gait, etc., in *a Cat in which both Acoustic Nerves had been Destroyed a year previously*, according to a modification of Ewald's method ("Aust. Ot. Soc.," "J. L.," XI., 36).

VERTIGO.—Gellé discusses the *Treatment of Labyrinthine Vertigo*, whether of congestive, anæmic, or reflex origin ("Fr. Soc.," "J. L.," XI., 142), dwelling on the indications derived from medical examination of the various organs—heart, kidneys, liver, stomach, etc. Burnett views most chronic cases as *Tympanic Vertigo* ("Philad. Polyclin.," May 2, 1896; "J. L.," XI., 172), the ultimate treatment being extraction of the incus. Barr gives an instructive account of *Giddiness and Staggering in Ear Disease* ("B. M. J.," Dec. 28, 1895; "J. L.," X., 216). Guye brings forward *a Hitherto Undescribed Form of Rotatory Sensation in Labyrinthine Disease* ("Dutch Soc.," "B. M. A.," 1895, "J. L.," X., 257), in

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which the surrounding objects appear to rotate in a vertical plane like the hands of a clock. Siethoft ("Dutch Soc.," "J. L.," X., 332) professed to have met with identical symptoms in a case of chronic catarrh of the middle ear with hypertrophic rhinitis. They disappeared on the application of cocaine to the inferior turbinated bodies. Von Stein describes in great detail the *Disturbances of Equilibrium in Diseases of the Ear* ("A. of O.," XXV., No. 1). He associates dynamic equilibrium with the semicircular canals; static equilibrium with the saccule. Gaylord Clark gives a study of *the Equilibrium Function of the Ear* ("Trans. Med. Soc. of State of New York," 1896; "J. L.," XI., 117), founded chiefly on experiments on the dogfish carried out by Lee, of Columbia.

TINNITUS AURIUM.—Angieras attributes certain subjective noises to what he considers a *Synæsthetic Origin*, generally in the sensory nerves of the face and head, and curable by electricity and massage applied to these nerves ("Fr. Soc.," "J. L.," X., 65). Richey traces the *Etiology of Tinnitus Aurium* in many cases to ankylosis of the ossicles, which he treats by means of large doses of iodine preparations ("Journ. Am. Med. Assoc.," Jan. 4, 1896; "J. L.," X., 217). Schwager describes a case of *Objective* (*Perceptible*) *Noise in the Ear* due to the well-known clonic spasm of the tensor palati ("M. f. O.," Feb., 1896; "J. L.," X., 354). The *Electrical Treatment of Tinnitus Aurium* is detailed by Lewis Jones ("A. of O.," XXIV., 3 and 4) with judicious limitations of its scope. Gomez treats *Tinnitus Aurium with Coniine Hydrobromate* ("Ann. Oph. and Otol.," Oct., 1895, and Jan., 1896; "J. L.," X., 216), while Harris found a most intractable case of quinine tinnitus to yield to the cataphoric application of cocaine ("Manhattan Eye and Ear Hosp. Rep.," Jan., 1895.

TESTS FOR HEARING, DIAGNOSIS, ETC.—Barth discusses the *so-called "Lateralization" in Bone-conduction* ("Germ. Ot. Soc.," "J. L.," X., 264), distinguishing the subjective from the objective, and refusing to attribute it to hyperæsthesia of the nerve. Alt ingeniously employs the patient's humming voice with closed lips instead of the tuning-fork on the vertex as a *Test for the Determination of an Obstruction to the Conduction of Sound* ("Aust. Ot. Soc.," "J. L.," X., 195). Werkovsky gives the results of laborious examination of the *Duration of Hearing throughout the Musical Scale in Diseases of the Internal and Middle Ear* ("A. of O.," XXV., No. 2; "J. L.," XI., 177), and Alderton on the *Upper Tone Limit in the Normal and Diseased Ear as determined by the Galton Whistle* "A. of O.," Jan., 1896; "J. L.," XI., 53). *A Few Exceptional Auditory Fields* produced by Zwaardemaker ("Dutch Soc.," "J. L., 'X., 332) seem to support the idea of there being an analogy between paracusis and hemeralopia. Moure and Bordier describe ("Rev. Internat. d'Elect., Feb. and March, 1896, 253; "J. L.," XI., 119) *an Electro-Telephonic Acoumeter.*

REFLEX AURAL DISTURBANCES.—Mounier ("Fr. Soc." "J. L.," X., 66) has noted a form of disturbance due to an *Exaggeration of Auricular Synergy*, which the students of Gellé's writings will readily understand. Bonnier has observed three cases of *a Form of Deafness, a Genital Reflex*

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" Fr. Soc.," " J. L.," XI., 30), in a subject of inguinal hernia, a monorchid, and a masturbator respectively.

INJURIES OF THE ORGANS OF HEARING.—Urbantschitsch has published a case of *Revolver-shot in the External Meatus* (" Aust. Ot. Soc.," " J. L.," X., 324). It produced facial paralysis, which was greatly benefited by digital percussion of the affected muscles. Ménière saw two instances of *Tympanic Membrane Ruptured* by indirect cause (" Par. Soc.," " J. L.," X., 254); Fritts one of *Old Fracture of the Handle of the Malleus with Fibrous Union* (" Philad. Polyclin.," Dec., 28, 1895; " J. L.," X., 216); Root one of *Bilateral Hæmorrhage from the Labyrinth through the External Auditory Canal due to a Cranial Fracture* (" Am. L., R., O. Soc.," " J. L.," XI., 109). Politzer's cure of traumatic lesion of the labyrinth with Ménière's symptoms is referred to elsewhere (*vide* Internal Ear).

DEAF-MUTISM.—Ottolenghi pleads for a higher *Legal Status* being accorded to deaf-mutes as regards acting as witnesses in courts of law and as citizens in general. These remarks are perhaps more called for in Italy than here (" Flor. Cong.," " J. L.," X., 24). Scheibe gives two valuable contributions to the *Histology of Deaf-Mutism* (" A. of O.," XXIV., 3 and 4; " J. L.," X., 92 and 218). Ransom describes a remarkable case of *Functional Deaf-Mutism* in a man of nineteen instantly cured by Faradism (" B. M. J.," March 2, 1895; " J. L.," X., 163). Lavrand draws attention to cases of *Mutism without Deafness*, to be treated by suitable educational methods (" Fr. Soc.," " J. L.," XI., 148).

ANATOMY.—Lake, in a *Note on the Anatomy and Pathology of the Periosteum of the Ear* (" J. L.," X 61), shows some interesting relations: as, for instance, the continuity of the middle layer of the membrane with the periosteum of the annulus and external meatus, as also with that of the Eustachian tube. Chiucini has devised an ingenious *Method of making Anatomical Sections of the Temporal Bone* (" Flor. Cong.," " J. L.," XI., 245). Cheatle, showing the "*Mastoid*" *Antrum to be a Part of the Middle Ear* (" A. of O.," July, 1896; " J. L.," XI., 356), recommends that it should be rechristened " tympanic " antrum. Cannien Coyne has revised the *Histology of the Organ of Corti*, and shows the membrane of Corti to be formed mainly by the cilia of the auditory hair-cells (" Journ. d'Anat. et Phys.," May, June, 1895; " J. L.," XI., 173).

REMEDIES, INSTRUMENTS, ETC.—*Carbolized Gelatine Amygdalæ Aurium* have been made for Pollak (" Aust. Ot. Soc.," " J. L.," X., 325). *Guaiacol Oil* is recommended by Laurens for use in Otology, Rhinology, and Laryngology (" Ann. des Mal.," Jan., 1896, " J. L.," X., 353), *Styron*, by Bolt, in chronic suppuration of the middle ear—a balsamic preparation (" Dutch Soc.," " J. L.," XI., 220); *Oxygen Gas* by Stoker (" B. L. R. A," " J." L., X., 108); and *Electricity in Certain Affections of the Ear*, —notably acute cases which " hang fire "—by Mounier (" Fr. Soc.," " J. L.," X., 66). Texier advises a *New Method of Administering Bromide of Ethyl* so as to produce " apsychia " rather than profound narcosis (" Fr. Soc.," " J. L.," X., 74). Todd has found *Hypnotism* of assistance in quieting an unruly patient during the dressing of a mastoid

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operation-wound ("Journ. of Amer. Med. Assoc." Jan. 4, 1896, "J. L.," X., 218).

Among new instruments we may note Quinlan's *New Adenoid Forceps* ("J. L.," XI., 59), Molinie's *Magnifying Glass to Fix upon the Finger* ("Fr. Soc.," "J. L.," X., 69), Helot's *New Acoumeter.* graduated by means of diaphragms with larger or smaller openings ("Fr. Soc.," "J. L.," X., 70), and Zwaardemaker's improvements on *Toynbee's Otoscope* "Dutch Soc.," "J. L.," X., 331).

MISCELLANEOUS.—The *Paracusis Willisii* has received special study by D'Aguanno ("Flor. Cong.," "J. L.," X., 26), and Zwaardemaker ("Dutch Soc.," "J. L.," XI., 220). Hammerschlag ("Aust. Ot. Soc.," "J. L.," XI., 268) and Donaldson ("L.," Oct. 10, 1896; "J. L.," XI., 357) have observed *Movements of the Membrana Tympani* synchronous with pulse and with respiration. *The Degree of Hearing Power necessary for Telephonists* has been found by Zwaardemaker to be seven mètres for whispered voice ("Dutch Soc.," "J. L.," X., 331).

Many other papers of varying degrees of interest have appeared, and it will be obvious from the record given above that the study of otology is being pursued with considerable activity in all parts of the world. For one reason or another we have been able to publish reports of the meetings of the Austrian Otological Society of unusual interest and richness. We trust that we shall be equally favoured in the future, and we hope that in this country we may soon see awakened a similar enthusiasm for the further prosecution of otology in its various aspects, whether as an isolated art calling for specially-trained eyes and fingers, or as a part of the general science and art of medicine associated with such sister specialities as neurology, epidemiology, and others.

We append a list of the works on otology which have been reviewed in the pages of this JOURNAL during the past twelve months, and a table of the abbreviations employed in this Retrospect. It will be observed that the indication of the page and volume of the JOURNAL, in addition to the original source of the paper, has been given in every instance to facilitate reference for those who have bound the JOURNALS in two half-yearly volumes.

BOOKS ON OTOLOGY REVIEWED IN VOLUMES X. AND XI.

GARNAULT. "Précis des Maladies de l'Oreille" ("J. L.," X., 47).

LEWIS-JONES. "Medical Electricity: a Practical Handbook for Scientists and Practitioners" ("J. L.," X., 165).

COZZOLINO. "L'Otoiatria, la Rinoiatria, e la Larringoiatria nelle Universite della Germania e dell' Austria" ("J. L.," X., 220).

PASSOW. "Eine Neue Transplantations-Methode für die Radikaloperation bei Chronischen Eiterungen des Mittelohres"—"A New Transplantation Method," etc., ("J. L., XI., 56).

PRITCHARD. "Diseases of Ear" ("J. L.," XI., 121).

ABBREVIATIONS.

"J. L."—"Journal of Laryngology, Rhinology, and Otology," the Roman numeral (X. or XI.) indicating the volume, the Arabic one the page.

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"Flor. Cong."—The Fifth International Congress of Otology, Florence, September, 1895.
"Fr. Soc."—The French Society for Laryngology and Otology.
"L."—"Lancet."
"A. of O."—"Archives of Otology."
"Aust. Ot. Soc."—Austrian Otological Society.
"Hung. O. and L. Soc."—Hungarian Otological and Laryngological Society.
"Dutch Soc."—Dutch Society of Laryngology, Rhinology, and Otology.
"M. f. O."—"Monatschrift für Ohrenheilkunde."
"Belg. Soc."—Belgian Society of Otology and Laryngology.
Par. Soc."—Parisian Society of Otology and Laryngology.
'Germ. O. S."—German Otological Society.
"Arch. Ital."—"Archivii Italiano di Otologia."
"Ann. des Mal."—"Annales des Maladies de l'Oreille, de la Gorge," etc.
"B. L. R. A."—British Laryngological, etc., Association.
"Arch. Inter."—"Archives Internationales de Laryngologie," etc.
"Am. L., R., O. Soc."—American Laryngological, Rhinological, and Otological Society.

X RAYS IN OUR SPECIAL DEPARTMENT.

BY J. MACINTYRE, M.B., F.R.S.

This new force, which has attracted so much attention, has been applied to the diagnosis of affections in our special department. While photography was at first employed, it soon became evident that fluorescent screens would, in some instances at least, be of great value. As in many other departments, it was first employed to detect the presence of foreign bodies; in March of the present year the methods had been so much improved that shadows of metallic objects could be seen through the trunk. (Macintyre, British Laryngological Association, April, 1896, a shadow of a coin in the gullet opposite the third dorsal vertebra, seen first on the fluorescent screen, and afterwards photographed). White, later on in the year, described a similar case in the "Annals of Surgery" for 1896. The application of the rays was tried in the soft tissues, and at the same meeting above referred to a photograph through the side of the living neck was shown, on which one could see the base of the tongue, hyoid bone, epiglottis, arytenoid cartilages, spine, cavity of the pharynx, and entrance to the trachea. Rowland and Waggett have also published papers on this subject (Lond. Laryng. Soc.), "Brit. Med. Journ.," 10th April, 1896). The hard tissues of the face, such as the superior and inferior maxillaries and the accessory cavities, have also been seen in shadow and photographed. In one case destruction of the hard tissues from malignant disease was clearly made out. Deformities in the cervical region causing disturbance in the region of the throat, enlargment of the heart, and even the sacs of aneurism have all been demonstrated, either by means of photography or the potassium or barium platino-cyanide screen. Focus tubes for the mouth have been suggested by Thomson, Newton, and others. Fluorescent screens have likewise been made for placing within the buccal cavity. These have been

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