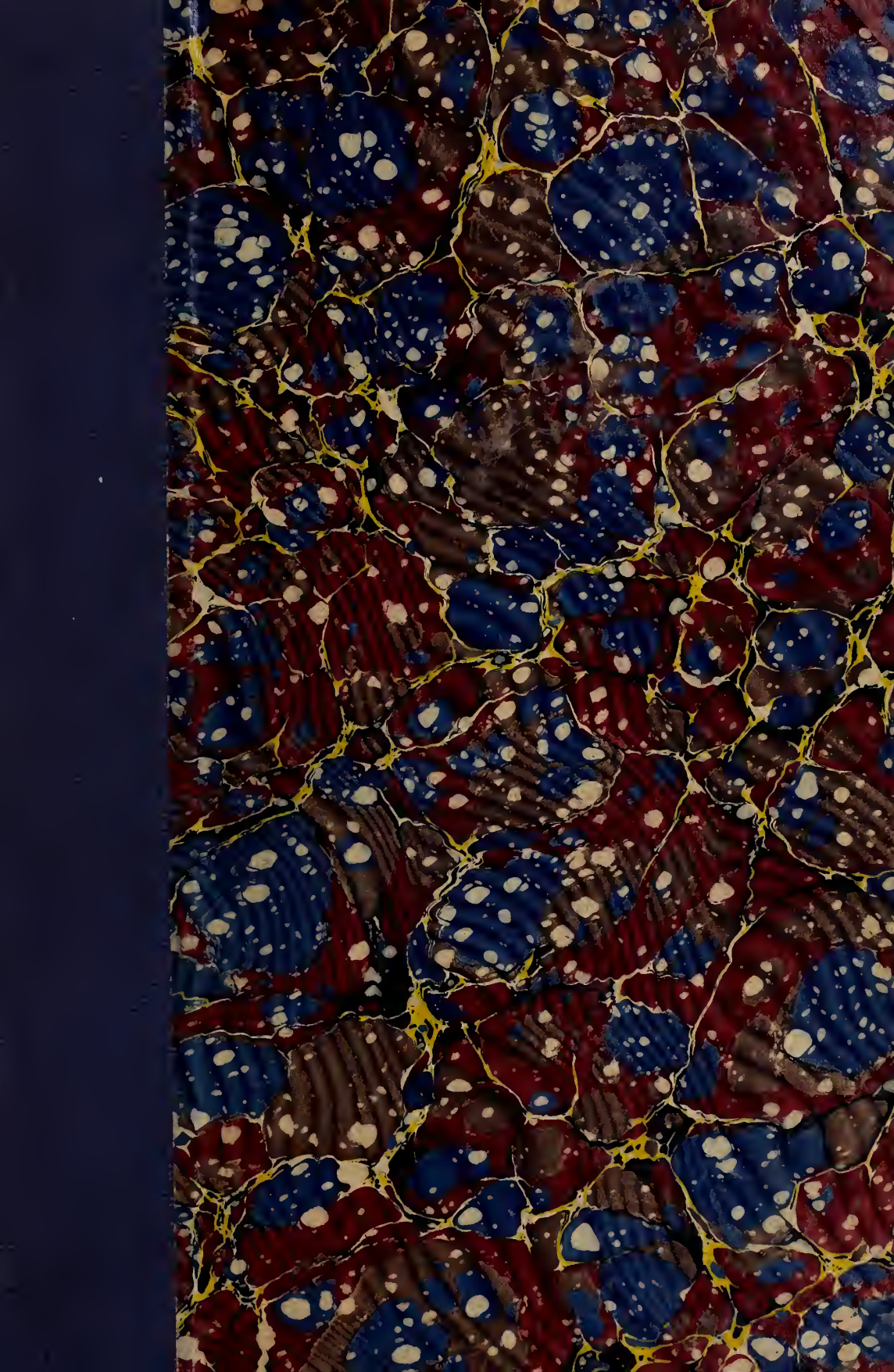

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THE JOURNAL OF OPHTHALMOLOGY OTOLOGY AND LARYNGOLOGY

COLLEGE OF PHYSICIANS OF PHILADELPHIA

FOR 1917 we wish you much happiness and prosperity.

We thank you for your good will, as expressed in your many favors of the past, and trust that we may prove of even greater service to you during the new year.

The Swigart Optical Co.

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Editorial

COMMERCIAL MEDICINE.

THERE is undoubtedly a reflection in this country of the organization of medical forces and instruments as initiated within the past decade abroad. The State Boards of Health have taken a more liberal hand than ever in making efficient, in the broadest sense, public health more practically useful. The tendency is toward centralization and elimination of waste, and in time there will be great economic result. The efficiency of the medical schools as determined and controlled by the Rockefeller Foundation, the restriction of the number of graduates, attempts at nationalizing the system of examining graduates, rational suggestions as to the direction of charities, consolidation of hospitals, modern hospital management, social service—all these things bespeak a beneficial house-cleaning. The change in certain ways antagonizes the interest of the individual physician, but on the whole much good will undoubtedly come to both the people and the profession from the application of efficiency. It is too early yet to prophesy the end results, and it is impossible to conjecture what present methods will go by the Board, but we are conscious of the endeavor to have a change and with optimism we will trust that the evolution will be gentle and benign. For generations we will live quiescently under conditions that are not what they ought to be and yet there will be no attempts at correction. Then a time will come when every one is enthusiastic for reform and change. Historians show that waves of thought and influence sweep over the world in troubled times. Surely we have the troubled times, may we not be feeling the first ripples of the waves?

D. M.

CHEVALIER JACKSON SUCCEEDS THE LATE BRADEN KYLE AT JEFFERSON MEDICAL COLLEGE.

CHEVALIER JACKSON, the foremost representative of endoscopic work in our specialty, has just been tendered and has accepted the chair of Professor of Diseases of the Nose and Throat, at Jefferson Medical College, vacated by the recent demise of Braden Kyle. It is fortunate that there is developing the custom in this country of selecting men, in filling teaching chairs, from a different locality. A breadth is given to the teaching and the individual institution avoids two great dangers—(1), that of narrow localism and (2), that of disruption from local men striving after the vacant post. Jefferson in particular has lately been very discriminating in its careful choices for its vacancies. In a city like Philadelphia, where tendencies are ultra-conservative in all lines, it is an evidence of appreciation of things abroad in the world. No locality in these days can be self-sufficient, and no school of medicine nor any class of scientific men are beyond the benefit of the breadth of vision external relations bring.

D. M.

CEREBELLAR LOCALIZATION.

EVERY addition to our knowledge of cerebellar localization is of especial interest to the otologist for several reasons; first, that subtentorial lesions occur oftener in his practice than in the practice of any of the other specialists; secondly, that in availing himself of his greater opportunities he has developed a higher degree of skill in the examination of cases presenting symptoms and signs of subtentorial lesions; thirdly, that all subtentorial lesions present certain symptoms and signs in common and since the majority of these lesions are secondary to infective processes in the middle ear, the otologist has been able to develop a diagnostic skill not equalled by others; fourthly, the differential diagnosis of subtentorial lesions calls for careful tests of the hearing and static functions and intelligent interpretation of the findings, for which the otologist is better fitted than any one else; fifthly, that at the present time the eye, ear, nose

and throat specialist is essentially a head specialist, for it is difficult to separate the study of the middle ear from a study of the petrous bone and the petrous bone from the meninges, sinuses and brain tissue that lay on its posterior and superior surfaces. The same argument applies with perhaps a little less force to the eye and nose specialities; sixthly, that, because of his wider experience in the surgical treatment of subtentorial complication of middle ear suppuration, he has acquired a skill superior to that of the general surgeon. Can a more ridiculous spectacle be imagined than that which is frequently seen of the neurologist making the diagnosis of a subtentorial lesion calling the otologist into the case to confirm his diagnosis with his more accurate tests and winding up the whole proceedings by calling in a general surgeon to operate.

A more direct and far safer plan is to permit the one who makes the examination and establishes the diagnosis to operate the case.

The preceding thoughts were prompted by a reading of a paper on Cerebellar Localization (an experimental study by a new method), by I. Leon Myers, *J. A. M. A.*, Dec. 9, 1916, page 1745. Myers reviews the previous methods of study of cerebellar localization, including the anatomic by Bolk; the stimulating experiments by Ferrier, Wersiloff, Pruss, Negro and Rosaendo and others, and the extirpation experiments by Luciani, Van Rynbeck, Luna, Lourie and others. Myers points out the limitations of these methods and the contradictory findings of the different investigators by the same method. The lack of uniform results by the above mentioned methods led Myers to devise his new method. Quoting from his article Myers carried out his experiment as follows: "I first produce small circumscribed lesions of certain lobules of the cerebellum, using cats in the experiments. * * * After I produced the desired lesions, I kept the animals alive for a period of time varying from a week to twelve days to make certain they would recover and that they were not suffering from meningitis. Only the general phenomena resulting from the operation, hemorrhage and shock from loss of cerebellar substance were noted. When these phenomena subsided and the animals showed unmistakable signs of recovery they were subjected to the action of the oil of absinthe." After the animal is fastened securely to a suitable board, the behaviour of corresponding muscle on the two sides are studied. The absinthe

causes muscular convulsions. Myers made myographic studies of the muscle behaviour.

SUMMARY AND CONCLUSIONS.

"1. The function of the cerebellum is to inhibit, control and regulate the activity of the motor cortex of the cerebrum and the paracerebellar nuclei in the medulla.

2. The phenomena of cerebellar deficiency are, accordingly, to be interpreted as phenomena of hyperfunctional and not hypofunctional activity.

3. The cerebellum is functionally differentiated for the various muscle groups of the body, indirectly, by being primarily related through its various lobules to the various motor centers in the cerebrum and the tonus centers in the medulla, just as a posterior root ganglion is, in a motor sense, related to a certain muscle complex through its corresponding group of motor cells in the anterior horn of the cord.

4. The paramedian lobule is, in this manner, related to its homolateral hindlimb, and probably to the contralateral hindlimb; the crus secundum to the homolateral hindlimb, very likely, exclusively, and the crus primum to the homolateral forelimb.

5. These results are in general in conformity with the theory of cerebellar localization as postulated by Bolk. They differ from it only as regards the paramedian lobule, which Bolk assumed was the center for unilateral movements of the muscles of the trunk.

It might be well to state in this connection that this study might prove to be of distinct practical importance. It is possible that in suspected cases of cerebellar tumor or disease in which the phenomena of cerebellar deficiency, the ataxic gait, the hypermetria, the adiadokocinesis in the arms, etc., are too slight to be recognized, the administration within physiologic limits of a cerebral excitant, such as the vinous preparation of absinthe or even ordinary alcohol in moderate doses, might make these phenomena obvious and thus aid us not only in diagnosing an effection of the organ, but also in establishing the exact seat of the disturbance."

It is interesting to note that Myers mentions that while Luciani had an extraordinarily rich experience with cerebellar extirpation, he was opposed to the view of cerebellar localization.

It is to be hoped that Myers' newer method will lead eventually to more dependable results in cerebellar localization than has heretofore been attained. The great difficulty attending any attempt at definite cerebellar localization by electric stimulation of various lobules is that the current cannot be sufficiently localized and that oftimes the results obtained were not from the area supposed to have been stimulated but from deeper and often quite distant parts. This possibility of error has been pointed out by the editor on more than one occasion.

G. W. M.

MIL INSTEAD OF C. C.

We like changes when they are for the better. But a change merely for change's sake, or a change that is decidedly for the worse, is simply silly.

We should like to know why it was necessary to change c. c. into mil. The change is decidedly a disimprovement. The word *c. c.* or cubic centimeter is known the world over, and the expression *mil* is not only a useless one but it may lead to confusion. Particularly are we afraid that this useless innovation may be taken for an abbreviation of milligramme, which would, of course, lead to endless trouble.

We, therefore, advise the doctor who has used the metric system to continue to use c. c. as heretofore. But it is well he should know when he comes across the expression in formulas and prescriptions, that mil is a synonym for c. c. and is equivalent to approximately 15½ minims.—*Critic and Guide.*

THE HEAD SYMPTOMS OF ARGENTUM NITRICUM.

Douglas Macfarlan, M. D.,

Philadelphia.

IN the present day we see little of the former fervor for the proving of remedies. Where the medical literature of thirty years past was full of this work, there is comparatively little seen to-day. Men of both schools in earlier times relied on their remedies and had a knowledge of them—that is scarcely conceivable to-day. It is true that this interest waned from the inaccuracy, the unreliability and the unscientific use and recommendations of these times; however, a day is dawning when we will turn again to the writings of the more exact provers and we will get much of more subtile value in the treatment of our diseases than the merely mechanical methods of the present offer.

In picking up Stapf's Additions to the Materia Medica Pura, published in 1846, I read with profound interest the strikingly analogous provings of silver nitrate observed by Hahnemann and other provers, —Stapf, Franz, Gross, Haynel, Hartmann, Hermann, Langhamer, Meyer, and Wislicenus. The head symptoms that remedy produces cannot but be of interest to those of our specialty who have vainly been looking for some suggestions as to internal medication. There follows an epitomy of the symptoms elicited and confirmed by these many provers.

Vertigo.—"In the morning she was attacked with vertigo, as if she were turning in a circle, inducing her to squat down, lest she should fall; accompanied with headache." Vertigo with nausea and confusion of senses, vertigo and buzzing in ears, and general debility of limbs (Moll).

Vertigo and staggering gait (Stuppe).

Attack of fleeting vertigo as if intoxicated (Meyer).

"He constantly feels as if intoxicated" (Franz).

Creeping and vibrating symptoms in the head, as if intoxicated (Hahnemann).

Giddiness, as if from intoxication, accompanied by lassitude and debility of the lower limbs (Meyer).

Fits of Vertigo—he is not well able to collect his senses (Gross).

Mental State.

Stupid feeling (Gross).

Dullness in the head with a feeling of stupidity (Meyer).

Stupid and hollow feeling in the head (Hahnemann).

Gloomy sensation in the head, as if the head were filled with smoke.

Head feels obtuse, accompanied by whizzing in the ears and hard hearing (N., 30th P., 6 d.).

The whole night his head feels heavy and dull. Since waking his forehead feels painful and dull.

Headache and fulness.

Has a terrible headache, obliging him to gnash his teeth (K., 1 pot., 3 d.).

He wakes with a headache in the morning; the head feels dull, heavy and stupid; the headache becomes intolerable when making the last movement, and continues the whole day (M., 2 pot., 2 d.). Pressing pain in the whole head, occasioned by mental exertions (M., 30 pot., 2 dose, 2 d.). Painful fullness in the brain (M., 30 pot., 1 d.). Fullness and heaviness of the head (M., 2 pot., 3 dose, 2 d.). Fullness, pushing and heat in the head, relieved by pressing upon the head (M., 30 pot., 2 dose, 3 d.).

Fullness and heat in the head, at night, with great agitation of the nerves (N., 30 pot., 4 d.). Painful fullness and heaviness in the head, with inability to recollect, and glowing heat of the head and cheeks, in the afternoon (M., 2 pot., 3 dose). Pain in the forehead and vertex, as if the parts were grasped together (P., 30 pot., 1 d.). She wakes with a headache; pressure deep in the brain, accompanied with chilliness, the whole forenoon (P., 30 pot., 1 d.). Pressure in the forehead (E., 30 pot., 1 d.).

Aching pain in the forehead above the eyebrows (Wislicenus, a. 2 h.). Aching pain in the forehead, in the daytime, increasing considerably in the evening (E., 30 pot., 4 d.). Aching, stupefying pain in the sinciput, and drawing with pressure in the occiput (Hahnemann). Aching pain in the region of the temporal bones, externally

(Hartmann). Pain in the head as if it would burst, occasioned by mental labor (M., 2 pot., 3 dose, 2 d.). Undulating, throbbing in the whole forehead (M., 6 pot., 3 dose). Drawing in streaks or bands, over the surface of the brain, apparently in the membranes or the sinuses (M., 6 pot., 4 dose).

There is no region in the head which was not painfully affected by the drug. Headache all the time (M., 2 pot., 3 dose, 2 d.). The headache is worse in the open air. The headache is relieved by tying a handherchief tightly around the head. Headache, accompanied with eructations and chilliness.

Generally the headache is accompanied with chilliness, and sometimes with a general increase of the temperature of the body. Headache and toothache (N., 30 pot., 3 d.). Sore pain occasioned even by a slight pressure upon the head (Franz). Slight creeping shuddering over the right half of the hairy scalp (Haynel). A good deal of itching of the hairy scalp (K. M., 2 pot., 1 dose, 2 d.).

Intolerable nightly itching of the confines of the neck and hairy scalp (M., 1 pot., 1 dose, 5 d.). On the confines of the nape of the neck and the hairy scalp irregularly shaped blotches make their appearance, itching violently, and feeling sore when scratched; after scratching them for some time they become inflamed and emit a fluid (M., 1 pot., 1 dose, 6 d.). A good deal of itching and biting near the nape of the neck (M., 2 pot., 2 dose, 5 d.). Tumor-shaped, itching elevations on the hairy scalp and in the nape of the neck (M., 2 pot. 3 dose, 3 d.). Creeping in the hairy scalp, as of vermin, towards morning (P., 30 pot., 3 d.).

Extremely troublesome itching, creeping and crawling of the hairy scalp, as of vermin, with sensation as if the roots of the hairs were pulled upwards; she had to scratch all the time.

EYES: Violent itching of the corners of the eyes (Hahnemann).

Itching of the canthi (M., 30 pot., 4 d.). Smarting of the right outer canthus (M., 2 pot., 3 dose, 2 d.). Itching and smarting of the left eye (M., 2 pot., 3 dose, 2 d.).

Many provers report *dimness of vision,* bleareyedness, epiphora, *fear of blindness,* agglutination of the lids, ophthalmia with intense orbital pains (tritis (?)), contraction of pupil.

Nose.

Itching of the alæ nasi is reported by all the provers, excoriation of vestibule with bleeding and crusting and fissuring.

Teeth.

Teeth that previously never gave trouble, and were healthy, showed nutritional faults, tendency to caries, and frequent neuralgic pains.

Very frequently reported, the teeth become affected and get spoiled; whereas he formerly never suffered with toothache, and had perfectly sound teeth; he suffered constantly with some pain in the teeth ever since he commenced the proving, which was felt especially when chewing; when eating sour things, and when introducing cold things into his mouth; besides this, there is a grumbling and digging perceived in the teeth, especially those of the lower jaw, on the left side, as if they would become carious (M.). One of the incisors was painful on being pressed forward (Wislicenus). Pain, as if beaten to pieces, in the body of the left lower jaw (M., 30 pot., 2 dose, 4 d.).

Very frequently reported, page 267, as marked.

Dryness and crusting of all the mucosa of the nose and throat tract is so frequently reported by all the observers as to be a matter to record. Fetor of breath, aphthous ulcers, furred tongue, thick, shiny catarrhs that tend to dry up into crusts.

Ptyalisms is mentioned in many provers.

The Palate.

Peculiar symptoms of the palate are noted.

Ulcerative pain of a small spot in the velum pendulum palati (M., 6 pot., 2 dose). Troublesome tension and prickling of the palate; a few days after this a swelling with a wart-shaped excrescence showed itself, impeding deglutition (P., 30 pot., 7-9 d.). Sensation as if the velum pendulum palati were swollen, not per se, but when moving the tongue and during deglutition (Hahnemann). Scraping sensation in the region of the velum pendulum, as if a rough body were adhering there; the sensation was not very painful but troublesome, and more distinct during empty deglutition than when swallowing any thing, however, it was felt all the time and obliged him to swallow saliva; in a few hours the sensation descended lower down into the fauces (Franz).

Pharynx.

A dry pharyngitis with rawness, "roughness and scraping of the throat," burning and dryness in the fauces and pharynx, thick, tenaceous mucus in the throat, much hawking to get it up.

Pain in the right side of the throat, as of an ulcer, drawing and tension upward and downward; sensation as if a splinter were lodged in the throat when swallowing, eructating, breathing, stretching and moving the neck; sometimes an undulating jerking and pulsating was felt in the throat, continuing for several days (M., 2 pot., 2 dose).

Ulcerative pain is often repeated in the provings. The above symptoms are so frequently observed as to leave no doubt as to their relation to the proving—Hahnemann, Gross, Meyer, Oesterlen, Moll, Franz and others, all repeatedly confirming them.

Troublesome Strangulation,—paroxysmal in nature is universally mentioned. Vagaries in the *sense of taste,* like ink or "coppery." Others describe the taste as that of verdigras, chalk-like, bitter and astringent.

The general symptoms of argentum are less important than the head symptoms, but are worth recording to complete the picture; lassitude and weakness of the limbs, tired, worn out feeling, the lower limbs particularly affected are symptoms reported in every prover, nausea, vomiting, retching gastralgia, greenish stools, diarrhœa, pains in small of back, aches all over body, intense itching in various parts, restlessness at night, uncomfortable in any position, frequency and urgency in urination—all these symptoms are commonly confirmed by the provers.

1805 Chestnut St.

SEPTAL DISPLACEMENTS IN THE VERY YOUNG.

Douglas Macfarlan, M. D.,

Philadelphia.

ONE does not often see obstructing septa in the young and it is difficult to say just why this is so. Children probably have as many, if not more, falls and bumps on the nose than adults, but possibly because the septum is more elastic and resilient, less firm and chondrosed as later, deflections do not arise. Displacement of the nasal bones is not unusual in the young. The condition demands the greatest nicety to restore correct position, a fact of much importance in the later appearance of the patient. Saddle nose and a broad-based nose are apt to appear in the poorly corrected case of nasal fracture, and with this there is usually seen a buckling of the triangular cartilage as in the adult years the face develops.

As to remedial measures, operations for correction, more particularly, submucous work is usually impractical in children under twelve. The parts are small; they have not yet reached their growth, and the age of the subject does not readily lend to operative measures. This work under local anæsthesia is practically impossible. The old breaking operations are unscientific and give poor results. Correction by pressing the septum over with the index finger in the nostril on the side of the deflection works admirably and the results are quite permanent. It might be supposed that the resiliency of the cartilage would result in its springing back in its old place, and it is well to guard against this by introducing an intranasal splint on the side of the deflection. This splint, if used, should be of a comfortable size, and should be frequently removed (daily) for cleansing the nose. The mucosa should be watched for the first suggestion of ulceration.

To repeat, the resiliency of the cartilage in the young is not marked and the replacement of the deflection by forcing it over by pressure to the mid line will in a few weeks be found permanent. It is a good practice to have the patient come twice a week to have this digital pressure applied, the period between allows any reaction to

subside. The treatment is not without pain to the patient for considerable force has to be used, but results are well worth the pain and bother. I have followed up a number of these cases for some time and find no tendency to recurrence and in two particular cases the septa are as straight as to leave doubt as to the fact that there had ever been a deflection.

1805 Chestnut Street.

Conjunctival hæmorrhages occur not infrequently in old people with brittle vessels, from straining at stool. Hæmorrhages into the retina, or vitreous, or into the orbit, are much rarer. These possess prognostic importance because, as a rule, they are forerunners of cerebral apoplexy.—KNEIS.

EPSOM SALTS ERADICATES IODINE STAINS.

A saturated solution of Epsom salts applied to linen stained by iodine entirely eradicates the stain without injury to the material.—*The Trained Nurse.*

WHAT CAN WE LEARN FROM RADIOGRAPHY OF THE NASAL ACCESSORY SINUSES?*

Douglas Macfarlan, M. D.,

Philadelphia.

As to the title of the article, the question "What can we Learn from Radiography of the Nasal Accessory Sinuses" might better be written "What do we Learn and What Could We Learn?" There is no item dealing with our specialty where there is more pretense at understanding than there is in this X-Ray work. We have a case we wish "pictured," hoping thereby to have a little more light shown upon the condition,—and what do we get,—a plate of the skull is shown us and the suspected sinus or sinuses pointed out to us amidst a maze of lines. Shadows are seen and (after *we* have given the information as to the sinus suspected) we are told that "there is the sinus and it exhibits a shadow, just as you suspected." I have seen many plates so under- or over-exposed, or plates in which the skull was placed in such a bizarre position—that only an omniscient power could decipher them.

The subject is important enough to demand a more than passive familiarity from us, for we can scarcely expect the average X-Ray man to be sufficiently familiar with the position of the sinuses to give us good pictures. A word first about the positions of the head for taking plates of these cells. Lateral pictures are the least likely to confuse, but give us little of the information we usually desire—for, in this position the sinuses in pairs are thrown superimposed. There is no possibility of (contrasting) sinuses of opposite sides. However, the depth of the frontals can be seen, and conditions about the sella turcica, especially in its relation to the sphenoid, can be noted. The position should be directly lateral with the median ray from the tube passing through the External Auditory Meatus. Comparing the horizontal Rami of the jaws gives an idea as to the exactness of the lateral position. They should superimpose.

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*Read before West Jersey Homœop. Soc., Nov., 1916.

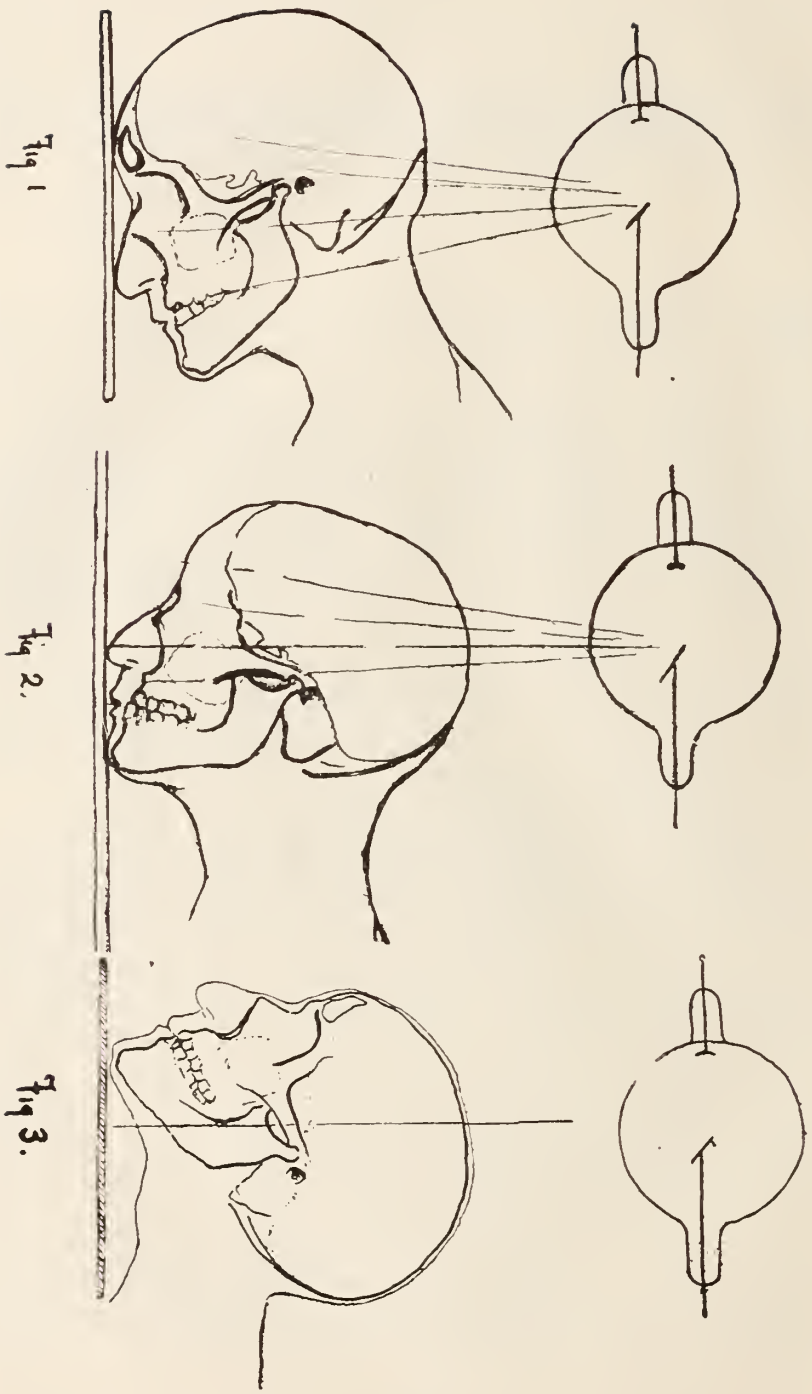

Fig 1.

Fig 2.

Fig 3.

Of the anterior pictures, there are two of importance, (1), that taken in the *brow position* and (2), that in the *chin position* (illustrated by Figs. 1 and 2).

The brow position: Caldwell adopted a brow position which is well illustrated in Phillip's text-book. The line of the median ray is parallel to the glabella and the parietal eminences and at an angle strikes the plate which is touching the tip of the nose and the forehead. In other words, the patient is face downwards with his brow on the plate and the tube is above and in front of the occiput, or better still, the head is placed so that a line from the external auditory meatus to the pupil is perpendicular to the plate resting on the brow and nose. The median ray from the tube passes parallel to this line through the skull.

The position is a good one for taking both frontals and sphenoids and has as its only objection the tendency to bring the occiput, base and sphenoids all in the same region unless care is observed.

The frontals appear above and should show up well; the sphenoids are brought to the inner sides of the orbits, and the ethmoids are often superimposed on the lowest part of the frontals. The antra, thrown down out of the way, are confused with the lower part of the orbit, more strictly speaking the orbits are thrown ahead of the antra. The typical dome-shape of the sphenoid is usually seen, the lower border of these cells showing as a straight horizontal line and the roof of a dome-like half circle. The line of the occiput comes through the upper third of the orbit.

The chin position: The chin position with the head, face down, chin and the tip of the nose resting on the plate is excellent for pictures of the frontals, since it throws these cells high up free of everything. The antra show up well but the sphenoids are masked by their appearance in the turbinate region. The posterior ethmoids are usually superimposed on the sphenoids but the anterior cells will often be seen in these plates. The views of the septum and the turbinates are good. The base of the skull is low and on a line with the articulation of the teeth.

As the lateral plates superimpose the two sphenoid sinuses, they are of little advantage in localizing the infection to one or the other,—and further, it is impossible by these lateral plates to locate the sep-

tum between the cells, (this septum is variable in position and often makes the cell on one side encroach on its fellow).

There is only one position that can show the sphenoid cells in relation to each other.

The extended chin position. Fig. 3: The patient is prone with neck stretched out and chin thrown forward to its fullest extent. The point of the chin is elevated by slipping under it a shallow box or two and on top of these the plate rests. A line between the external auditory meatus and the pupil is horizontal to the plate, the tube is above, its median ray passing perpendicular to the plate and just anterior to the external auditory meatus. The position is ideal for the sphenoids, throwing them clear of everything and through the soft palate and down between the jaws. An excellent opportunity is had to compare the two cells as to size and shadow, and in most fair plates the septum between the cells is plainly seen. The frontals show up well, for but little bone is passed through. Other sinuses show up disadvantageously. Care must be taken to get the fullest extension, for otherwise the sphenoids are thrown into the heavy shadow of the jaws.

Dr. Bowen has modified this position to take the picture in the opposite direction, the result is practically the same.

Success in getting good plates depends almost entirely on three things:

Correct position; strong penetrating exposures, and fast plates. Failures can always be traced to some fault in the observation of these requirements.

As to the exposures and plates, these matters, of course, had better be left in the hands of the roentgenologist; suffice it to say, however, that the penetrability or strength of the tube should be 8-10 of the Benoist scale, backing up a parallel spark of 4 to 5 inches. Dr. W. C. Barker has been using a 20 milliampere current from a Waite and Bartlett Interrupterless, and with this and the tube-strength mentioned, has been giving lateral exposures 8 to 10 seconds, postero-anterior exposures 8 to 12 seconds. The plates have been excellent.

So much then for positions and exposures; the conclusions to be made are that certain positions are most suitable for certain sinuses. It is, however, unreasonable to expect a diagnosis from one or two plates; numerous plates should be taken in any case. Little difficulty

should be had in getting good frontal and antrum pictures. Radiograms of the latter, the antra, are, however, of secondary importance since other means of establishing diagnosis are so convenient.

The frontals show up best in an extreme brow position; ethmoids are always difficult of diagnosis, but lateral plates will show their shadow best, they being in these views only superimposed one on other, that is one side on another.

Sphenoids had best be taken in all the positions and conclusions reached from all the plates. The extended chin position seems most ideal, and shows up what the other plates will not, the relations between the two cells.

It is well to recall, in interpreting shadows seen in sinuses, the facts first brought out by Caldwell. Radiograms of specimens of pus and exudates from various sources show that their opacity to X-rays is practically the same as that of normal salt solution or of pure water. He proved this by taking simultaneous radiographs of the various fluids in thin celluloid dishes. Working with dry and moist specimens, he showed the marked difference in shadows due to moisture. The injection of the sinuses of cadaver gave similar conclusions. We can realize from this that persistence of the shadows in patients whose symptoms have subsided is of less grave significance than we once supposed. It may be due to a mere chronically thickened membrane or from the collection of thin mucus. Such persistence of shadows is often seen in transilluminations of the antrum where an infection has been of long standing, where good drainage has been established, and the case has apparently cleared up.

In this country Caldwell, of New York, first took up the subject and in a paper read before the Triological Society in 1908 epitomized in a clear and frank way the problems to be met. "An important feature of the diagnostic use of the X-ray in the nasal tract is that in this field mediocre work is useless or worse, and the very best that can be done leaves much to be desired. There is no mystery about this work and no justification for the statements occasionally heard to the effect that success in this field depends upon some trick which is the secret of a few. Excellent work has been done by a few surgeons and rhinologists who have given it the serious attention it demands and deserves.

"The comparatively few successes and many failures in the work cannot be charged to secrets in technic, but results partly from the fact that the amount of attention for good work has generally been underestimated. The difficulty of the work is easy to understand when we remember that the skiagraph is a complete shadow of everything lying between the source of the rays and the plate, and that the different objects cast stronger or weaker shadows according to their relative thickness and density."

Again, success in getting good plates depends almost entirely on three things:

Correct position; strong penetrating exposures, and fast plates. Failures can always be traced to some fault in the observation of these requirements.

I submit the subject from a nose and throat standpoint, believing that a better familiarity with X-ray sinus work and its problems will lead to a helpful co-operation that will give better results in the field of diagnosis. A better knowledge of the correct positions and correct exposures will certainly give us better plates.

1805 Chestnut Street.

EXPERIENCE WITH VACCINES, SERUMS AND TUBERCULINS.*

William H. Phillips, M. D.,

Cleveland, Ohio.

NEARLY eight years ago when the air was full of Wright's reports on the use of specially prepared cultures of various bacteria for the production of immunity, and thereby the cure of certain chronic suppurations, I became interested enough to spend some time in the laboratory of Dr. W. H. Watters, of Boston University, studying the preparation of autogenous vaccines, and watching results from their use in a great many cases of infection at the Mass. Hom. Hospital.

At this time they were treating all cases of wound infection in the hospital and out-patient department, both acute and chronic, with autogenous vaccines, after administering the usual surgical treatment or establishing drainage. In the out-patient department tuberculin, too, had been revived only in much smaller doses than heretofore, and was being used in all children and young adults who exhibited positive Von Pirquet.

Watters and his associates were enthusiastic workers in the new line, and it was small wonder that I left the place with the feeling that radical mastoids, Killians, Caldwell-Lucs, and so forth, would soon be relegated to the ash heap, and in place of the knife, the chisel and curette, the hypodermic syringe would reign supreme. Since then I have had a varied experience with vaccines. A convert to autogenous products, I began to spend much time and some little money in attempting to isolate and grow the causative agent in my chronic suppurative cases, otorrheas, sinus infections, etc., and cure them, without operation, and with what I know now was poor success and in some cases poorer judgment. For instance, I spent nearly all one winter in connection with Dr. Jacobs treating a patient who had a staphylococcic attic suppuration with recurrent acute attacks of pain and

*Read at the October meeting of the Glenville Academy of Medicine.

headache, with autogenous staphylococcic vaccine, Dr. Jacobs making the vaccine and administering the injections. At the end of six months and some thirty injections there was no improvement either in the discharge or the clinical symptoms, and a radical mastoid was done. The entire tegmen of the antrum and middle ear had been destroyed and the dura covered with granulations, a local pachymeningitis, with some cholesteatoma. But here came the surprise: the wound healed in rapidly and smoothly notwithstanding the condition present, a thing which has not always occurred with me, for I have seen both in my own work and in that of others some mighty virulent reactions follow a radical mastoid in the presence of an apparently innocent staphylococcic infection. The explanation, of course, is that the conditions in the suppurating cavity, prior to operation, were not favorable for contact between the anti-bodies and the infecting agent. After operation had poured into the wound a large amount of immune serum, healing promptly occurred; and this I believe expresses a universal truth, "That in chronic suppurations vaccine treatment is of little avail unless some means is taken to bring the immune serum in contact with the infecting agent, either by surgical work, or in draining the tissues by some such method as hypertonic saline or argyrol solutions packed against them.

My experience with vaccines in the chronic infections has been largely limited to the otorrheas and accessory sinus infections, and, owing to the fact that these usually show a conglomerated mixture of pathogenic and non-pathogenic bacteria or a mixed staphylococcic infection, so that it is exceedingly difficult to determine what is the real perpetuating organism, it hasn't been a brilliant success. Besides, there are other factors which enter so prominently into the perpetuation of the discharge, a cholesteatoma, polypi, and polypoid degenerations of the lining membrane blocking drainage, and which need surgical relief, I never feel justified in depending on a vaccine. If I can be reasonably sure of my infecting agent and the suppurating cavity is one which drains well as some ethmoids or frontals, and the uncomplicated middle ear suppurations, a vaccine with packings of argyrol or hypertonic saline solution to promote exosmosis has done good work; and, in passing, the cheap, easily prepared 5 per cent. saline is just as effective and much more acceptable to the fastidious patient than the high priced argyrol.

The staphylococcus is so easily cultured from most of these suppurating cavities that, personally, I had gotten into the habit of ignoring it as a possible causative agent, looking upon it rather as an ubiquitous, harmless saprophyte. A few weeks ago I had the misfortune to receive an injection of a non-sterile staphylococcus aureus vaccine. After two weeks in bed and another two weeks of partial invalidism, I revised my opinion of the staphylococcus and my respect for him as a destructive agent and trouble maker has tremendously increased. To sum up: My experience in the chronic suppurations has not inclined me to depend very heavily upon vaccines alone for a cure. If drainage is free, combined with local use of hypertonic salines where it is possible to apply these, a well-selected, carefully prepared vaccine will often do much as a foreword to operation, and as a postscript it makes for kindlier and more rapid healing. The staphylococcic vaccine in chronic suppuration to me has been one long series of disappointments. Either it is exceedingly difficult to produce a staphylococcic immunity or else the staphylococcus, notwithstanding its virulence, is not often the cause of the chronic suppurations. I am inclined to the first explanation, as it is often possible to grow a staphylococcus from the discharge after a long period of immunizing treatment.

From chronic infections, which alone at first were supposed to be amenable to vaccine, we merged gradually into treating acute infections, including grip epidemics, by these same agencies. One of my earliest experiences in the treatment of acute infections I shall never forget. I had operated on a man for a badly neglected mastoid of pneumococcic origin. He had perisinus abscess and some indications of thrombosis. Two days later he developed pyemic temperature, and preliminary to a sinus operation, I gave him 25 million stock pneumococcic vaccine. Within an hour he developed all the signs of pronounced shock, and a few hours later died. Never again have I repeated the offence of giving a patient in a state of pronounced sepsis a vaccine injection.

Among the acute infections in which I have had some experience in vaccine work are the grip epidemics. It is always difficult in an examination of the nose and throat secretions of these cases to isolate the infecting agency, but in the acute infection of the cavities, as the

various sinuses or the ear, the infecting agency is often found in pure culture. Experience soon taught me that practically all epidemic acute bacterial infections were of two types, a form of the streptococcus, or the influenza bacillus; the pneumococcus as an epidemic grip I have not found, and the catarrhalis I am somewhat skeptical about. In epidemic infections all cases show the same infection whether they are ear, sinus or eye infections. For instance, last winter every case, whether of sinus or ear infection which I slided or cultured, belonged to the streptococcic group.

My plan has been this: Whenever possible a vaccine has been made from some of the cases early in the epidemic, and this vaccine has been used as a stock during the prevalence of that particular type of infection, and this vaccine has been used not only in cases where infection exists, but as a prophylactic in patients who have in the past shown a susceptibility to one or the other of these infections. If we look over our grip patients, we find that during the prevalence of certain types of infections we have over and over again the same patients, while these are immune to other types of epidemic infections,—for instance, during a streptococcic infection, we find certain people who are affected every time and who are free during an influenza bacillus infection, and vice versa, just as we find people who escape both influenza and streptococcic grip infection and yet succumb to pollen intoxications. The explanation probably is that these people are sensitized and are in an anaphylactic state as regards the specific infection the same as the hay fever patient is, and react strongly to the specific toxin at every provocation. What is more rational than to develop in them as far as possible an immunity before infection occurs. My own experience, carried out as mentioned, has been fairly satisfactory. Sometimes we fail, as it is not always an easy matter to develop immunity to any degree in a highly sensitized patient.

During the acute stage of infections occurring during grip, if general sepsis or bacteriemia is not present, these vaccines prepared as above have been to me invaluable in small doses, and I should not like to be without them. If general sepsis is present the immune serum in heavy doses is always preferable when possible to obtain it. My greatest success in these cases has been with the streptococcus. Many and many a patient who has dreaded the winter here because of a susceptibility to our streptococcic epidemics has acquired an immunity

through inoculation which has removed the source of this terror. This is usually brought about by a series of inoculations carried out each year for two or three years. Only a week ago a young woman presented herself at my office whom I had not seen for over two years. She came here from Richmond, Va., after her marriage, and winter here was just one long fight with grip, nasal discharge, earache, laryngitis and bronchitis. At the time I saw her first she was just beginning with an infection, and I suggested vaccines. Unfortunately at this time the intra-venous method was being pushed as a better method for acquiring a more rapid immunity, so, without considering as carefully as I should have done from her history the marked sensitization probably present, I gave her 10 million streptococci intravenously. She developed a most pronounced negative phase, was in bed a week with a subnormal temperature ranging about 97°, a weak pulse, blood pressure 90-70, and pronounced prostration. As soon as possible she went to her home in Richmond, and I had not seen her from that day until she presented herself a week ago. She told me she gained rapidly after leaving here and returned in two weeks, whereas she usually spent the whole winter in Richmond, and that, from then until now, she never has had the slightest return of her grip infection or even a common cold. Personally, until four years ago, the first streptococcic grip patient who presented himself at my office was sufficient to practically put me out of business for the rest of the winter. I have not had a streptococcic grip infection in four years.

Of the immune sera there are two with which I have had most experience, the streptococcic and the gonococcic. The gonococcic I have used in ophthalmia neonatorum, dropping it directly into the eye after cleaning. The streptococcic I have used both locally and by injection. In streptococcic mastoids before closing, the wound, middle ear, and canal are filled with the serum instead of a heavy dressing, and the serum is used as a daily dressing afterwards. In streptococcic throat infections it is used as a topical application. If severe constitutional symptoms are present it is used intravenously or subcutaneously in 20 c. c. doses, repeated every four to six hours as long as may seem necessary. With the meningococcic serum I have had practically no experience, and the same is true of the pneumococcic.

The last two months I have made some use of Mulford's sero-

bacterins or sensitized vaccines. They are supposed to be better adapted to acute cases in that they produce a much more rapid immunity and without the negative phase. The last is a delusion and a snare. They do produce a negative phase and occasionally a very pronounced one, although possibly not so pronounced as the regular vaccine. Therefore, they must be used with care in acute conditions, especially as they are standardized at a much higher strength than the non-sensitized vaccines. They are supposed to be able to replace the immune sera because of the rapidity of their immunity producing power. My own experience with them is too meagre to draw an opinion, but I am from Missouri on that question.

Tuberculin is a product which I have used more freely perhaps than any other one remedy in doses from the 1/100,000 mg. down to 10 mg. The indication for its use is a positive Von Pirquet in the presence of a suspected tuberculous process. In my judgment tuberculin is never indicated in the presence of a negative skin test. A negative skin test means either a freedom from tuberculous foci or a state of exhaustion in which antibodies are absent. In the first case tuberculin is uncalled for; in the second, it can only do harm. I had two experiences before I learned thoroughly this truth, having seen two patients with negative skin test yet very positive clinical and sputum tests sink rapidly and not recuperate after the exhibition of very small doses of tuberculin. Occasionally a patient not in the above class becomes sensitized to tuberculin to a point where a very small dose is followed by a prolonged negative phase, and it seems impossible to get away from this. I recall distinctly a young woman who was having constantly recurring attacks of phlyctenular keratitis, both cornea being scarred badly from the attacks, and who responded pronouncedly to a Von Pirquet. The exhibition of tuberculin, even the 1/100,000 mg., was followed repeatedly by a long negative phase and local aggravation. Careful examination of the patient showed no other focus of infection than a tremendously big left tonsil with some neck involvement, the right being small and apparently not affected. An enucleation was done and the eye condition immediately improved, and, moreover, the sensitization disappeared so that tuberculin could be rapidly pushed to 10 mg. dose before any further reaction was observed. Again, I recently treated the wife of a physician who had a long-standing obstinate scleritis and sclerosing keratitis. She showed

a very pronounced Von Pirquet reaction and tuberculin in 1/100,000 mg. doses was followed by marked depression and local aggravation. She showed no tonsillar disease but had a pronounced thyroid enlargement. Finally X-ray films of her alveolar processes showed several infected roots in the upper jaw same side as the eye lesion. Extraction was followed by relief to the eye symptoms and her sensitization to tuberculin slowly disappeared in part, it never being possible to push it very far. I have seen this condition demonstrated several times in the case of tonsils, but only this once in other sources of infection, but see no reason why any acute focus of infection might not serve to sensitize a patient by exhausting his immunity producing mechanism.

Of course, most of my experience with tuberculin has been in eye work, keratitis, scleritis, episcleritis and low grades of general uveitis, occasionally in tuberculous neck conditions and rarely in ear cases. In eye work it has been with me a very valuable remedy. In neck work I prefer resection of the glands and tonsils. In ear work I have usually found present an active pulmonary lesion and have been inclined to turn the case over to some one else. Two or three cases which I have had the opportunity to continually observe have been mastoids, and these have gone their way regardless of tuberculin or anything else.

I think we are all inclined, in general, to use the different tuberculins altogether too strong. If a reaction occurs, especially a focal reaction, it should not be exhibited again until absolutely all signs have disappeared. If the patient continues to react to infinitesimal doses it is doing no good and establishing no immunity and should be stopped unless some focal point of infection can be found and removed, thereby removing the sensitization. An established negative skin test should taboo tuberculin.

What is here said of tuberculin is true also of the vaccines. Many a time when we go blindly ahead, increasing our dose of vaccine and ignoring the effect produced, we are only lowering, not raising, our patient's immunity, and I am inclined to the belief that much of the failure attributed to vaccine work by those who are not thoroughly experienced has been due to this fact of over-dosage, especially in acute or active infections.

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THE DIAGNOSIS OF A FOREIGN BODY IN THE EYE AND MAGNET OPERATIONS.

W. Franklin Coleman, M. D.,

Chicago.

AFTER getting the history of the case and examining the exterior of the eye, the ophthalmoscope should be used. Then, the field of vision should be taken to determine whether there is any obscure area. Next, apply the tip of the magnet to various parts of the eye. If pain results it is a positive indication of the presence of a magnetizable body—steel or iron—within the eye. The absence of pain is not conclusive evidence that no foreign body is present, for it may be too remote or too firmly embedded to move.

In regard to the question of securing a skiagraph, prior to the attempt to extract the foreign body by magnet, it depends, in my opinion, upon the method of operation to be adopted. If the magnet is to be applied to the center of the cornea, the distance of the foreign body in a transverse plane from the magnet will be about the same wherever it is situated—hence, the determination of its presence and position may be postponed. If the extraction is to be made through the sclera, I prefer to have the skiagraph taken previous to the operation; as it is best to determine the site of the foreign body in order to apply the magnet near it, rather than to make an ineffectual attempt to draw it across the vertical or horizontal diameter of the eye.*

DOUBLE PERFORATION OF THE EYEBALL BY IRON AND STEEL.

Dr. W. M. Sweet, of Philadelphia, reports twenty-two cases, and adds "Of the thirteen cases, in which the metal passed completely through the eyeball into the orbit, the globe was lost in five instances; in two, because of panophthalmitis, in one from iridocyclitis; in one from collapse of the ball following an attempt to extract the metal, and in one in which extraction failed.

It is unnecessary to dwell upon the importance of X-ray examination in every instance of ocular injury from foreign bodies. In no

*"Electricity in Diseases of the Eye, Ear, Nose and Throat."—Coleman.

other way is it possible for the surgeon, at the time of the injury, to determine that perforation of the posterior scleral wall has occurred. Foreign bodies that lodge in the orbit usually cause no ocular symptoms. Disturbance is more likely to arise from bodies that are situated close to the posterior scleral wall, in the region of the ciliary nerves."

When a foreign body, usually iron or steel, perforates the cornea it probably, in the great majority of cases, lodges behind the iris. Formerly it was the concensus of opinion that the body should be removed through the cornea from the vitreous, and not a few of large experience advocate the anterior route even when the entrance of the body is through the sclera. Notwithstanding my limited experience, I could never bring myself to believe this opinion to be reasonable, and have considered extraction through the sclera to be much safer and more expeditious; provided, the body is situated behind the iris. Experiments on dead pig's eyes, reports of cases and my own experience confirm me in this opinion. Pieces of steel placed in the vitreous, that could not be removed through the cornea with the giant magnet, readily came through the incised sclera. By the anterior method, the danger of wounding the lens and entangling the body in the iris has been a too common experience of operators. The presence of a magnetizable body in the eye can be simply determined as suggested by Burdick, of Chicago: "There are, (he says), two methods that are fairly reliable in detecting the presence of a metallic body in the eye,—the movable magnet and the X-Ray. If we suspend a very long magnetized needle with a very fine silk fibre and approach the eye to this needle carefully, the needle will be found to rotate toward the particle, if it is iron or steel. If we approach the other end of the needle, it will recede, and eventually turn round to turn its north pole toward the metal. By approaching the suspended needle in different directions, we shall find a place where it moves quickly and points to a place in the eyeball nearest to the foreign body. This test is valuable as of negative value and helps to confirm a failure of the X-ray to show a foreign body as being present.

One case illustrates this perfectly. I made three plates at different angles, but failed to locate anything that looked like a foreign body. The needle test showed one to be present and I made the fourth

exposure at an unusual angle and it showed the body plainly. This information is quite as useful as a skiagraph taken by an inexpert operator, that does not show exact localization.

At a late meeting (in Champaign) in a symposium on the magnet operation the general view was in favor of the posterior route.

X-RAY—VALUE OF IN LOCALIZATION OF FOREIGN BODIES IN EYEBALL.

It will be my purpose in this paper to bring to your attention two prime propositions concerning foreign body cases in ophthalmic surgery; first, that given a proper and well worked out technique, the X-ray is not only indispensable in these cases, but in the vast majority infallible, and, second, that by an accurate mathematic localization by means of the X-ray of any foreign substances found, the subsequent surgical handling of the case is not only far more satisfactory to the surgeon, but in many instances more fortunate in the final outcome for the patient than is possible by any other known procedure.

DISCUSSION ON SYMPOSIUM.

Dr. Clement described a case in which the staff radiographer of a hospital took several pictures and failed to locate any foreign body. Three months later the patient came to Dr. Clement, who had Dr. Wells make a picture of his eye and located a foreign body which they removed. In another case a piece of steel, not discovered by a radiographer, was allowed to remain in the eye for almost a year. As in the first case, Dr. Wells took a picture of it, and located it within the globe from where it was successfully removed, although it did considerable damage in the meantime.

Dr. Andrewa, in emphasizing the value of localization, called attention to the hand magnet with the sharp point and the advantages of that over the large magnet with the blunt point. The sharp point can be introduced in a small incision, the current turned on, the foreign body removed with much less trauma inside of the eye, ordinarily, than with the large magnet.

"Dr. Gradle made a preliminary report of a new magnet consisting of a coil of wire approximately forty-five or fifty millimeters wide. The current is sent through these, and the magnetic core consists of any steel instrument that you wish to introduce. The strength of this magnet is sufficient to attract a fair-sized particle. He had not made accurate measurements along Dr. Wells' line, but can take half a

grain to a grain weight of steel and drag it to a distance of about fifty millimeters with a medium size core. The advantage of this simply is that we have no weight to work with beyond the very small steel core, as the one pole of the magnet."

Formerly when exact localization was not resorted to or often obtainable the giant magnet was a necessity for the body might be at a considerable distance from the magnet and since its traction is inversely as the square of its distance from the magnet, this must be large. Now when the services of experts can locate the body within 1-2 M.M. I consider the large magnet as a quite unnecessary instrument; a small one three inches by one in diameter being all that is required as the tip can be placed so near a well focalized body. Besides, the small magnet is very inexpensive and much more convenient to transport and apply. To illustrate by a recent case: May 26th, 1916, R. W., an iron worker, was struck yesterday by a piece of iron on the right eye—the vision of which is 20/40. No foreign body can be seen in the clear fundus. A suspended magnetized needle moves toward the eye. A skiagraph by an operator, employed by an insurance company, confirms the fact of a foreign body within the eye, but does not locate it. A picture taken by Dr. Hal P. Wells shows a foreign body at the lower end of the vertical median line of the globe—3 M.M. behind the ciliary body.

May 30th. A scleral incision was made over the foreign body, and the tip of a magnet three inches by one inch was placed just within the wound and in ten seconds the withdrawn tip presented the foreign body, which was 5x150 M.M.

June 8th. V. 20/66. There is a thin opaque plaque on the anterior surface of the lens. Treatment, Galvanism to the eye.

June 21, '16. V. 20/40.

Oct. 19, '16. Has incipient cataract. V. = 20/66.

SOME ETIOLOGICAL FACTORS OF RETRO BULBAR OPTIC NEURITIS.*

TRANSCRIBED BY FRANK O. NAGLE, M. D.,

Philadelphia.

WHEN we speak of the optic nerve, let us bear in mind, that we are speaking of about a million to a million and a half of nerve fibres, some of which are afferent; others are efferent in character; a few fibres of the third nerve whose termination are in the sphincters of the iris; and, lastly, but of greatest importance to us this evening is the Maculo-Papillar Bundle.

Since the time of its discovery by Samelsohn, all ophthalmologists know its functions, clinical appearance at the temporal side of the optic nerve, its pathological manifestations and special liability to damaging influences. A brief review of the schema of this bundle in various parts of the optic nerve paths will be in order.

Upon cross section, we notice that it occupies one-third of the diameter of the optic nerve itself. This differentiation, however, can only be made when this bundle is pathologically affected. The interior of an eyeball covers many square mm. of surface. When we consider that about one mm. of this surface (fovea) (macula) is supplied by one-third of all the fibres of the optic nerve, one gets a perspective of the importance of this maculo-papillar bundle this evening.

Directly back of the eyeball, the maculo-papillar bundle has the form of a quadrant with its base extending to the temporal side and its apex corresponding to the position of the central vessels. This form quickly changes itself to that of a half moon with the concavity facing the central vessels, and convexity facing the temporal side of optic disc to the pia. Gradually the maculo-papillar bundle leaves its contact with the pia and lays more centrally located at the level of the optic canal, taking on the form of the oval shape of the nerve itself.

With the advent of better differential stains, we now positively know that a semi-decussation of this bundle takes place. The course

*Read before the New York Homœopathic County Medical Society, December 14th, 1916.

of the Maculo-Papillar Bundle has been verified many times over with microscopic examination of pathological lesions. Up to 1907 there were 35 such examinations. However, only eleven attempted to further follow the course up through the chiasm (Vossius—Bunge—Uhthoff — Thomsen—Stöltzing—Sacks—Widmark—Gross—Wilhand and Saenger (two cases), Dalen—Tofoda).

An inflammation of the Maculo-Papillar Bundle is called Retro-bulbar optic neuritis. This subject is worthy of a close study because of its relationship to diseases of general medicine and because of its relationship to pathological conditions of the sinuses. We are able to diagnose the etiology of retro-bulbar optic neuritis in a few cases from the history of the case, (as in alcohol or tobacco) or in a few cases by the appearance of the temporal side of the disc. I have seen many cases tentatively differentiated by foreign ophthalmologists between retrobulbar neuritis of alcohol and multiple sclerosis, two conditions which are quite common in Germany.

But all of us recognize from our experience that when we make a diagnosis of Retro-bulbar optic neuritis we are dealing with a condition which may be due to several factors. Either it is a symptom (perse) (alcohol-tobacco) or it is merely one factor of a symptom complex. There is no ophthalmologist living who gives more attention of the relationship of the optic nerve to general diseases than Uhthoff, yet I remember distinctly at one of the medical meetings he made the statement he was unable to account for the cause of retro-bulbar optic neuritis in fifty per cent. of his cases at its incipiency.

Again, because of the intimate, indeed, peculiar relationship between Retro-bulbar optic neuritis and sinus diseases we have no positive information and we are in no position to state what intensity and duration of a sinus affection we must have in different individuals before their baneful influence makes an impression on the optic nerve. Assuming, that Retro-bulbar optic neuritis is always an expression of some constitutional dyscrasia in which the optic nerves are only secondarily affected, we involuntarily open up the following questions:—

Is the Retro-bulbar optic neuritis as a "teilerscheinung" of a constitutional condition really identical with the optic nerve affections whose cause is of inflammatory nature due to continuity of tissue from the sinuses?

Does there exist a clinical differentiation about which we know nothing?

How is it to be explained that two fundamental causes have the power of producing the same optic nerve affection?

SYMPTOMS.

The patient generally complains of a mistiness in vision and lessened acuity. Upon the test card examination we find considerable reduction in vision, even to the extent of 1/10. They complain of dazzling or greater disturbance of vision in bright light and in reality a relative and absolute improvement occurs (nyctalopia) with diminished luminosity.

Those of us acquainted with Fuchs' text book are acquainted with the story of the cabman who was able to work at night, but not in the daytime. Wilbrand and Saenger seek the explanation for this in the relative acceleration of the katabolic processes with the retarded anabolism. With a low intensity of illumination the restoration of the visual purple can keep better pace with their consumption.

The above mentioned symptoms, which we term the symptom complex of Retro-bulbar optic neuritis, were first published by Alfred Von Graefe in 1861. Von Graefe described a case of sudden blindness followed by rapid recovery of vision. This corresponds quite closely to our clinical interpretation of Retro-bulbar optic neuritis. However, Von Graefe had a wrong impression of the condition for he gave credit for the recovery to this therapeutic measure, namely, bilateral iridectomy. His deductions were as follows:—In the eyes of normal intraocular pressure a disproportion in pressure takes place along the sides of the arteries, and hence he called the condition Ischæmia Retinæ. Let us be kind in our reference to this. Remember Von Graefe had no ophthalmoscopic or clinical picture of Retro-bulbar optic neuritis to guide him. Again, central scotoma, deep seated pain in orbits and the maculo-papillar bundle were not known even to exist. But his description of the fundus cannot be improved upon today. He even went so far as to say the whole nerve was not involved, a beginning differential from descending optic neuritis.

If this paper were presented before a German medical society, I would place at the head of our list of factors multiple sclerosis because of its frequency. However, I will place at the head of my list

that which interests us mostly as Americans,—tobacco—alcohol Retro-bulbar optic neuritis.

In 1886 W. Uhthoff, supported by a comprehensive study of his clinical experience, gave to the profession his deductions concerning chronic alcoholics. Thirteen per cent. of all chronic alcoholics presented a partial atrophy of the temporal quadrant of the optic disc and signified according to this deduction a former intoxication of the maculo-papillar bundle with alcohol. He was able to verify his teaching by anatomical examinations of six such clinical cases. Uhthoff's studies were quite recently corroborated by a monograph upon this subject, entitled "Patholigisch Anatomische Untersuchungen ueber alkoholische Intosikatinis Amblyopia" by Ronne.

Toxic Amblyopia is caused by an excessive use of alcohol and nicotine (each of which factors may produce the disease). Their influence is especially marked when nutrition is lowered. Alcohol has a more marked influence on the optic nerves. A clinical differentiation between tobacco and alcohol in amblyopia is impossible according to Uhthoff.

"Toxic Amblyopia is not a systemic disease like tabes, where the essential pathological lesion may range over a wide extent.

In its pathology, Toxic Amblyopia appears to be an interstitial neuritis, an inflammation which primarily affects the septa of the optic nerve. With the progress of the condition the septa are thickened with resultant, secondary atrophy of the nerve fibres which progresses peripherally to the ganglia in the retina and centrally to the primary optic nerve.

The differential diagnosis between toxic amblyopia and Retro-bulbar optic neuritis of multiple sclerosis may become quite a problem at times. Again, Uhthoff has helped us clear up a part of the uncertainty of the differential diagnosis by giving us a key to the situation, namely, toxic Retro-bulbar optic neuritis is always bilateral; vision is always affected in the same intensity in each eye, also deep seated pain in the back of the orbits upon pressure is significant.

Again, in multiple sclerosis we are more apt to have an actual inflammatory reaction of the temporal side of one optic nerve, when in the other eye a simple exaggeration of the physiological pallor is seen. Finally, sudden complete amaurosis lasting for days without any fundus findings or even nervous findings speaks for multiple sclerosis.

In 1892 Emile Berger was the first ophthalmologist to draw attention to the possible relationship between Retro-bulbar optic neuritis and Rhinological conditions. Since then much progress has been made through the improvement of the technic of rhinological examinations. All of us know that the passage of the optic nerve through the optic foramen is not attended without some degree of danger. Among the young we occasionally find the diameter of the bony optic foramen congenitally small (Von Graefe's disease). Again, deformity of the skull may compress it (Thurmschädel) and finally among the aged, senile changes of the bone occasionally takes place. All these conditions give rise to varying degrees of blindness and formerly were placed under the category of idiopathic optic atrophy. Now with our present knowledge we know with certainty that inflammatory processes from the surrounding sinuses may pass directly over to the optic nerve through contiguity of tissues. How the Maculo-Papillar Bundle becomes affected when it is so centrally located is of no new information to the specialists. Fuchs explains the susceptibility by Eddinger's "Aufbrauchtheorie."

On purely anatomical grounds, especially through the studies of Odoni, we know that the bony formation optic foramen is capable of the greatest variations. The thickness of the septum which separates the canal from the ethmoidal cells varies greatly from a thickened wall to one which is perforated. Odoni has shown by his anatomical investigations that the anterior ethmoidal cells must not of necessity bound the optic foramen; not seldom the posterior ethmoidal cells are in direct opposition to the optic foramen. How the optic nerve becomes involved is not definitely settled. Whether it is a foramendal- or a peri-neuritis or whether it suffers from a collateral œdema from the sinuses is much discussed pro and con.

Multiple Sclerosis.

According to the experience of Bagh an elapse of ten years may exist between the outbreak of a retro-bulbar optic neuritis and other symptoms of Multiple Sclerosis. Brune and Stöltzing report intervals of twelve and fourteen years respectively. Uhthoff is of the opinion that in one-half of the cases of multiple sclerosis the optic nerve is involved and in at least one-half of these cases it occurs as an initial symptom of Retro-bulbar optic neuritis. Marx and Fleisher, of the

Strassburg Clinic, go so far as to say that acute Retro-bulbar optic neuritis is almost always an initial symptom of multiple sclerosis. Kampherstein in reporting Uhthoff's material has found relative central scotoma in the great majority of cases.

Multiple sclerosis being a disease of multiple lesions it is not surprising they present a typical picture of choked disc, due to a sclerotic patch being located directly behind the optic disc. There are about ten such cases reported in the literature, the majority of which were diagnosed brain tumor.

It has been a great incentive, yes, a pleasure for me to give a condensed review of the literature pertaining to this interesting subject. If this paper has served to refreshen some of the historical anatomical and pathological phases to you—members of the New York Homœopathic Medical Society, my pleasure is all the greater.

1825 Chestnut St.

LARGE BRAINS AND GREAT MINDS.

Two leading investigators, Prof. W. Von Bechterew and Prof. R. Weinberg, have examined minutely the brain of the late Prof. D. J. Mendelejeff, one of the greatest of modern chemists. They found the size of the brain to be above the average, but not remarkably so, the weight being 1571 grams—(55 ounces). Several eminent men have had heavy brains. Cuvier's weighed 64½ ounces; Dr. Abercrombie's 63 ounces; Prof. Goodsir's, 57½ ounces; Sir J. T. Simpson's, 54 ounces; Dr. Chalmer's, 57 ounces. The theory that a great mind necessarily co-exists with a large brain is no longer accepted.

THE DIFFERENTIAL DIAGNOSIS OF OTITIS EXTERNA AND OTITIS MEDIA.*

GEORGE W. MACKENZIE, M. D.,

Philadelphia.

ORDINARILY the symptoms and signs of these two conditions are so clear-cut and typical as to permit the general practitioner to make a correct diagnosis. On the other hand, there are instances where the symptoms and signs of either one of these conditions may so resemble those of the other as to tax the diagnostic skill of the specialist. There are still rarer cases where the two conditions may co-exist in the same ear, resulting in a confusion of symptoms and signs that makes the diagnosis most difficult. The most common error in diagnosis is that of mistaking a rather deeply located furuncle in the canal for a middle ear inflammation with threatening mastoiditis. A somewhat less frequent error is that of mistaking a combined Otitis Media and Otitis Externa for Simple Otitis Externa, more especially where the bacillus pyocyaneus is the infecting organism. The least frequent error is that of mistaking pure Otitis Media for a pure Otitis Externa.

Besides the errors referred to above others have been made including the misdiagnosis of Otitis Media with beginning mastoiditis for a combined Otitis Media and Otitis Externa and Otitis Externa for a combined condition.

By observing carefulness in the history taking, thoroughness in the examination including the use of every available method at our disposal, it is possible to synthetize the symptoms and signs into a picture that represents the correct diagnosis in practically all cases.

Let us now contrast the symptoms and signs of Otitis Externa with those of Otitis Media, laying stress upon the points of differentiation. Following this we shall cite a few atypical cases presenting a confusion of symptoms and signs which tend to make the diagnosis difficult. Since it is that type of External Otitis known as furunculo-

*Read at the Meeting of Germantown Medical Club, Phila., Nov. 20, 1916.

sis of the canal which is most likely to be confounded with Otitis Media, it is the one chosen for the contrast, while the Otitis Media referred to is the suppurative type before rupture of the membrane.

FURUNCULOSIS OF THE EXTERNAL CANAL.	OTITIS MEDIA.
1. History:	*1. History:*
In the case of furuncles, the patient is usually able to recall the fact that he is prone to suffer from attacks of boils or has recently suffered from a boil elsewhere on the body, the back of the neck occasionally showing the evidence. He may even go so far as to tell us that the present condition in his ear is the same from which he suffered a week or so before.	In the case of Otitis Media, upon close questioning, the patient recalls having suffered recently from a cold in the head or an attack of sore throat. He may tell us that whenever he contracts a cold, the ear becomes stopped up for a few days or longer and with this stopped-up feeling the hearing is diminished. In the case of children, the parents may recall a recent attack of one of the acute infectious fevers, or the parents may tell us that the school physician had suggested the removal of adenoids several months before and the suggestion had not been acted upon.
2. Temperature:	*2. Temperature:*
The temperature in Otitis Externa usually runs about normal, the area of infection being too small and circumscribed to permit the generation of toxic substance in sufficient amount to raise the temperature noticeably. Besides, the skin of the canal does not absorb toxic substances readily.	The temperature in Otitis Media usually runs one or two degrees above normal, even in uncomplicated cases; because of a wider area of involvement than is found in External Otitis. Besides, the mucous membrane has greater absorptive function than the skin.
3. Hearing:	*3. Hearing:*
The hearing is reduced in Otitis Externa in proportion to the amount of occlusion of the canal, but the reduction is never so pronounced as in Otitis Media. In those cases where there is but slight occlusion, the reduction of hearing is hardly appreciable.	In Otitis Media the hearing is appreciably diminished in all cases, especially during the height of the process and shortly before spontaneous rupture of the membrane. The reduction of hearing in both cases is of the type characteristic of obstructing disease or diseases of the conducting apparatus.

4. Tinnitus:

Tinnitus is a symptom rarely found in simple Otitis Externa.

4. Tinnitus:

Tinnitus is more frequently found in Otitis Media, but not so frequently at that. Its presence is due to one of two conditions and in some instances to a combination of both. It may be due to excessive intra-tympanic pressure making itself felt at the round and oval windows in those cases where the tympanic membrane is more than usually resistant and spontaneous perforation is deferred. As a proof of this fact a paracentesis of the membrane generally causes a prompt cessation of the noises. The other condition referred to is active congestion of the internal ear, found in the more virulent infections of the tympanic cavity. In a small percentage of cases this congestion is a forerunner of suppuration of the internal ear. In either case a prompt paracentesis of the membrane is indicated.

5. Vertigo:

Vertigo, like tinnitus, is rarely found in External Otitis. When present it is merely reflex in its origin and is not produced directly from anything existing in the canal.

5. Vertigo:

Vertigo, like tinnitus, is more often found in Otitis Media and its cause is the same as that which produces the tinnitus, the only difference being the parts of the internal ear upon which the force of the intra-tympanic presure or congestion makes itself felt. Usually where the one symptom is present, the other accompanies it. In some cases of congestion of the inner ear the vertigo is sufficiently intense to be manifested objectively by *spontaneous nystagmus toward the affected side.*

6. Spontaneous Nystagmus.

Spontaneous Nystagmus has never been observed or reported as having been present in External Otitis pure and simple.

7. Pain:

Pain in furunculosis of the canal is always felt at some stage of the process. It is rarely so intense as in the case of Otitis Media. It may be localized in the canal or referred to parts about it. It behaves like other pains in that it is worse at night, but the nightly aggravations are not so pronounced as in Otitis Media. The pain and soreness in the canal is aggravated by working the jaws, as is done in the chewing of food.

8. Tenderness:

Tenderness is felt in the ear by any manipulation of the canal and especially when introducing the speculum for examination. Manipulation of the tragus elicits pain. Besides the tragus feels more rigid to the examining finger than the tragus of the non-affected ear.

9. Fistula Symptom:

Fistula symptom is never present in uncomplicated Otitis Externa.

10. Narrowing of the Canal:

This occurs in Otitis Externa in the outer half or cartilaginous portion of the canal and is due to the physical presence of the boil. The narrowing leaves a more or less crescentic shape slit and the direction of the slit

7. Pain:

Pain is found in Otitis Media and increases in intensity from the onset of the process up to the time of spontaneous rupture or paracentesis where the latter has been performed. It is located deep in the ear and is occasionally referred posteriorly to the mastoid process. It is pulsating in character at the height of the process with decided aggravation at night. The pain practically ceases with spontaneous rupture or paracentesis in complicated cases.

8. Tenderness:

Tenderness, when present in Otitis Media, is referred generally to the mastoid process. Slight mastoid tenderness is frequently found early in Otitis Media, which clears up promptly after drainage has been established without empyema of the cells following.

9. Fistula Symptom:

The so-called fistula symptom (nystagmus with vertigo upon the compression of air in the external canal) may be present in acute middle ear inflammation and in the absence of fistula of the labyrinth, as pointed out by Alexander and Lasselle and at odd times by the writer. It is more likely to be found in those cases where tinnitus and vertigo are already present.

10. Narrowing of the Canal:

This may occur in Otitis Media, but only in the presence of a complicating mastoiditis. In this case the swelling that produces the narrowing is located deep in the osseous canal and in the upper and outer wall.

depends upon the location of the boil. It may be horizontal, vertical or oblique. The concave side of the crescent corresponds to the convexity of the boil.

The introduction of the smallest speculum permits us after passing through an isthmus like narrowed portion to view the deeper or osseous part of the canal widened quite to its normal proportions with the tympanitic membrane undisturbed.

11. Swelling:

Swelling of the glands either in front or behind the auricle occurs not infrequently in Otitis Externa. When the posterior glands are involved, there is some possibility of mistaking the swelling for that of periostitis found in mastoiditis. Careful palpation will, however, show the glandular swelling to be circumscribed and freely movable under the fingers.

12. Nose and Throat Findings:

Inspection of the nose and throat, not forgetting the Eustachian tube, should be made a part of the routine examination of all ear cases. In the case of Otitis Externa, the appearance of the parts may or may not be relatively normal. When not, it is a mere coincidence. The picture is entirely different from that found in acute middle ear inflammation. (See the opposite column.)

so that the long axis of the slit runs obliquely from above and forward to below and backward. Its direction never varies. The membrane is diffusely red and the anatomical details (especially the outlines of the hammer handle) are obscure. There may be bulging of the membrane. The contrast between the appearance of the membrane in the two conditions is obvious to any one who uses the speculum.

11. Swelling:

Swelling of the tissues about the ear may be present in Otitis Media when complicated with mastoiditis. This swelling is always posterior to the auricle, is more diffuse than in the case of glandular swelling; besides it may be observed by palpation with the finger tips; that the whole periosteum moves less freely over the underlying bone on the affected than on the unaffected side. In the case of very marked swelling over the mastoid, as is found in advanced mastoiditis with characteristic displacement of the auricle, outward, downward and forward, there should be no difficulty in making the correct diagnosis.

12. Nose and Throat Findings:

Inspection of the nose, throat and tube in a case of Otitis Media, as a rule, will show some involvement of the parts. Among the findings may be mentioned deflection of the septum usually toward the side of the affected ear in unilateral cases; besides evidence of active or recent rhinitis. In the nasopharynx enlarged and acutely or sub-acutely inflamed adenoids, increased redness and swelling

of the mucous membrane about the mouth of the tube corresponding to the side of the middle ear, inflamed with relative narrowing of its lumen and in some cases a small drop of mucopurulent secretion presenting at the mouth. In the fauces enlarged and more or less acutely inflamed tonsils. Not all of these findings are necessarily found in a single case; however, they may be.

In the above columns the effort has been to draw the contrast sufficiently marked as to make the differentiation relatively easy: but in spite of what seems to be an easy achievement on paper, occasional cases are met with in practice where the diagnosis is not so easy.

The real test of one's diagnostic skill lies not so much in his ability to recall the symptoms and signs of disease and contrast them in different conditions at will, as in his persistent efforts at eliciting a proper history and making exhaustive examinations. The one is theory and the other is practice. No matter how graphically a picture may be described in words, it tells us far less than one view through the otoscope.

The difficulties that confront us in arriving at a correct diagnosis in some instances can best be illustrated by the citation of a few cases:

Case I. A little Italian girl about 8 years of age was brought to me suffering with intense pain and itching in the external canal and the external surface of the auricle of the right ear. Upon questioning it was learned from the father that the child had been suffering from earache and the night before, in order to give her relief, he poured Omega Oil containing cayenne pepper into the canal. My assistant, because of the intense pain in the ear, together with swelling and tenderness over the mastoid, suggested the diagnosis of middle ear suppuration complicated with mastoiditis. A careful introduction of the smallest speculum permitted a view of the tympanic membrane, which was found to be quite normal and the child was spared the operation. Evidently there had been an external Otitis which had been obscured by the dermatitis and cleared up with it. The father's treatment was surely radical, for the child never had a recurrence of pain, or having had it, she was too scared to mention it.

Case II. A little boy, about two years of age, reported to the dispensary one day with pain in the ear and slight amount of purulent discharge. Examination of the ear by an assistant, a man of good judgment, suggested to him the diagnosis of middle ear suppuration with complicating mastoiditis because of the deep seated narrowing of the canal from above downward; besides, the auricle was tilted downward and outward and the retro-auricular fold was obliterated. There was a fluctuating swelling just above and slightly behind the ear. On closer inspection the tympanic membrane was found to be intact and normal in appearance. A deep incision in the upper wall of the canal was followed by the evacuation of a teaspoonful of pus with prompt relief and a drop in the temperature to normal. The external canal assumed its normal condition as compared with its fellow, when a second examination made it possible to discern the details of the long process of the anvil which is never visible in a tympanic cavity containing secretion. The most interesting fact in this case was the rather typical location of the swelling in the canal which ordinarily speaks for mastoiditis. The explanation for the deeply located swelling in the canal is found in the anatomical structures of the canal of a two year old. For a child of this age the osseous portion is but one-fifth the total length of the canal; therefore, an abscess affecting the deeper cartilaginous canal can be mistaken readily for a periostitis of the osseous canal which is so characteristic of mastoiditis.

Case III was that of my little boy, 5 years of age, who complained of left-sided earache for 16 hours previously. At the time of the examination at the office the canal was almost occluded, there being left only a narrow slit running from above and forward to below and backward. There was marked swelling behind the ear and the auricle stood out from the head and there was tenderness in the region of the antrum, but the greatest intensity was above and in front of antrum. Having seen at least three similar cases on previous occasions and knowing the boy had had a boil in his ear the week before, I was not alarmed at his condition. The case cleared up under treatment after the same manner as the others had done.

Case IV. A young man reported with the history of right-sided earache for several days past with discharge, but without relief. The

functional tests showed considerable reduction of hearing. The canal was narrowed in the cartilaginous portion suggesting a boil. On careful inspection of the parts beyond the swelling, a watery fluid was detected, together with macerated epidermis, all of which masked the membrane. Upon inflating the ear nothing was learned aside from the fact that no additional fluid appeared, nor were there any air bubbles. The correct diagnosis was established by inspection of the nasopharynx and tube which were found to be negative and the additional factors not mentioned above, namely, that the patient had been having a crop of boils. The macerated condition of the deeper portion of the canal was due to effects of home remedies used in the canal and locked in there by subsequent increase in the size of the boil.

Case V. Was that of a young man who came to the office suffering with severe pain in his left ear and watery discharge of three weeks' standing. The reduction of hearing was only moderate. Otoscopic examination revealed a concentric narrowing of the cartilaginous canal through which it was possible to introduce the smallest speculum. The tympanic membrane appeared pale and uneven on the surface. The parts were so swollen and the canal contained so much debris in spite of the vigorous efforts at cleansing the canal, that a perforation could not be detected. After repeated efforts covering many minutes, it still remained a question as to the existence of a perforation. Repeated efforts at inflation of the middle ear after the Politzer method finally showed a pin point opening in the membrane. The Otitis Externa was secondary to the Otitis Media. The point to be emphasized in this case is that diagnosis of Simple Otitis Externa would have been far from complete. Had I been content with the diagnosis of external otitis instead of looking further, much valuable time would have been lost in the treatment of the case. This is but one of at least four similar cases seen during the last twelve months.

The above cited cases are only a few of the many that the specialist meets and they do not by any means cover the entire field of possible errors. Notwithstanding the possibility of error on the part of the general practitioner because of his lack of training and on the part of the specialist because of his undue haste, it is possible to arrive at a full and correct diagnosis in all apparently obscure cases. As further aids in the diagnosis not included in the above differentia-

tions, we have transillumination, X-Rays and laboratory facilities, concerning which a great deal could be said, but, since the paper is prepared more especially for the general practitioner, a discussion of their value can just as well be omitted at this time. In closing, I would urge the general men to make more frequent use of the head mirror, otoscope, nasal speculum and tongue depressor, if not the naso-pharyngoscope, as valuable tools in general practice.

1831 Chestnut St.

FRENCH PROVERBS.

The absent are always in the wrong.

Ready money doth great cures.

Speak little and well if you would be esteemed as a man of merit.

Shed blood, and men believe; shed tears, they doubt.

One is never so well served as by oneself.

When it suits him even the devil does all things well.

Without bread and without wine love will come to nothing.

Men who have little business are great talkers.

The less one thinks the more one speaks.

A woman is to her husband what her husband has made her.

When the foe fears us, we must dare everything.

He who would reckon well should count on nothing.

Power is not shown by hitting hard or often, but by hitting straight.

Prayer is a cry of hope.

Who makes excuses, accuses himself.

A witticism proves nothing.

A man whom nobody pleases is much more unhappy than a man who pleases nobody.

Wisest is he who knows not he is wise.

If you've a good case, try to compromise; if you've a bad one, take it into court.

Good blood can not lie.

A CASE OF CHRONIC EYE STRAIN PROMPTLY CURED BY TRAINING OF THE FUSION FACULTY.

E. H. Linnell, M. D.,

Norwich, Conn.

ERRORS of refraction and their attendant asthenopias and various nervous disturbances are the most frequent cases the oculist is called upon to treat, and sometimes they are very obstinate and tax all one's resources to relieve them.

Muscular imbalance is so frequently associated with refractive errors, that they should always be considered and the various phorias estimated as a routine procedure, and given attention where the correction of the refraction does not relieve the asthenopia within a reasonable time. It is just here that much experience and judgment and resourcefulness is demanded.

The various methods of treating these conditions may be classified as muscle training; wearing of prisms for the relief of eye strain; tenotomy, and lastly the training of the fusion faculty.

It is my belief that the influence of defective fusion faculty in the causation of muscular imbalance, and as a factor in the development and perpetuation of asthenopic symptoms, does not receive the attention it deserves at the hands of the majority of ophthalmologists. Several papers on the subject have been presented to the O., O. and L. Society by Drs. Wells and Cross, which have been very illuminating and suggestive to me. The discussions following the reading of these papers indicated that but few of our men,—at that time at least, were using any systematic methods for developing the fusion faculty, or recognized it as an important factor to be considered in muscular anomalies or asthenopic symptoms.

Aside from the papers alluded to, I have seen little in current literature in reference to the subject; so that, as I have already remarked, it would seem that very little attention is being paid to this matter by the rank and file of specialists.

The importance of the faculty, however, can not fail to be conceded by any one who will give a little thoughtful consideration to the matter.

The existence of a special fusion centre cannot be questioned, although I am not aware that its exact cortical location has been demonstrated. Binocular vision, dependent upon the fusion of the single images formed upon the retina of each eye, is a matter of education and its development is undoubtedly hindered by any defect of sight, which would render the images unequal in size or distinctness, or by muscular imbalance, which would prevent their falling upon identical points on each retina.

Conversely, imperfectly developed or absent fusion faculty tends to the establishment and aggravation of muscular errors, and is an important factor in difficult and painful use of the eyes. Thus we see a vicious circle established.

Dr. Wells has done the profession a valuable service by directing attention to this subject, and his series of cards for use in the stereoscope furnishes, in my opinion, the best means for diagnosing and treating defects of the fusion faculty.

My own experience in this line is limited for various reasons. First, because of the time it requires, and the difficulty of securing the requisite perseverance on the part of the patient; also, and perhaps chiefly, because, in the majority of cases, I secure satisfactory results in easier ways.

In slight muscular anomalies I find, as I think is the experience of most oculists, that they disappear after careful correction of the refraction. If they do not, my next effort is along the line of muscle training by loose prisms, or the wearing of prisms in special frames for varying lengths of time; by the taper or lead pencil exercises; and by turning movements of the eyes, as by looking alternately at opposite corners of the room without moving the head; supplemented frequently by the use of the indicated remedy, and perhaps by some form of electricity. These efforts failing, I prescribe, in suitable cases, especially when the patient is unable or unwilling to follow a systemic course of treatment, prisms to be worn in combination with the lenses, which correct the refraction.

Finally, I resort to fusion training when other methods fail, or

at once, when there is suppression of the image of one eye, or manifest deficiency, or entire absence of the fusion faculty. I have no doubt a more frequent use of the latter method would bring its reward, but I am not prepared to go to the length of Drs. Wells and Cross, and make the method of first choice in all cases.

The following case seems to me of sufficient interest to warrant publication, illustrating as it does the gratifying results of training the fusion faculty in a chronic and obstinate case. It is noteworthy because of the prompt response, which followed fusion training.

She was a neurotic, hysterical girl of twenty-one. She had had much difficulty in using her eyes for ten years, and much treatment by various oculists of repute failed to give her relief. For the past two years she had been under constant treatment at the hands of an oculist of good reputation in a neighboring city. He had frequently changed her lenses, and had told her she would eventually lose the sight of one eye. She complained of nearly constant headache, lachrymation, cramps in the facial muscles, a sensation as though the eyes were being drawn back into the head, and an entire inability to use them for near work.

She had had all the usual children's diseases, and also gave a history of former kidney and cardiac trouble following measles. Menstruation was normal, and a careful physical examination failed to show any organic disease.

Systolic blood pressure was rather low, being only 96. DP 78. She was wearing + .50 Ds = + .25 Dc 90° O. D., and + .50 Ds = + .50 Dc 90° O. S. She had an Es. in distance of 5°, no hyperphoria. Muscular balance at reading distance was not recorded at this visit. The ophthalmoscopic examination was negative. After paralyzing the accommodation with atropin V. O. D. = 15/30; +2.00 Ds = + .25 Dc 90° = 15/15. V. O. S. = 15/100; with + 1.25 Ds = + 1.25 Dc 90° = 15/15. Es. 5° far. After recovery from the mydriatic she accepted .75 Ds = + .25 Dc 90° O. D. and + .75 Ds = 1.25 Dc 90° O. S.; with which V. O. U. = 15/15. These were prescribed for constant use, but she could only use her eyes for five minutes without pain.

She then had Es. 2° far and 4° near. With loose prisms base out, she could fuse 14° each eye, but she had no binocular vision at the

reading distance. Could not fuse any of the stereoscopic charts with discrete pictures. The image in left eye was habitually suppressed. Bar reading was impossible. Here we find the eye with the smaller degree of hyperopia and the greater astigmia the one not used; vision without lenses decidedly less acute than that of its fellow; so that the previous oculist had predicted eventual blindness in this eye, although with proper correction of refraction vision was equal to that of the right eye; yet she had no true binocular vision. She was therefore given a stereoscope with series "A" of Dr. Wells' for home use, was told to tie up the right eye for an hour each day, and to use the taper exercise for the interni.

At her next visit, a week later, her report was quite encouraging. After three days' use of stereoscope with no result, suddenly she was able to fuse all of the cards with discrete images. (Kroll.)

Then she disclosed Es. 5° distance, and Ex. in accommodation of 4°.

Treatment was continued and a week later she reported that bar reading was easy and she could read 20 minutes without fatigue. She was free from headache and twitching of the eyes. In fact, she said, "There is now nothing the matter with my head or eyes." She could fuse all of Dr. Wells' series of stereoscopic cards, except the last three numbers of series "H." Es. was 2° far; orthophoria near. She was told to omit stereoscopic practice at home, and the tying up of the right eye, but to continue taper exercise and bar reading.

At her next and last visit, she reported that her eyes were "all right," and that she could use them as much as she wished. She then fused easily all of Dr. Wells' series of cards, including series "H." Es. was 3° far and 5° in accommodation. With single prisms she overcame 20° base out with the right eye and 22° with the left, and 8° base in with the right eye and 10° with the left. Inasmuch as she could use her eyes without discomfort and was relieved of all her nervous symptoms it was thought best to disregard the Es. She was discharged with the instruction to continue bar reading for an hour a day.

This result, after ten years' suffering, and attained after only four office treatments with the stereoscope was very gratifying both to me and to the patient.

The exercises were given with prisms of stereoscope turned base out, which gave easiest fusion. My instrument is fitted with lenses of 5.50d and movable prisms of 6° each eye.

During the time she was under observation she took Ig., which probably helped to relieve the nervous symptoms, but was unquestionably a negligible factor in the recovery of binocular vision.

Thayer Bldg.

FIFTEEN RULES OF HEALTH.

Professor Irving Fisher and Dr. E. L. Fish, two of America's foremost health authorities, have just written a book, "How to Live." Here are the fifteen rules of health as they give them:

I.—AIR.

1. Ventilate every room you occupy.
2. Wear light, loose and porous clothes.
3. Seek out-of-door occupations and recreations.
4. Sleep out, if you can.
5. Breathe deeply.

II.—FOOD.

6. Avoid overeating and overweight.
7. Eat sparingly of meats and eggs.
8. Eat some hard, some bulky, some raw foods.
9. Eat slowly.

II.—POISONS.

10. Evacuate thoroughly, regularly and frequently.
11. Stand, sit and walk erect.
12. Do not allow poisons and infections to enter the body.
13. Keep the teeth, gums and tongue clean.

IV.—ACTIVITY.

14. Work, play, rest and sleep in moderation.
15. Keep serene.

PULMONARY AND LARYNGEAL TUBERCULOSIS FOLLOWING TONSILLECTOMY—A CASE.

Wm. H. Smith, M. D.,

Cincinnati, Ohio.

MISS D., æt. 31, 'phone operator, apparently in good health except for recurring attacks of tonsillitis. No record of patient's weight was made, but she was quite plump—in fact, was afraid that she would gain more. Had had a tonsillotomy performed several years ago with poor results. Subsequently another specialist attempted to free the stumps from the pillars, but they became more adherent and submerged.

At the patient's request and upon the advice of her physician, I removed the offending stumps, the throat healing promptly and with apparently good results. Saw patient occasionally for several weeks. About three months after the operation the patient came in and complained about not feeling so good, had lost over fifteen pounds in six weeks. Her temperature was about 101, pulse rapid, slight cough and shortness of breath.

Examination showed infiltration of apices of both lungs, nodules on margin of epiglottis (probably tubercular) and T. B. in sputum.

Just how much of a factor, if any, the removal of these diseased tonsillar stumps was in the production of this acute and severe tuberculosis is a big question. Probably it was only a coincidence. However, the family and friends are thoroughly convinced that it was a case of cause and effect.

410 Mercantile Library Bldg.

HAITZ BINOCULAR LOCATION OF SCOTOMA BY MEANS OF THE STEREOSCOPE.

David W. Wells, M. D.,

Boston, Mass.

FOUR years ago I referred to Dr. Arnold Knapp a very puzzling case and was much chagrined at his discovering a para-central scotoma which I was unable to find. He told me that he located it by means of the Haitz Charts, of which I had never before heard. As soon as possible these were obtained from Emil Sydow, Marien Strasse 10, Berlin, and the accompanying instructions translated with the assistance of Prof. Marshall L. Perrin, Professor of Germanic Languages of Boston University. Dr. Ernst Schlack, of Brooklyn, went over the translation and corrected some of the technical difficulties.

This system has been of such inestimable value that the attention of several colleagues has been called to it. The appearance of Dr. Bissell's paper on "Blind Spot Measurement by Means of the Haitz System" suggested that the translation of the instructions might be appreciated by others, as I suspect few of us are able to get the exact meaning from the original.

INTRODUCTION.

Although since the introduction of the perimeter by Aubert and Foerster the investigation of the field of vision has in general attained a high degree of exactness, yet until very recently it was not possible to determine central defects with sufficient accuracy. For the discovery of the smallest central scotoma there are to be sure a number of special methods and instruments (scotometers) recommended, but with regard to the fixing of the larger central scotoma or those varying eccentrically the oculist must confine himself to the usual perimetric method. Results obtained in this way are naturally deficient inasmuch as there is no dependence upon the fixation and the results of the observation give only an approximate idea of the size and form of the defect in question. In no case is it possible to perceive with

any degree of assurance comparable results taken at short intervals, whereby to note the progressive nature of the disease. This is so much the more important for the oculist as it is from just such repeated observations and their relations to one another that he can obtain reliable data concerning the progress of the disease or the effect of his treatment. Therefore it was an important occurrence when Schloesser brought out again a forgotten binocular method introduced by Hirschberger for other purposes. Schloesser showed that with the help of this method central defects could be much more definitely determined than by the usual monocular method. For by leaving the second eye open and using it for fixation, the weaker eye with the central defect is able to maintain a more constant position. This method which was first adopted, and the only binocular one made use of, was, however, subject to a number of inaccuracies which limited its use materially. It is, therefore, better in the investigation of the central part of the visual field to make use of another binocular method which has been introduced by me, viz.: the stereoscopic. It is true that this latter is adaptable only for the field within 0° and 10°, although in case of emergency it can be extended to 20°. It is, however, most exact in this limited field, especially because there is sufficient assurance that in spite of a possible heterophoria the eyes maintain their normal binocular position. The binocular method of investigation by means of the stereoscope is especially to be recommended in all forms of central defects where the limits are entirely or for the most part within the 10° zone, and, secondarily, when the border (of the scotoma) approaches the intact point of fixation, as in hemianopsia, in monocular half sight, and with sector shaped defects, etc. In this last case the stereoscopic investigation is rather secondary and confirmatory,—a more exact determination of results obtained by the ordinary perimetric tests.

The examination of the zone of 10° is undertaken with the Kampimeter charts Nos. 2 and 1, which I hope will soon become an indispensable part of an oculist's outfit.

Each portfolio contains a set of scotometer charts. The discovery of the smaller central blind spots is made more quickly with these than with the Kampimeter charts. They have advantage over all other scotometers in that by reason of their binocular nature they

force the defective eye, with peculiar constraint, to maintain the central position.

I believe that these scotometer charts will have a special advantage when used for a great number of observations at the same time, particularly in the examinations of the employees of the Railroads and the Navy, which are absolutely necessary from time to time. For here the chief purpose is the discovery of possible acquired defect of central sense of color. It is extremely important to discover such defects in their incipiency, as they are for the most part of a progressive nature and a person in question might, if this is not discovered, soon enough be the cause of great disaster. Special attention may well be given to these conditions among marines who are accustomed to indulge in periodic accesses which may produce neuritis optica. It has been well proved that simply by the smoking of a strong cigar one can acquire a temporary red-green-scotoma.

Advanced cases, of course, could not escape the oculist under methods ordinarily used, but these incipient color scotoma can very easily be overlooked. The deficiency in acuity of sight is at first very small and if the investigation is made in the daylight the oculist would be inclined to refer the apparent deficiency to an insufficient light, whereas such a patient really sees better under these conditions. In the test which recently has been made obligatory in the Prussian Railway with the Holmgreen method, this disease has in no case been found. Incipient cases have not been discovered, and in such cases the binocular stereoscopic color scotometer will certainly prove to be of the greatest value, because in testing malingerers it is possible to completely "rattle" the patient with the stereoscope, by the alternate covering of the eyes or by turning around the chart and other tricks.

It is possible to modify the investigation somewhat by the introduction of smoked glasses according to the method of Everbusch's test for signal lights.

DIRECTIONS FOR USE.

General: In order not to burden the oculist's equipment with further apparatus I have adapted my charts to the Holmes, so-called American, hand-stereoscope, which is much used for strabismus and is to be found everywhere. It is well fitted in general for our special purposes. One might perhaps blacken the wooden portions which

are visible to the patient and in case the slide for holding the pictures is too brilliant it might be wrapped in dark grey woolen.

It is very desirable, however, to find out in the first place the strength and position of the half lenses inasmuch as the models which are to be obtained are unfortunately subject to great variations in these respects. Of course, for several reasons the charts are to be placed at such a distance from the half lenses that the whole or at least the zero points of both sides shall lie in the plane of the foci of the lenses. Consequently the charts had to be adapted to lenses of certain strength and distance.

The stereoscopes which are furnished the oculists by the larger firms have lenses which are ground with a radius of curvature of 20 cm. and the optical centers lying in the base are about 8½ cm. apart. These are the conditions which I have taken for normal in the arrangement of my charts. Such lenses have a focal distance of 19 cm. (= 5¼ diopters). Inasmuch as the focal distance is reckoned from the side of the lens turned to the slide, the latter is consequently to be brought to such a position that the middle of both pictures stands at about 18.8 cm. from the bottom of the side of the lens turned toward the nose. This normal position of the slide it is well, to start with, to mark with a line on the sliding track.

Lenses with 5 diopters as well as those with 5½ can also very well be used. In the latter case, that is, with the focal distance of 18.2 cm. the above mentioned distance between the zero point of the chart and each of the lenses should be made somewhat smaller, say, 18 cm. In case of the charts Nos. 1 and 2 the interval between the lines which otherwise would correspond exactly to the visual angle of 1° becomes .16 mm. too large. At the 10° point the correction would then be 1.6 mm. or about ½ a degree.

If, however, the lenses are only five diopters, that is, a focal distance of 20 cm., then it is necessary to act according to the distance between the centers of the two lenses. If this be relatively small, say, about 8 cm., then the charts are to be put as before in the plane of the axis, but the distance should be taken 1 cm. longer, that is, 19.8 cm. The correction then to be made is exactly the same as in the former case only in the opposite direction. That is to say, the distance between the lines marking the degrees appears .16 mm. too small. If,

however, the distance between the (centers of the) lenses seems to be relatively large, say, 9 cm., then place the charts in the normal distance given for the lenses $5\frac{1}{4}°$ and the observation takes place with slight accommodation. The inexactness arising from this is negligible.

Greater variations in the strength of the lenses than those mentioned are not admissible. One need not be so particular, however, with regard to the distance between the lenses since slight differences of the eyes, especially in the direction of convergence, can, as is well known, be easily overcome. Most persons whose accommodation is weak usually perform the act of convergence easily.

If in the manner directed the charts are observed without accommodation then the size of the degrees as well as the distance between the corresponding points of the two pictures are independent of variations in the pupillary distance and also of variations in the distance of the eye from the stereoscope lenses. For that reason it is entirely unnecessary to make the lenses adjustable.

In every case it is necessary first to make a test of the central accuity of vision as well as of the extrinsic muscles before an examination of the field of vision with the stereoscope. Ametropic persons should wear their distance glasses. In the case of axial ametropia, if the correcting glass is at the anterior focal distance from the eye, (which in the reduced eye is 15 mm.), as is frequently the case, as a matter of fact, then the size of the degree appears nevertheless normal. If it does not stand exactly in the anterior focal point or if it does not correct the ametropia then temporarily the size of the degrees intervals is somewhat influenced. But these errors are never great and their significance is entirely negligible, in a series of observations made and compared, providing all these observations were made with the same correcting glass. It is advisable in each case to notice the strength of the glasses.

The healthy eye which is used for the sake of fixation must naturally have sufficient accuity to be able to distinguish properly the mark of fixation and both eyes must be able to distinguish at least parts of the corresponding outlines.

Owing to a peculiar construction of the fixation points (of the charts) which I will designate as negative, it is possible even then to use the second eye for fixation, although it may itself be affected with

a central scotoma with reference to absolute white. With these Kampimeter charts this may be even as great as ½° without damaging the accuracy, for it then occurs just in the central hole. A larger central scotoma of the second eye lowers naturally its worth, but even then the steroscopic investigation will in many cases give far more exact results than the monocular, for the peripheral outline itself acts as a great circular fixing element.

During the investigation both eyes must be held in their normal central positions. Patients with manifest strabismus are consequently excluded altogether from such examinations. Persons with latent strabismus of medium grade are for the most part good subjects for stereoscopic examinations, and always if it is possible for them to accomplish a continued fusion by means of the common outlines which have been arranged just for this purpose. By the doubling of these outlines a deviation of one of the eyes is made manifest, while the control points on the two pictures expose a possible case of monocular exclusion. Only that latent strabismus is here considered which exists for distance tested in connection with properly centered distance glasses. This is best measured at a distance of 6 mm. (Maddox Rod).

After looking for a long while through the stereoscope, it is not seldom the case that portions of the picture suddenly disappear and immediately re-appear. These passing defects are of homonymous nature and purely functional and must not be mistaken for organic. Only the boundary test, never the fixation zone, will be affected by fatigue of patient. For that reason it is well never to allow the patient to look too continuously through the stereoscope, but to make pauses while one is taking notes. If the oculist is ever in doubt whether the defect is functional or organic, then he should cover for a moment the eye which is being examined, for when it is uncovered a functional defect will immediately disappear.

THE STEREOSCOPIC KAMPIMETER.

Charts 1 and 2 serve for the observation of fields of vision lying inside of 10°. The examination takes place, as usual, by means of a movable object. The division of the degrees is such that distance between them amounts exactly to a visual angle of 1° when the charts are in a normal position, and this side of the chart is always to be placed before the eye to be tested. As a rule, the middle of the figure

which shows a large hole of ½° is to be fixed. If one wishes to extend the examination as far as 20° from the fixation point then in chart No. 1 he can fix as far as the end of the meridian.

Chart No. 1 is especially adapted for crude tests, therefore one should use generally chart No. 2 by means of which finer details, such as small extensions and the like, can be better found. The marker is carried just parallel to the lines and, of course, in both systems (of lines, horizontal and vertical), from the outside toward the *zero meridian*. It would be wrong to pass the object to start with over all the lines, not only on account of wasting of time, but because it would occasion an early fatigue on the part of the patient. It is best therefore at first to make observation only for 0° (vertical, Knapp), 2½° and 5°, etc., and let the determination of the finer details come afterward.

Inasmuch as the objects and the holders which are usually employed with the perimeter are much too bungling for our examination I have had special ones made for this purpose. In each case a holder as fine as a knitting needle carries an object of 1½ and 2 mm. in size, respectively. The first is for use in the zone between zero degrees and 5° and the latter is to be used between 5° and 10°.

One should, if possible, avoid holding the marker over either one of the corresponding outlines because that would occasion incoördination (struggle of equality) and monocular exclusion. If one wishes to examine particularly the 45° meridian then carry the object along the side of the white radius and not directly over it.

And, furthermore, never let the holder come within range of the second eye for it would then be seen double and cause confusion. Accordingly when carrying the object from the nasal side toward the middle it must be held in a perpendicular position.

I very strongly advise against recording the results upon the usual perimeter charts for their unit is much too small for these examinations. By use of chart No. 1 to be sure it is possible to make it all right, by letting the 10° interval of such a chart (the perimeter) count for a 1°. Nevertheless it is best, and in use of chart No. 2 essential, to record the result by the help of a rubber stamp upon the back side of the chart which is used for the recording of the peripheral boundaries. (Such stamps have been prepared according to

my directions and are to be had from the shop of Carl Bofinger, Stuttgart, Gutenbergstrasse.)

THE STEREOSCOPIC SCOTOMETER.

Charts from 3 to 7, inclusive, serve for the determination of the smallest central scotoma. The central point of 1¼ mm. is seen under a visual angle of a little over 1/3°

It is desirable, at the start, to cover the eye to be tested by holding a piece of paper in front of the stereoscope lens and then to tell the patient to find the middle of the picture with his other eye. Then suddenly uncover the first eye and ask the patient what the color of the middle point is.

Very delicate central variations of shades of colors may be well observed by holding near the fixed central object a movable one of the same kind, or if it is a case of one-sided scotoma one may turn the chart around, (*i. e.*, let patient fix the colored spot with eye not undergoing test).

The somewhat differently constructed chart No. 3 is to be used in the case of less intelligent patients when it is quite possible to determine by means of chart No. 4 whether it is a case of an absolute or only a relative white scotoma.

Copley Square.

LET US SMILE.

The thing that goes the farthest toward making life worth while,
That costs the least and does the most is just a pleasant smile.
The smile that bubbles from a heart that loves its fellow men
Will drive away the cloud of gloom and coax the sun again.
It's full of worth and goodness, too, with many kindnesses blent,
It's worth a million dollars, and it doesn't cost a cent.

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ABSTRACTS.

Human Keratoplasty.—A. Magitat (*Annales d'Oculistique,* Oct, 1916), presents a very valuable study of this subject and of certain biological properties of corneal tissue. An abstract cannot do it justice. He prefers the hand trephine to that of Hippel because its control is more delicate, and rotates it a half turn alternately one way, then the other; he holds, also, that there is less danger of piercing the anterior chamber with a 2 mm. lance-needle than with the more rigid one of 4 mm. Sometimes it is advisable to cut a quadrangle graft from limbus to limbus with a conjunctival flap at each end.

The tissue of the graft may be taken from the same eye or the other eye of the same individual—this is Autoplasty and offers the best chance for success. If from another individual of the same species, the case is one of Homoplasty. Heteroplasty is when a different species is utilized; this has not been successful in man.

In (human) homoplasty, material may be obtained from eyes enucleated for (benign) orbital tumor, foreign body or glaucoma. The corneal milkiness of absolute glaucoma is by no means a counter indication. The graft may even be obtained from a new-born child, utilizing the fact that the vitality of corneal tissue may be conserved for at least ten days. To do this—"Deferred Graft" (Magitat)—immerse the entire globe in aseptic human blood serum, which may easily be obtained by collecting, one or two days previously, some human blood in a glass flask that has been chilled by packing in ice and salt. The hæmolysis will be more intense ("fort"), the more suddenly the warm blood is chilled. Keep the eye in this serum at a temperature of 4° or 6° C. until required, then allow flask and contents to warm up slowly by exposure to room temperature. Remove the globe from the serum when it is to be used and wash it with cold Ringer-Locke liquid.

Accidents.—Inadvertently opening the anterior chamber when dissecting the leucoma down to healthy tissue. The operation must be stopped. As precaution leave the dissection adherent at one part of its circumference until the last moment; then in case of perforation, the

piece will not be swept away but may be pressed back into place and a binocular dressing applied. Coaptation will take place quickly and the operation may be resumed a month later.

Bad Cleavage—(Too superficial, from fear of pricking Descemet's membrane.) If noticed in the beginning, the knife-needle may be withdrawn and reintroduced deeper at another point. If perceived only after some dissection, not over three-quarters of its area ("conference") stop, replace it with a fine forceps and resume cleavage at a greater depth.

Mangling of the flap.—Rare. May be from too energetic traction with forceps, or bad scissors when cutting the final attachment. Instruments should be very slender and very sharp. A mangled or torn graft can coapt itself, but the surface will be irregular maybe for months. It, therefore, might be best to stop and try another dissection.

Displacement of the graft—This is done by the lid when being closed after the operation. If noticed promptly it can be replaced by the surgeon without harm; if unsuspected, it will negative the operation.

"Transcorneal Keratoplasty" involves the whole thickness of a limited (never extensive) area of cornea, boldly opening the anterior chamber. It is certainly possible to do this with proper care, and it may improve vision considerably. Magitat suggests this name in place of "Total Keratoplasty," and limitation of the latter to transplantation of the whole cornea, which has not as yet proven successful in the human eye. Transcorneal transplantation will, of course, be thought of only when "partial" keratoplasty will not do. The latter, in order to succeed, must penetrate into a normal tissue.

The technique is detailed of the author's transcorneal operation. Retention of the graft is ensured by cross threads over it for 48 hours, but sometimes this is a superfluous caution because the graft and especially the corneal parenchyma surrounding it are so swollen by aqueous humor as to make a firm coaptation.

Magitat concludes that the cases most favorable for success are those (autoplasties) of not great depth which were caused by caustic.

We know that healthy corneal tissue is capable of transparent repair, provided the wound is not infected. This repair will be slower if the cutting instrument impairs the corresponding zone of the limbus.

Aseptic excision of a piece of leucoma provokes considerable vascularization and, eventuallly, a more opaque cicatrix; but there are very important exceptions. Maculæ from burns may be trephined successfully, even if left surrounded with cicatricial tissue which is not too dense or too deep, but it is essential that the base of the excavation be in healthy tissue. In leucoma from ulceration, however, *all* the cicatricial tissue must be removed.

Discussing the question whether the successful graft is composed of its own or a new tissue, we are reminded that the experiments (necessarily upon animals) dealt with healthy corneal tissue; but in man one is dealing with cicatricial tissue.

The soil is a prime factor in the success of a corneal transplantation—*i. e.*, not only the extent and depth of the leucoma, but its cause must be considered. In an auto- or homo-plasty, in a burn leucoma, the surrounding blood vessels do not penetrate the transplanted tissue, but they appear there very rapidly if the scar be of inflammatory origin—when, one must admit the pyogenous element has sensitized the cicatricial tissue, giving it the power of reacting much more intensely. The graft would fall a victim to this latent energy. If all the cicatricial tissue is excised, so that that of the graft and its surroundings are both healthy, good vision may be hoped for, provided the vessels from the limbus (where their trunks were not destroyed) do not proliferate. Corneal tissue can be transparent only if avascular. Such good results were not secured when the leucoma was large and deep. Trephining is hardly practicable over a diameter of 5 mm.

Magitat has done forty keratoplasties, mostly partial. His results have almost always been excellent in burn scars, almost always unfavorable where the leucoma was due to an ulcer; of the latter the only good results—two cases—followed complete resection of the macula. He makes his (partial) graft as thin as he can, having found that these succeed better than thicker ones.

It may be said now that leucomata from burns, simple or cicatricial pterygium and trachoma may be operated with benefit.

J. L. M.

Flame Disinfection.—Some time ago a note in these pages suggested disinfecting probes, etc., by dipping in alcohol and burning off the alcohol.

But is this reliable? Doubted, in view of the fact that the discharge of a rifle bullet does not necessarily disinfect it, and, furthermore, when we remember how a finger wet with alcohol can be set on fire with impunity.

The writer prefers to hold probes and even knives in a blue flame, not necessarily to a red heat.

John L. Moffat.

Foreign Bodies in Trachea of Young Child. Simple Method of Removal.—This method is designed for the rapid removal of flat foreign bodies from the trachea of infants and children up to the age of three years. To the beginner, no operation is more difficult than the removal of foreign bodies through the small bronchoscope designed for infants. To the expert, the operation is sometimes fraught with difficulty, because it is not easy to work through a 4 mm. tube unless the child is asleep, which adds to the danger of tracheoscopy. Flat foreign bodies, such as watermelon seed, seldom pass into the bronchus of an infant or young child. They lodge in the trachea almost invariably and necessitate tracheoscopy for removal.

To obviate the difficulties of working through a small tube, R. H. Johnston (*Maryland Med. J.*, April, 1916) had a small Jackson separable speculum made which measures 9.5 cm. in length and 10 mm. in diameter, with the light 1 cm. from the end of the tube. With the handle detached the speculum is passed into the throat, with the child's head straight on the table. The epiglottis is pulled up, and with the child breathing, the trachea can be explored to the bifurcation.

A foreign body can easily be seen, and if it is light in weight, as a watermelon seed, it moves up and down with expiration and inspiration. Forceps, introduced between the vocal cords, are made to grasp the object, which is quickly removed. No anesthetic is used. Atropin is given to dry up secretions. In the removal of two watermelon seeds from the trachea of young children, the author was surprised at the excellent view of the entire trachea with the head straight on the table. He expresses the belief that this method will work equally as well with foreign bodies of other shapes.

J. L. M.

A New Method for Detecting the Presence of Blood.—(H. Couturier, Biological Chemist at the Faculty of Medicine, Paris, in the *Medical Press* quoted in the *Hom. World*, Sept., 1916): The author's Hæmatoxylin Test is simple, very sensitive and practically trustworthy. .06 per cent. of hæmatoxylin gives a fairly pronounced red tint to water. In contact with caustic soda this red turns to dark violet blue from an unstable hæmatoxylate of soda. This, if left exposed to air, soon oxidizes to ulmic products, brown or yellow, according to the strength. This change is hastened by hydrogen dioxid, but is instantaneous if the latter is preceded by the addition of a little blood. The hæmatoxylate must be prepared only when it is to be used. There are beside the control of water or the same liquid, free from blood, as that to be tested—3 solutions:

(1) A watery solution of Hæmatoxylin, .05 per cent.

(2) Solution of Caustic Soda, 40 per cent.

(3) Hydrogen Dioxid, 12 vols.

(a) Two test tubes: in one 5 c.c. of the control liquid; in the other, 5 c.c. of the liquid to be examined.

(b) To each tube add 5 c.c. of the soda. Shake.

(c) Then add to each tube two drops of the hæmatoxylin. This turns each a dark blue, approximately the same in both tubes.

(d) Add ten drops of H_2O_2 and compare the two.

If blood be present, the color changes in 3 to 4 seconds to violet red, then to light brown (20 seconds), and finally to pale yellow (40 seconds); but in the control (absence of blood), the changes do not set in for some time and then occupy several minutes.

It is important to employ the test solutions in the sequence and in the quantities mentioned, more particularly to make sure that the same quantities of hæmatoxylin and peroxide of hydrogen are used in both tubes.

J. L. M.

Incising the Drum Head in Acute Otitis can be done "with very little pain," writes Oscar Welkinson (*Virg. Med. Mo.*, Sept., 1915), if it is cautiously painted once or twice with equal parts of menthol, carbolic acid and cocain.

J. L. M.

Hypochlorite for Infected Wounds.—The ulterior evolution of a (shell) wound is determined by the first four and six hours. Substances to dissolve rather than to sterilize are needed at first to clear the wound of dead and necrosed tissue. The dissolving action of hypochlorite gives better results than measures to sterilize or tan the tissues. The toxins absorbed from necrotic masses are responsible for the fever and collapse which develop before the germs had a chance to proliferate much in the wound.—*Lyon. Chir.*, Jan.-Feb., 1916, abs. in *Hom. World*, Sept., 1916.—J. L. M.

Tonsillectomy, a New Method.—Arthur Morgan MacWhinnie (*J. of O. and O.-L.*, Aug., 1916) during the last 16 months has operated over 5,000 tonsils with tonsil hæmorrhage only twice. He absorbs all the tonsil by *fulguration* (one-fourth inch fulguration spark) in four to eight applications, but as many as fifteen have been necessary for fibrous tonsils following cocaine in sensitive patients, he fulgurates around the tonsil, anterior to the palato-glossus, posterior to the palato-pharyngeus, and internal to the so-called capsule once a week for four weeks; exceptionally, eight applications have been necessary. If made at these points there is practically no pain, even without cocain.

Where the plicas are hypertrophied, avoid fulgurating them, for they atrophy with the underlying muscles as well. Following fulguration these plicas fold down and help line the palato-glossus, and pharyngeus muscles and lateral walls of the tonsillar fossa to the so-called capsule margin. The function of the palato and superior constrictor muscles is restored, in some singers adding three tones to the top of their register. A noticeable feature is a rapid increase of body weight. The noise incident to this treatment is apt to frighten children, hence it is hardly feasible with them.

J. L. M.

The Tonsil in Poliomyelitis.—In the recent epidemic, tonsils obtained at autopsy in the New York Hospital were found to contain two to ten small foci of purulent material at the base. From these foci an organism was isolated by Dr. E. C. Rosenow; injection of pure culture of this intravenously in sufficient quantity was followed by paralysis in large animals, such as monkeys, and small animals, such

as guinea pigs. In the minority of cases of poliomyelitis characterized by persistence (after subsidence of the acute attack) of temperature, irritability and maybe development of paralysis in new locations, it may be that the condition is prolonged by a continued infection from some focus. (The virus obtained from the cord is of low vitality.) Tonsillectomy was performed on twelve patients. In those which showed no change, no foci were found. In the cases with definite persistent symptoms at time of operation, as above, distinct improvement was noted within two or three days, an improvement which ordinarily appeared in non-operative cases only after several weeks. In no case were there any unfavorable developments. No operation was done in the acute stage.—*L. I. M. J.*, Nov., 1916.—J. L. M.

The Winter House Fly.—With the advent of the cooler weather there will be a disposition on the part of housewives to relent in their warfare against the fly and the diseases which, we believe, it is capable of carrying. The thought will present itself that the cooler weather will take care of fly extermination. This is not so. In the latter weeks of September and the early weeks of October, particularly if there are any short warm "spells," there will be a fly born, which will hibernate during the winter months, and which may be the cause of very serious trouble when the spring again comes around.

It is essential that a twelve months' warfare be made against the fly, and not simply a hot weather campaign Public Health authorities are generally of the opinion that flies are largely responsible for the spread of much contagion. The winter fly is not as active as the summer fly, but is possibly more dangerous, because of its inactivity. When the temperature and the humidity of the house are to its liking, the fly will sail forth from its hiding place and secure desirable food. It then again retires to some dark and secluded corner.

Housewives should be warned not to remove the screens from their windows until they are fully satisfied that there will be no warmer weather. Flies that enter the house during the early fall are exceptionally dangerous, and are very hard to remove. It is a mistaken idea that the fall housecleaning should be done during the month of September. It is much better to enjoy the fresh air of the cooler days of September and October than to remove screens and close the windows entirely.

Great care should be used in the dusting and wiping of ceilings and walls and any spaces back of pictures, books, etc., to make sure that the hibernating fly is disturbed. This cleaning should be done in an effort to destroy egg-hatching facilities and nesting places. Particular attention should be given the cellar in the fall months as well as in the winter months.—*Monthly Bulletin of The Department of Public Health and Charities,* Sept., 1916.

John Ward and His Diary—1647-73. D'Arcy Power, F. R. C. S.—Ward lived during a period of scientific renaissance and his desultory notes are full of things read or heard, seen or experienced. Being a good scholar and inquiring student brought him associations and interests that made his notes a reflection of the authoritative spirit of the times. Willis, Harvey and Lower were among his associates and he records many of their endeavors. Evidence of experimental work in an enthusiastic spirit is seen in the statement that—

"'The recurrent nerves in a dog's neck being cut ye dog afterwards could not bark.' 'Mr. Lower cut a dog's windpipe and let him run about. Hee had a week so hee could not smell, but would eat anything as I am told.' 'When one would discover ye ductus chyliferus of Pecquet presse ye Mesenterie somewhat hard and a thinne pellucid liquor will come out at ye top.' 'The nerves have their original rather from ye cerebellum or medulla oblongata cerebri than from any other part.' 'Inquire whether there is any such thing as a woman having a suture down her forehead as people commonly report. I searched 34 skulls or thereabouts and of these all, I found but 4 wch had a suture downe ye forehead to ye very nose: another wch seemed to have a squamiferous suture upon ye vertex and which I admired much att. I suppose nature does vary in such things and I wish I could discover something of her operations, especially whether epileptick persons have any sutures.'"—*The Lancet,* Oct. 14, 1916.

Treatment of Labyrinthine Affections.—Wendell C. Phillips, *New York State Jour. of Med.*, Aug., 1916, says that the treatment of the purulent invasions of this small space has not been placed upon any permanent basis; many cases of *purulent labyrinthitis* recover spontaneously, even where a part or whole of the labyrinthine capsule becomes necrosed. In the present state of our knowledge it would seem

that a moderate degree of conservatism should rule the action of the surgeon, except in cases that already show the infection to have passed through the labyrinthine spaces into the meninges.

Out of 36 cases there were 14 operations upon the labyrinth, 7 of which were for the removal of the extensive necrosis or sequestra in patients who had long since passed the acute stage of the disease. This leaves a record of seven operations for more or less acute labyrinthitis. There were five fatalities. One of the fatal cases occurred in his own practice from the rupture of a tempora-sphenoidal abscess and meningitis two months subsequent to the labyrinth operation. This patient might have been saved had he shown any symptoms, barring headache, of the large brain abscess from which he suffered. In two of the fatal cases no operation upon the labyrinth was performed. One case was drained through the cisterna magna; the other was rapidly fatal and no operation was attempted. In one case, which recovered, a thrombus in the jugular bulb developed as a result of an accidental puncture while removing the necrosed promontory. Two others had accompanying brain abscesses.

Primarily, it may be stated that the indications for operation depend upon the type of labyrinthine involvement. *Non-suppurative cases* resulting from parotiditis, hemorrhage or other effusions and epidemic cerebrospinal meningitis should never be subjected to operation. The labyrinth should not be operated upon in cases of serous labyrinthitis; herein lies one of the difficulties with which we have to contend, namely, the differential diagnosis between certain cases of serous labyrinthitis and purulent labyrinthitis. In both the destruction of the cochlea and the static labyrinth may be complete and permanent, and we are without positive differential data, barring our knowledge of the probable cause in each individual case. (Differential blood count—J. L. M.) Complete destruction of function, however, is less likely in the serous cases.

It is well known that in *Acute diffuse purulent labyrinthitis* accompanying acute purulent otitis media, the infection usually extends rapidly to the meninges; in these cases early surgical measures seem to be justified. Even though meningeal symptoms have already appeared, a complete labyrinth operation should be done, together with the establishment of drainage of the meninges at or near the auditory

canal; this has proven effective in a limited proportion of cases of labyrinthine involvement with meningeal complications. It would seem that the recoveries are due to the more or less localized character of the meningitis, hence the meningeal drainage would seem to be a more important factor than the operation upon the labyrinth.

In desperate cases no half-way measures are permissible and the Neumann operation, wherein the bone is entirely removed, including the border of the internal auditory canal, together with drainage of the cerebellar spaces, is the ideal procedure.

It should be noted that in certain cases of chronic purulent otitis media the patient complains of recurring attacks of vertigo. Here it will often be found that such attacks occur just previous to the throwing off of cholesteatomatous material. These *so-called para-labyrinthitis* cases should invariably be subjected to the radical mastoid operation in order to prevent further erosion of the labyrinthine capsule. In fact, in nearly all patients suffering from chronic purulent otitis media who have vertiginous attacks, in the type known as the circumscribed labyrinthitis, the radical mastoid should be done but the intact labyrinth should not be disturbed. In cases where the labyrinthine capsule is found to be more or less necrosed and sloughing, or where sequestra are found, the necrotic areas should be removed, but, so far as possible, the operator should avoid extending the procedure beyond the lines of demarcation. Here a partial labyrinthine excavation is justifiable. Finally, a word of caution, in performing the radical mastoid operation: it is a fact that in a considerable proportion of cases of fatal labyrinthitis reported, the histories state that the labyrinth symptoms appeared soon after the performance of the radical mastoid operation. It is fair to assume that in many of these cases the labyrinth invasion results from careless operating. These accidents are unjustifiable and should not occur.

J. L. M.

THE SUCCESSFUL TREATMENT OF HAY FEVER.*†

George Frederick Laidlaw, M. D.,

New York.

Under the name, hay fever, I include rose cold and the so-called hyperesthetic catarrhs, all characterized by intense itching of the eyes, nose and throat, the attacks being precipitated by strong odors, dust or pollen. There are three methods of treatment, little known or not at all known to the general profession, by any or all of which you will be able to relieve every case of hay fever or rose cold and permanently cure some of them. These methods are an internal remedy, a local application and the use of faradic electricity.

The internal remedy is the fluid extract of a plant unknown to modern practice. It appears in no text-book on materia medica or therapeutics, ancient or modern. The United States Pharmacopœia, the British Pharmacopœia, the French Codex and the Prussian Pharmacopœia know it not. On the American prairies, the children gather its gummy juice for chewing gum and the burning of its resin contributes to the black smoke of an American prairie fire. This plant is the rosin weed, *silphium laciniatum,* the compass plant or pilot weed that grows on the American prairie land from Ohio south and west to Texas. It is called the compass plant because the large lower leaves point north and south, and rosin weed because of the resinous juice that exudes from the stem. Only in the Dispensatories, those useful but unofficial books that glean the stray wheat stalks from all corners, will you find the name. In the American Eclectic Dispensatory of 1854 is a short note on the plant, stating that it is said to have cured intermittent fever, dry obstinate coughs and heaves in horses. A later edition (1872) adds asthma and pulmonary catarrh. The National Standard Dispensatory (1909) dismisses the plant briefly as possibly of use as a local application to scrofulous swellings. In the United States Dispensatory, rosin weed appears first in 1884, saying merely that the

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*Read before the American Institute of Homœopathy, June, 1916, Bureau of Clinical Medicine.

†Reprinted from the Jour. Amer. Instit. of Homœop., Dec., 1916. IX, No. 6.

plant yields an oleo resin, said to be used by children as chewing gum. This Dispensatory refers to an article in the *American Journal of Pharmacy* (1881, p. 487) which proves to be an Inaugural Essay of one Lemuel Morris, Ph. G., giving a thorough botanical study of the plant but throwing no light on its usefulness except the chewing gum aforesaid, and that the powdered leaves are used in cattle powders as a diuretic. The only definite recommendation of its use in human medicine that I find is an extract from a manuscript, entitled "New Remedies," by Dr. Q. J. M. Goss, of Marietta, Georgia, published in the *Nashville Journal of Medicine and Surgery* (1887, xx, 60). Dr. Goss relates several cases of chronic asthma that he cured with equal parts of tincture of the root of rosin weed and tincture of ptelea trifoliata, a teaspoonful three times daily for two months.

For many years, the fluid extract of rosin weed has been known in my family as a remedy for rose cold and hay fever. This use of it was discovered by my father, Dr. Alexander H. Laidlaw, back in the epizootic days of 1872, when horses were dying of influenza by thousands all over the United States and Canada. Though he knew it first as a horse medicine, its use seems to be forgotten in veterinary practice, for I find no mention of it in the veterinary books. In my father's practice, this medicine acquired considerable local fame, and I still receive a letter or two every summer from distant points inquiring about this miraculous drug. For many years, it was his intention to present this remedy to the profession in proper form, supported by competent testimony; but, in a busy life, with many projects unfulfilled, this was never done. My father was a compound of benevolence and good nature, and was the last man in the world to wish to exploit a secret remedy. During his long practice, he gave away gallons of it.

Estimating roughly, about three-fourths of all cases of rose cold and hay fever will be relieved of their symptoms by taking five, ten, twenty or thirty drops of the fluid extract of rosin weed four times daily, after meals and on retiring, with a little water. It is better to begin ten days or two weeks before the expected attack, for in hay fever, as in all periodical diseases, prevention is better than cure and more certain. However, few patients are wise enough to anticipate trouble. Most patients come under treatment when the disease literally is in full blast and most of my observations have been made on the latter class.

Rosin weed is a harmless herb. It has no effect on the general system. I have never noted the tonic, diaphoretic or diuretic effects attributed to it in botanic medicine. The only unpleasant effect that I have ever known is nausea after large doses, sixty drops or more, and this in very few patients. Vomiting is rare, is never serious and ceases spontaneously when the stomach is empty of the drug.

In regard to the permanence of the cure, most patients require it for several seasons. Some need it every season for many years. A few are cured permanently in one season.

In publishing our knowledge of this remedy, which I believe is destined to bring much comfort to sufferers from hay fever, I wished to announce it first to my old friends of the American Institute of Homœopathy, certain of friendly hearing and judicious criticism.

The local application is a discovery of my own. About the age of sixteen, I developed a rose cold that began in June and extended into September. A few years later, it began in April and lasted until October. By one of those ironical tricks that fate plays on the wise ones of the earth, the family remedy that cured everybody else gave me only partial relief. It is unnecessary to follow in detail the various experiments made. This was long before the days of Dunbar's pollantin, Holbrook Curtis' ambrosia, the modern vaccines and adrenalin. I did not think cocain a safe drug and never used it, preferring the hay fever to the cocain habit. In those days, ichthyol was coming into use for all catarrhal mucous membranes and I found that ichthyol, used in a certain manner, relieved the symptoms completely. On swabbing the naso-pharynx with pure ichthyol, there was a severe burning sensation for a minute or so, but when the burning subsided there was great relief not only of the itching throat but also of the itching of the eyes and nose. That is, in the customary swabbing of the naso-pharynx, we touch a point that controls the whole group of symptoms of the eyes, nose and throat. In those days the laryngeal and the pharyngeal tonsils were very much to the fore in medical discussions, and at first I thought that this point was probably the pharyngeal tonsil of Luschka. However, judging from the location of most severe burning, the controlling point is rather on the upper surface of the soft palate. The exact location of this point is not of practical importance. If you swab each side of the naso-pharynx with plenty of ichthyol, the contraction of the pharynx will spread the ichthyol over the right territory.

REVIEW.

Homœopathic Therapeutics in Ophthalmology. By John L. Moffat, B. S., M. D., O. et A. Chir. 166 pages, cloth. $1.25, *net*. Postpaid. Philadelphia: Boericke & Tafel. 1916.

There are few things more rare these days than good books published by homœopathic publishers; and especially books pertaining strictly to homœopathic therapeutics.

How different were things in olden times! Then books were written by homœopathic writers on materia medica and therapeutics. We expected them to be written, for we needed them. And they were written. We built up a literature in those days. We made headway. To-day we are doing little in this way; instead, we are simply, and very complacently at that, "milking the homœopathic cow."

What has this to do with Dr. John L. Moffat's little book, entitled "Homœopathic Therapeutics in Ophthalmology?" Nothing!? Except that this little book shows that there is some life left in the School yet. It shows that there is still a fellow left who is staying by the "Colors." And there is encouragement in this.

This little work of Dr. Moffat's is concise, comprehensive, convenient, and those who know him, know that it is accurate and reliable. A copy has been kept right handy on my desk ever since it came and referred to daily. I have compared it with other works on ophthalmic therapeutics, as well as with larger works on materia medica, and I am convinced that it is most reliable. The repertory or clinical index section is most convenient.

My sincere hope is that we shall have the pleasure, in the near future, of welcoming other such splendid books.

Philip Rice.

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Editorial

THE FUTURE OF OUR JOURNAL.

IT really looks as though the JOURNAL is to have a future. That it has had a past, many of its readers will admit, and none will deny. It has weathered a stormy sea, not the least stormy of which has been rolling during the past one and one-half years. It has reached port at the end of nineteen sixteen, and a smile of confidence is observed as it looks into the year ahead. Actually a little profit is shown upon the manager's books, and a little bit of the big debt has been "washed overboard." A few weeks ago, just before Christmas, a "bunch of boosters" skipped over to "Cinci" to spend a day with McCleary, and that's where we got the good news. "Mac" says "it's a go for sure" if everybody just puts his shoulder down a little bit lower on the wheel and lifts a little bit harder. That's all he wants, just a few more boosts. And if there are any "sore heads" anywhere he wants *them* especially. That may sound paradoxical, but we'll tell you why. Word "got going 'round some little time back" that somebody said that somebody thought that a certain somebody else wanted to "run" the journal. Now as a matter of fact there wasn't anybody anywhere that wanted to "run" it at all. The real difficulty was to get someone, who was loyal enough to the things we profess to believe in, to put his signature onto the back of about three thousand dollars' worth of notes and trust to the good Lord to put lime enough into the backbones of his friends and colleagues to pull him out of it. Mac did it, and the fellows who have "been running" it ever since are "volunteers" whom no doubt the Lord has been using the hypodermic upon faithfully ever since. If you feel sore or neglected or think you haven't been consulted or permitted to run things enough, just come

up and have an injection from the same hypo and you'll surely feel better right off.

Now, listen, at the gathering in Cincinnati, nearly a hundred new subscribers were added to the list in the form of "complimentary subscriptions," taken by those present, to be sent to their friends in 1917. There weren't any "sore heads" there, and not once did anyone seem to want to run anything. There were many expressions of appreciation for the good work that had been done and many sanguine talks of the future. We think everyone agreed that the JOURNAL is a real journal, live, up-to-date, and exceeded in quality by no other journal in our field. Aside from its great worth to the specialist, it was pointed out that many of its contributions have been of greatest value to the surgeon, neurologist, general practitioner and layman. Really, no other journal in our field that we can think of covers so broad a field and yet maintains the peculiar characteristics of an eye, ear, nose and throat journal. It is only necessary to point to two of the many interesting numbers, Palen's Classic on the Tonsil, and Haseltine's Voice number, to verify this statement. Nearly every number which has appeared has been a "special" number and alone worth many times the price of a year's subscription. Nor does the management expect to stop here. It is only the beginning. It is hoped that each succeeding issue will be better than any that have appeared before, and this is entirely possible. And just think of this point, if you want the JOURNAL to be bigger and better you can help make it so yourself. It will need lots of good, scientific articles, editorials and reports. It will need considerable more advertising. And it should have ten times the present number of readers. (They need it also.) Plenty for all to do. Now let's see what kind of a report next December will produce.

D. W. M.

FOCAL INFECTION.

THE editor and associate for this month are glad to give space to our mutual friend Haseltine, and welcome his timely editorial warning on the Focal Infection Fad. Reading it, as you will, before you have read any of the splendid articles, appearing in this symposium upon Focal Infection, it will serve as a sort of reverse pedal on your imaginations and no doubt will cause you to read much of this

number a second or third time. It is with a feeling of especial pride that the editors offer the second number of the JOURNAL for 1917 to you for your approval, disapproval or criticism. It contains some of the old and some that is new, and all well handled by our essayists.

Focal infections are here to stay, in fact, they have been here so long that most of us are ashamed to look ourselves squarely in the face when we think of the numbers we have overlooked. It will harm none of us if, at this time, we turn the page with a resolve that our trusting patients shall receive a little better service this year than last, and the writer believes that not the least way to secure this for them is to heed the broad suggestion, found in the succeeding columns of this number of the JOURNAL, that the services of a competent internist, neurologist, "lab man," or all, are often needed, not only to assist us in making a correct diagnosis before operation, but also to follow our surgery—even though the surgery may have been really needed.

So, gentlemen, suppose we resolve to be a little bigger and broader this year. The day of the specialist, who thinks he is "the only man in the universe," is past, and a new era has dawned. Henceforth the symptom complex shall be the slogan, and no man will be recognized who fails to employ all the scientific knowledge available, not only that in his own head but that in those of his colleagues, the internist, the surgeon, the neurologist and the skilled laboratorian.

If you see anything in this JOURNAL that you like, or that you don't like, write to the man who wrote it, or to the JOURNAL, and express your appreciation or criticism. Either will do you and all of us good.

D. W. M.

THE FOCAL INFECTION FAD.

WITHOUT in the least disparaging the value of the good work being done in the study of focal infections nor the brilliant results obtained, a word or two of caution may be spoken. With the media of publicity now at the service of medical institutions each new idea or procedure exploited tends to become a fad. This is unfortunate in the case of doubtful or untried measures and even tends to lessen the value of really important discoveries.

It is the fashion now to hunt for a focus of infection as the cause of almost every condition for which the physician is consulted, and too

often a blind and blundering attack is made upon every organ where such infections have been said to occur. The organs unluckily placed in exposed positions naturally suffer first and too often innocent teeth, tonsils, and turbinals are sacrificed in entire ignorance of a real offence in thorax, abdomen or pelvis. So obsessed are we by the focal infection idea that sometimes we are blind to an obvious economic, psychological or nutritional situation that explains all the trouble without any "focus" whatever. We speak of our various technical discoveries and advances as showing our medical progress. But the real progress we make is in our intellectual concept.

It is not deeply significant that Carrell can make the left leg of a chicken grow on the right leg of a duck. It is not epoch-making that Fitz-Patrick can open an abdomen at the proper time and give safe passage to a little navigator who couldn't have sailed the natural channel. Even when Lydston attaches part of a young enthusiast to a broken down old roué and starts him again upon the primrose path it doesn't add much to our military strength.

But it is significant when Waterman restores to normal citizenship a man or woman worthless for many years because of combined local, general and environmental conditions which only a modern diagnostician could recognize and control.

It is significant when Cornell by locating an obscure infection brings to a successful close a gestation that would otherwise fail.

If LaForge can save from surgery the exophthalmic woman and restore her to her accustomed place at the bridge table, sometimes even wearing her original tonsils, he has forever proved the value of diagnostic fingers that are free from the surgical itch.

It is significant when Wieland improves the health, efficiency and longevity of nine thousand young men and women in the bread winning time of life and does it with a lowering of the high cost of living.

These achievements come not from a mechanical technique but from a mental concept, and the concept is that of a modern diagnosis. This concept is a vision as yet too dimly discerned. Whether we treat symptoms and ignore ultimate causes or whether we try to trace all rheumatisms to a tonsillar crypt—there is too much petty pecking at isolated defects. This is the cause of many disappointments. We find a focus of infection and there stop, thinking to have made a diagnosis. This is no diagnosis at all. It is something, of course, to have deter-

mined an infection in sinus, jaw, tonsil, appendix, gall bladder or bowel. But have we a focal infection plus poor elimination of skin, bowel or kidney—plus low nutrition or circulation—plus alcoholism, bad mental habits, wrong environment or economic strain.

This is the kind of diagnosis that in some far Utopian time will precede the treatment of every individual who is chronically sick. It can only be done by co-operation among experts and it must be directed by individuals with some idea of organization. The modern diagnostician is really an assembling plant—but an assembling plant with a brain and a genius for valuation.

It has been my good fortune in recent years to see the work of some of these plants and the results are such as were unknown in the older practice of medicine. The days of isolated specialism, I hope, are passing. The patient who goes from one expert mechanic to another with each doing his clever stunt in his unrelated field, will disappear. Instead there will be a clear recognition of the individual's need in toto, and the entire problem will be systematically studied. Just when this happy situation will arrive is a bit uncertain, but the need is manifest. It would save the experts some uncomely situations. Quite recently a distinguished neurologist from Boston told a society of ophthalmologists about a case where one patient had received five different prescriptions for glasses from five different oculists in five successive days. The distinguished neurologist drew several conclusions from this fact, and seemed to miss the only one that could logically be drawn, namely, that there were six crazy people in Boston. What a lot of sanity might have been injected into the situation by the presence of one diagnostician!

It is my belief that this symposium will show the immense practical value of modern diagnostic concepts and of co-operation among men who hold such concepts.

Burton Haseltine.

INTRODUCTORY REMARKS ON FOCAL INFECTION.

In reviewing the literature of to-day one is indeed surprised at the wealth of material written upon the subject of Focal Infection.

Whether we agree with Haseltine or not when he calls it the focal infection fad, we will all be unanimous in admitting that few other

subjects in medicine or surgery have taken quite so firm a hold upon the entire profession as has this one. Fad or no fad, it will be a long time before we permit a practitioner to overlook the question of a possible distant focus of infection in many of the obscure inflammatory processes. An examination will not be considered complete until every possible area, which might furnish a breeding ground for infectious organisms, has been gone over. It is true, of course, that we must be careful not to permit ourselves to be led into believing that all obscure conditions are due to chronic tonsillar infection or to an obscure suppurative process in the remote appendix. The well-balanced throat specialist must recognize that many cases of infection arise from other portions of the body than are covered by his particular field, and he will be keen also to recognize the value of the services of a competent internist, surgeon or pathologist. The writer has reviewed considerable of the literature of the last few years and is more than ever impressed with the great variety of conditions which may exist and the various and widely diversified sources of infection which are reported. It is now a long time since the tonsil was first cited as the "focus" of rheumatic infection, and from the time of our first acceptance of it as a possible source, we have been gradually adopting one theory after another until we are now quite ready to admit that the teeth, the appendix, a suppurating sinus or a chronic mastoid may be quite as often the center from which arises the primary infection.

One possible source which seems to have received too little consideration from the profession, in the opinion of the writer, is that of conditions caused by infection of the colon bacillus. Macleish, of Los Angeles (Archives of Oph., 1915, p. 403), reports five cases of ocular inflammation occurring in his practice since November, 1912, and in which each case showed a keratitis of vesicular type accompanied by chronic cystitis or recurrent diarrhœa, or both. In each case a pure culture of bacillus coli was obtained from the urine of the patient, and in one case, seen in consultation, subsequently from the aspirated contents of the anterior chamber. In his search of the literature he was unable to find any thing more than two articles which appeared in the transactions of the Ophthalmological Society of the United Kingdom for 1911 and 1913. The first of these papers was by Mr. Arnold Laughton on two cases of metastatic ocular inflammation which was

associated with bacillus coli toxæmia. The second one was by S. H. Browning, urging the examination of the excreta in cases of inflammation of obscure origin and mentioning the bacillus coli as a cause. Macleish joins with Mr. Browning in the plea that, in all cases of infections of the eye of obscure origin, the excreta should be examined and particularly the urine of the patient, especially for bacteria, and says that perhaps many of the cases which have proven such a source of worry and disappointment to the surgeon and patient may thus be cleared up. After describing in an excellent manner the eye symptoms of this condition and reporting upon his five cases, he concludes by saying that the bacillus coli may infest the bladder and intestinal tract for years without causing any systemic symptoms. The only explanation he can give of the fact of the eyes being at times affected by this organism, which, as a general rule, is so harmless, is that "either the numbers of the bacilli become overwhelming, because of lowered bodily resistance from prolonged infection (all the cases having been of long standing as to the bacilluria), or that the bacillus increases in virulence, which is not unlikely when one considers how other organisms vary in toxicity under various conditions and surroundings."

The number of cases of brain abscess or purulent meningitis resulting from remote foci of infection is now legend. Dr. Veasey, of Spokane (Archives of Oph., 1915, p. 10), however, reports a very interesting case of a patient who is described as "being strong but highly nervous and a well preserved man, 66 years of age, accustomed all his life to living out of doors and having the misfortune to have a flyhook penetrate near the center of the left cornea. The barb passed to the interior of the eye, the point of the hook penetrating the lens." The patient had an unusual experience of having to walk two miles along the mountain stream where he was fishing, then rowing a boat about four miles across a lake and driving his own automobile about twenty miles, most of the distance along the bad lumber roads through the woods, before medical assistance could be obtained. Although his eye was removed two days later, the patient died on the sixth day following the enucleation from a purulent meningitis. Section of the eyeball revealed a thin grayish line just behind the lens through the vitreous almost to the optic nerve. Symptoms of purulent meningitis presented themselves just eighty hours from the occurrence of the

accident, and death followed three days thereafter, a total of six days following the injury. In discussing this case he says that "infection may enter the brain from the eye either by passing directly backwards along the structures entering the cranial cavity by the sphenoidal fissure and the optic foramen, or by means of the blood and lymph stream. When entering by the first route, the post-mortem examinations have shown the base of the brain to be the most affected. If the infection enters, however, by means of the blood or lymph stream, the post-mortem examination is apt to reveal trouble in the sinuses and on the surface of the brain. To quote further from Dr. Veasey's paper we have "formerly such a case might have been reported as one of meningitis following enucleation. The earliest of such reports was made by Pagenstecher in 1873, when he recorded a case of fatal meningitis following enucleation of the left eyeball with sympathetic iridochoroiditis in the right. Subsequently similar cases were reported by Meyhoefer, Leber, Benson, Bruckner, Katzenstein, Priestly Smith, and Davidson. In 1885, Nettleship, in reporting one of his own cases before the Ophthalmological Society of the United Kingdom, collected and reviewed thirty-three others, making a total of thirty-four at that time. Out of this number five recovered after having shown well-marked signs of meningitis, while twenty-nine died. Most of the fatal cases terminated in from two to four days after the beginning of meningeal symptoms, the longest period of time being eight days after the enucleation had been performed, the symptoms manifesting themselves in almost all the cases within the first forty-eight hours."

"This naturally suggests at least the possibility that the operative procedure may have had something to do with the development of meningitis in these cases, but it by no means proves that the infection may not have taken place before the enucleation was performed."

"And that such is not only possible but highly probable is shown by C. Devereux Marshall in his excellent paper published in 1897 in the Royal London Ophthalmic Hospital Reports. Marshall, who was the curator of the museum at Moorfields, found that 6580 eyes had been enucleated in that hospital between the years 1861 and 1896, and that there had been recorded eight fatal cases, all of them occurring after 1880. In analyzing these cases and studying them, both clinically and microscopically, he found that the changes present indicated in most of them that the disease was of older standing than the symptoms

seemed to indicate. Practically, all of the patients were found also to have been in a condition of poor health at the time of the operation. Furthermore, death from meningitis has occurred in cases of infected eyeball without operation, as in the case of Mr. Tay (Royal London Ophthalmic Hospital Reports, Vol 7, p. 506). Mr. Tay also reports another similar case in the paper by Marshall above referred to. In the paper by Nettleship, alluded to, three cases of meningitis are reported, occurring as a result of infected eyeballs in which no operative procedure was undertaken, two of these terminating fatally."

He concludes that in the case reported it would seem probable because of the thin grayish line extending almost back to the optic nerve entrance, that the infection entered the brain by way of the optic nerve, and that had the eyeball been removed at a sufficiently early period the meningitis might have been prevented.

Mr. J. J. King, of New York (*Medical Record,* Dec. 4, 1915), reports an interesting case of a physician who was first seen by him on November 27, 1914. Quoting from Dr. King's report we have "patient complains of sore throat and pains over the body. His temperature was 105.6° F. He was delirious and in a severe chill. Both tonsils had the appearance of follicular tonsillitis. He was exceedingly toxic. Urine had albumin, hyaline and granular casts. A gram negative diplococcus, which has since been called, for lack of a better name, the Connellan-King diplococcus, was isolated from the deep crypts of each tonsil. Notwithstanding treatment, his nephritis, elevation of temperature, and toxic appearance persisted until he had received three injections of an autogenous vaccine." He reviews a number of interesting cases and reports the finding of the Connellan-King diplococcus in a total number of seventy-eight patients. His conclusions are that every case of septic arthritis, commonly called rheumatism, is caused by a focus of infection somewhere in the body. It may be in the tonsils, ear, accessory sinuses, gastro-enteric tract, genito-urinary tract, or in the teeth. He said the most frequent focus is found in the mouth, and that the tonsils, due to their crypts, harbor the primary growth more frequently than any other gland or organ. He also believes that a very simple tonsillitis may be followed by complications such as nephritis, endocarditis, myocarditis, arthritis, etc., so serious as to endanger a patient's life. He says further, "the infection may become latent, and produce serious trouble weeks or months later at a point far removed

from its original site." He lays great stress upon the value of autogenous vaccine, and in view of an occasional general sepsis coming on after a tonsillectomy, it is nesessary and possible to clear up the infection before operation with such vaccines. He says that "wherever a focus of infection in arthritis exists in the tonsil in the case of arthritis, nephritis, endocarditis, appendicitis, etc., the treatment should consist in the injection of autogenous vaccines until all infection is cleared up, and then the removal of the tonsils by enucleation." He also believes that complications are caused by an absorption of chemical toxins rather than by a bacteriemia. He found that the blood changes accompanying the Connellan-King diplococci infection, seem to be a simple anæmia, and in a few cases a slight increase in the eosinophiles.

The above reports have been included here because of their peculiar interest and unique features. The reader will find some that are fully as unique and fully as interesting in the following pages. The case reported by Waterman is a classic, not only in the manner and thoroughness of the report, but as a concrete illustration of results obtained. Even the specialist, to whom the case was referred, found little to suggest the need for intra-nasal surgery, and "anybody but Waterman" would have kicked the patient out of his office as a hopeless inebriate. This time, however, the patient had fallen into the hands of a man who had sense enough to recognize inebriety as a symptom and who had the courage to "stick" until he found the cause. It's a new angle on focal infection worthy of most thoughtful consideration.

Space does not permit of a discussion of all the good recorded here so, friends, please read it for yourselves and then let your mental digestion do the rest.

D. W. M.

THE BACTERIOLOGY OF FOCAL INFECTIONS.

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IT is not the aim of this paper to deal with the title subject in an exhaustive manner; volumes might easily be filled and still much left to be said. All that I shall attempt to do is to give in a brief form some of the most interesting points as seen in the light of my own meagre experience.

Foci of infection have of late become of considerable interest to the medical profession at large, and even practitioners, distant from scientific centers, have begun to look for such foci in many pathological conditions which, previous to this time, have been considered only as a thing *per se*, and without any relationship to pathological processes elsewhere in the body.

There can be no doubt that foci of infection will in time give rise to either pathological processes in a part of the body distant from the mother focus and determined by the anatomical location or by the type of tissue or by chemotactic influences, or else may give rise to generalized devitalizing and degenerating processes, usually collectively called cachexia. We cannot help but assume that living foreign cells, which are able to comfortably settle down in a certain part of the body and, in their demands on life, create enough tissue changes that we are forced to recognize them as "an infection," could continue such a mode of life for any length of time, and not be carried off to some other part of the body and settle down again where conditions are promising, or, at least, send out into the blood stream products of metabolism derived from themselves or from the invaded tissue.

We realize fully that we are constantly surrounded on all sides by myriads of organisms, many of them able to live a parasitic life, and that our own bodies also contain myriads of them. We have come to the conclusion that a rich bacterial flora in the intestinal tract is almost a necessity to one's well being, although we recognize the danger which may ensue from a disturbance of the equilibrium among this flora in favor of one particular germ, say, the colon bacillus. We, furthermore,

know that the skin, as well as the muco-cutaneous outlets of the body, the nose, mouth and vagina are alive with germs of all descriptions, and the question has been raised repeatedly, whether or not these habitual inhabitants may at times give up their commensalism and become true parasites.

So far we have been accustomed to believe that the "insides" of our body (*i. e.*, all the tissues lying between the skin and the mucosa of the gastro-intestinal tract) and the blood and lymph channels irrigating this system are sterile, *i. e.*, free from living organisms, and have considered the appearance of such organisms in the blood as a very grave symptom. However, I think that in the near future we shall speak of bacteria within these channels and possibly in certain organs as a not uncommon phenomenon which not necessarily means disease. Disease is a disturbance in the equilibrium of the various forces at work; as long as our tissues can cope with the situation and the balance is not disturbed, there are no evidences of a pathological, *i. e.*, a down-hill process, no matter whether bacteria happen to be in the blood or not. It stands to reason that occasionally a stray organism, or even a swarm of them, may find a way into the blood current and stay there without doing any harm. As a matter of fact, of about thirty blood cultures taken in our hospital from patients without any symptoms of a bacteræmia, twenty-three were positive for organisms. We used to make it a practice to incubate part of every sample of blood taken. Growth appeared in from four to twelve days, and in nearly all the cases consisted of diphtheroid organisms. A few of these organisms proved pathogenic to rabbits.

Of course, one might say that these germs found occasionally within the blood stream must be discharged into the circulation from a certain focus, which brings us back to localized foci of infection.

Of all the numerous and possible foci of infection, the tonsils, the nasal passages and adjoining sinuses, the middle ear, the vagina, the urethra and the skin, have been brought to our special attention. Mastoiditis following infection of the middle ear and arthritides following infections of the tonsils or the urethra, and even iritis as a sequela to gonorrhea are not at all uncommon, and the connection between these conditions has already become so firmly established in our minds that we begin to talk about tonsils as soon as we cast our eyes upon a rheumatic individual.

In our experience, the bacteria most frequently encountered in the above mentioned local infections are:

1. Staphylococcus aureus.
2. Streptococcus pyogenes.
3. Staphylococcus albus.
4. Micrococcus gonorrhea.
5. Diphtheroid organisms.
6. Bacillus coli.

A large number of others might be mentioned, but of those which are liable to spread, either generally or to some other focus, the above named six groups are undoubtedly the most important.

Staphylococcus Aureus or Staphylococcus Pyogenes Aureus. I have found this organism to be the causative agent in about 50 per cent. of infections of the middle ear, ethmoids or frontal sinus, and in about 92 per cent. of infections of the skin. From the tonsils I have isolated it in rare cases only; more frequently from the vagina. In urethritis we found the organism in 5 per cent. of the cases. It is undoubtedly one of the most common of pathogenic bacteria and normally found on the skin. However, I have observed that of all the staphylococci giving rise to severe infections in the above mentioned localities, 99 per cent. were very small and delicate, measuring at an average only 0.5 to 0.7 microns in diameter, while those found on the skin and in slight superficial infections were rather large, at an average of 0.9 to 1.2 microns in diameter. Whether or not the size has anything to do with the virulence, I do not know. I am personally convinced that the greater mechanical resistance encountered within the tissues is sufficient to explain the smallness in size.

The virulence of the organisms found in such lesions varies greatly. I have learned to highly respect a staphylococcus aureus in an otitis media, and to fear it just as much as any of the most virulent streptococci, and even a so-called simple boil, if it harbor a staphylococcus aureus should be looked upon with suspicion and given careful attention, as septicemia and death have occurred in more than one of such cases.

In general, we can say that the majority of local infections in which the staphylococcus aureus is present have to be considered as dangerous, for metastases occur often and bacteremias and septicemias are not infrequent. But even in those cases in which the infection

remains a local one, damage is always done by the toxins absorbed. This damage may be so slight as to pass unnoticed, but in many cases a quite severe action, on the kidneys, for example, can be demonstrated by a considerable albuminuria. Cases of endocarditis from a furunculosis or mastoiditis or infection of the middle ear, and the like, are not rare in medical annals, and it is always an urgent matter to remove or clean the original focus.

That the secondary lesions, like an albuminuria, are due directly to this primary focus can always be beautifully shown by autogenous vaccines which—in the majority of the cases—clear up both or all conditions at the same time.

A staphylococcus aureus bacteremia is a very grave condition indeed, but not necessarily fatal in all cases. I have seen a complete recovery of a case in which the organism was cultured from a single drop of blood. It is astonishing in how short a time the blood will dispose of a multitude of living invaders after the local focus has been removed.

As to the morphology and cultural characteristics of the organism I think I need not go into any discussion in this paper. However, I should like to say that staphylococci are hardly ever seen as spherical bodies. We always observe them in the process of division, *i. e.*, as two hemispheres or diplococci, and many of them wonderfully biscuit-shaped and morphologically not distinguishable from the gonococcus, which is supposed to have an option on this particular shape. I should again like to call attention to the fact that many strains of staphylococci, about 15 per cent., are gram negative, and others half and half. Especially organisms found in the middle ear as well as in the urethra seem to have an inclination towards gram negativism, staphylococci as well as streptococci. I find that in these two localities about 30 per cent. of the streptococci and about 20 per cent. of the staphylococci are more or less gram negative.

Of the toxic substances which may be produced by staphylococci the attention of the observers has been called especially to three: a specific hemolysin called staphylolysin, a substance injuring the leucocytes and called leukocidin, and an enzyme liquefying gelatine and called gelatinase.

What has been said of the staphylococcus aureus is true of the staphylococcus albus with the only difference that, as a rule, the albus

is not nearly so virulent as the aureus, and the prognosis is always more favorable. Both are very frequently met with in the same infection or in association with the streptococcus. In our service staphylococcus albus has been isolated in 55 per cent. of cases of urethritis, either alone or in association with aureus or with diphtheroids.

Streptococcus pyogenes the most habitually feared of the pyogenic cocci. Indeed, when we observe how rapidly this organism at times spreads in the tissues, overcoming with perfect ease all the obstacles thrown into its path, the general fear seems justified. In virulent infections the animal body is absolutely powerless against this invader. Leucocytosis is attempted but is slight and of no avail, and septicemia often occurs in but a few days. And yet we find streptococci all the time in the mouths of all human beings and of many animals, apparently without doing any harm.

It is a very easy matter to isolate streptococci from the mucosa of the pharynx of healthy or diseased persons; they are always present in the tonsillar crypts, either alone or in association with other mouth-organisms. Are these the same germs that can kill their host within a few days, and if so, what hinders them from doing so? Or are they altogether different organisms? We have been told that there are many different strains, or rather varieties of streptococci, a strain streptococcus longus, a *strain* brevis, a *strain* mucosus, a *strain* viridans, etc., which names, however, do not mean very much. Recent studies in bacteriology tend to show more and more that morphology alone is of very little value, as many bacteria may assume such a variety of shapes. We have known this to be true with the yeasts and moulds and the so-called higher bacteria, and, of late, also with the large group of diphtheroids and streptococci.

It has been customary with us to classify streptococci according to their potence or impotence to manufacture certain chemical substances, especially hemolysins, and we distinguish between hemolyzing and non-hemolyzing streptococci. Andrews and Horder in 1906 and, later, Lyall, have made extensive studies of streptococci in their behaviour to dextrose, lactose, saccharose, inulin, salicin, raffinose and to the red blood cell, and classified them accordingly. Lyall recognizes three large groups:

1. Streptococcus pyogenes, which produces hemolysis and ferments salicin in addition to dextrose, lactose and saccharose.

2. Streptococcus viridans, which forms methemoglobin and ferments raffinose in addition to dextrose, lactose and saccharose.

3. Streptococcus fecalis and other streptococci, which are indifferent to hemoglobin and ferment salicin, and some of them also raffinose in addition to dextrose, lactose and saccharose.

The streptococcus mucosus has been shown by Parke & Williams to belong to the pneumococci.

In our experience the majority of the streptococci found ordinarily in the mouth belong to the non-hemolyzing type, while the majority of streptococci found in severe local infections are of the hemolytic type, *i. e.*, true streptococci pyogenes. In the crypts of diseased tonsils, especially of the atrophic variety, we found hemolytic streptococci in about 30 per cent. of the cases. Another interesting point might be mentioned here. The majority of the non-hemolyzing streptococci, especially those ordinarily found on the buccal mucosa, are streptococci longi, *i. e.*, form long chains, some of them running across several fields of the microscope, while the majority of the hemolytic streptococci were found to occur as diplococci. The most virulent streptococci, which we isolated, were nearly always morphologically diplococci, and developed chains only in liquid media containing blood serum and the like.

In contra-distinction to staphylococci, streptococci are very little resistant to heat and chemicals; when exposed to 52 to 55 degrees C. they are killed in from 10 minutes to half an hour.

I do not know of any bacterial organism—excepting diphtheroids—that shows such a variation in size and in cultural characteristics as do the streptococci. The cocci measure from ¼ to 1 micron and more in diameter, and divide in one plane only. Involution forms are common. The colonies on solid media are usually fine and delicate, non-confluent, dew-drop-like and apparently without color or slightly grey, but there are many strains which, culturally, could easily be mistaken for staphylococci, and others which produce the dry growth so characteristic for many diphtheroids. As a rule, the colonies can be easily detached from the surface of the media, but at times they appear as round sticky pearls, which resist every effort to separate them from the agar. In liquid media some strains grow diffusely producing a uniform clouding of the media, others in growing settle down imme-

diately to the bottom of the tube and produce a dry and granular looking sediment. In our experience the diffusely growing type is usually one of the harmless varieties, while the others are usually virulent streptococci; there are, however, numerous exceptions.

In the last three years of our service we found streptococci alone present in about 30 per cent, of all severe infections of the middle ear, ethmoids and mastoids, and in about 2 per cent, of skin lesions, in 80 per cent. of all cultural examinations made from the depths of the crypts of enucleated tonsils, and in 9 per cent. of infections of the urethra. *They were also frequently isolated from the urine of persons suffering from an acute tonsillitis with accompanying albuminuria.* In connection with this latter statement it is of interest to note that certain individuals apparently cannot go through an ordinary attack of tonsillitis without developing an albuminuria and discharging streptococci in their urine. I have in my records four such persons, all young and apparently healthy. Two of these always develop a jaundice with bile in the blood serum and the urine along with the streptococcic albuminuria.

In three cases of post-scarlatinal nephritis streptococci were isolated from both the urine and the tonsillar crypts, and were found to be identical in these two localities; they were of the hemolytic variety. All of which goes to show how rapidly streptococci may spread from a certain focus and gain entrance into the circulation.

A streptococcus found in discharges from the middle ear always gives a grave prognosis, as in the majority of the cases an inflammation of the mastoid will quickly follow the otitis media.

Of the sequelæ of a chronic streptococcic focus of lesser virulence in any part of the body but especially the tonsils the various arthritides are the ones most frequently observed.

Streptococci in association with staphylococcus aureus and at times with staphylococcus albus, or with both, were seen in about 15 per cent. of infections of the middle ear, ethmoids and mastoids, and in a few cases of skin lesions and inflammatory conditions of the urethra.

The cases of so-called septic sore throat or streptococcic sore throat deserve to be placed in a class by themselves. In the majority of these cases, of which we had the opportunity to observe a large number, the infecting streptcoccus belongs to the non-hemolytic type, and

forms long chains. On blood- or serum-agar it outgrows the other mouth-organisms so rapidly that Dr. Mellon used this quality of the germ as a basis for his early cultural diagnosis of septic sore throat. The symptoms are very severe. The temperature often rises as high as 104° to 106°, and there is much prostration and frequently wild delirium. Suppurative foci elsewhere in the body may be present, but have never been seen by us. A fatal outcome is by no means uncommon; I know of six deaths occurring within three years.

The value of anti-streptococcic sera has often been questioned. The relatively numerous failures seem to be due to the fact that it is literally impossible to procure a serum corresponding to the strain which causes the infection. Streptococcus vaccines, of course, suffer from the same lack of polyvalency, but, as a rule, seem to accomplish more. I am often asked to prepare "autogenous" vaccines, and I welcome this opportunity to say a few words on the subject. Experience has taught us to consider certain strains as good immunizers, while others seem to be absolutely worthless for this purpose. Why this is so, I do not know, neither can I explain the fact that an autogenous vaccine in many cases is not the ideal one to use; but I found it to be true in the majority of cases of chronic rheumatism. In all these cases we had to resort to a certain streptococcus which had been isolated from a case of post-scarlatinal nephritis, and which we have known for the last three years to be a good immunizer. Vaccines prepared from this stock culture would nearly always have a beneficial effect when the autogenous vaccines proved a complete failure.

In general, I must say that vaccines have proven fairly reliable therapeutic measures, and they should be given a trial, especially when other measures fail.

Micrococcus gonorrhea. The importance of this organism in connection with diseased conditions of the uterus and appendages, with peritonitis, prostatitis, cystitis, etc., is generally recognized. In isolated cases the gonococcus has also been found in inflammations of the periosteum and the middle ear. Inflammation of the iris following an attack of specific urethritis has been observed. Cases of gonococcus endocarditis and of gonococcus septicemia are by no means uncommon.

Morphologically, the gonococcus appears as a sphere divided by two parallel planes into three parts, the middle one of which has been taken out; the resulting coffee bean, or kidney-shaped diplococcus, is

always a little elongated. The cocci are gram negative, at least when taken from the discharges of acute lesions or from fresh cultures.

It is in my mind still an open question whether the coffee bean shaped gram positive diplococci, which we find in the majority of cases of chronic gleet, are changed gonococci or simply staphylococci. I am inclined to think that they are staphylococci, and the experiments of Dr. Warden, of this university, seem to prove this contention. I have also found repeatedly that gram negative diplococci from old chronically inflamed urethras gradually became gram positive in subcultures and assumed the cultural characteristics of staphylococci, although grown on media catering to the demands of the gonococcus.

Cases of gonorrheal arthritides are legion, and the suffering of the patient in many of them is very severe.

Gonorrheal vaccines in chronic conditions will often do well, while in the acute local lesions they seem almost useless. Many cases of gonorrheal rheumatism will also respond to streptococcus vaccines.

Diphtheroid organisms. This comprises a large group of bacilli which so far have not been given the credit they deserve. We have always known that diphtheria-like organisms existed, and that they were the constant inhabitants of the skin, conjunctivæ, nasal and buccal mucosa, intestines, etc., but they were considered as being harmless. Undoubtedly, many of them are mere saprophytes. But there are strains of diphtheroids which must be classed among the pathogenic bacteria.

Diphtheroid bacilli are characterized by a very marked pleomorphism. They may occur as rods of various length, thickness, straight or curved, or as clubs, solid or barred, often astonishingly large, 10 by 4 microns; or as cocci or coccoid bodies, and quite often as streptococci or what seem to be streptococci. On the other hand, involution forms of streptococci may often have the appearance of diphtheroids. They are in more ways than one connected with the streptococci, as shall be seen later.

Culturally, the numerous strains of diphtheroid organisms vary greatly. Some are ærobes, other anærobes and facultative ærobes. Many of them develop a dry growth on solid media with firm colonies which, especially in older cultures, adhere tenaciously to the media. Others grow luxuriantly like the Friedlænder bacillus. When freshly isolated or in young cultures they are either wholly or in part gram

positive, but gradually change to gram negative organisms. Many of them are slightly acid fast.

In our service we have seen diphtheroid organisms as the sole causative agent in 2 per cent. of all cases of infections of the middle ear, ethmoid, mastoid; in 5 per cent. of skin lesions and 12 per cent. of cases of urethritis. They are also often found in association with staphylococci.

In the above mentioned 2 per cent. of cases of diptheroids were the only organism present, producing a thin, serous discharge. Autogenous vaccines prepared in some of the cases had a beneficial or curative effect. Whether such local foci of diphtheroids can give rise to metastases or systemic disorders may be seen from the following:

Mrs. B., age 28, presents herself in the medical clinic, complaining of a general weakness and lassitude, shooting pains, especially in chest and joints, and marked fusiform enlargements of the distal joint of great toe, left side and of fingers. She is not able to walk about. Pains and swellings commenced one and a half years before patient came to the hospital. Three years ago patient showed signs of eclampsia after the birth of her last child. Two years ago she suffered twice from heat prostration. Patient never had scarlet fever, diphtheria, tonsillitis, but has had measles and had suffered much from decayed teeth. The physical examination of the chest and organs of circulation was negative. Blood count showed a slight secondary anemia and a slight leucocytosis. Urine negative. Von Pirquet negative.

A blood culture revealed a bacillus, which in its cultural and morphological characteristics, belonged to the diphtheroid group of organisms. Three doses of a vaccine prepared from this bacillus and given in subphysiological doses benefited the patient to such an extent that she could walk about and go home. Her case, however, was neglected afterwards, and she is at the present time suffering from a relapse.

Mr. E., farmer, strongly built, presented himself in the medical clinic with a marked œdema of the extremities and almost complete loss of vision. Arms and legs twice the normal size. Examination of the eyes did not show any lesion. Physical examination of the organs of respiration and circulation was negative, the urine was albuminous and contained casts. Tentative diagnosis: amyloid disease of the kidney. A blood culture revealed an anærobic diphtheroid. Growth in this case did not appear until the fifth day, and in an endeavor to

help the patient and also in the way of experiment he was given a stock streptococcic vaccine immediately. The patient was considered as hopeless and returned home, but before leaving the hospital received another injection of the streptococcic vaccine. To our great surprise he returned after a few weeks very much improved. The œdema of the arms and legs had entirely disappeared, and the vision was partially restored. In the meantime the anærobic diphtheroid had been isolated and the treatment was continued with a vaccine prepared from this culture. The patient returned for treatment once more, and at that time seemed well on the way to recovery.

In a third case diphtheroid organisms were isolated from the spinal fluid of a woman suffering from what was thought to be a chronic low grade meningitis.

These are the only three systemic infections in man which I had the opportunity to observe, but experiments carried on in this laboratory two years ago by Dr. Mellon gave positive results, especially in regards to joint lesions.

In the urethra diphtheroidal infections seem to be nearly always secondary to gonorrhea. They are often seen associated with rheumatism especially of the small joints. Whether the rheumatism is caused by the diphtheroids I do not know, but I am rather inclined to regard the primary gonorrheal infection as the causative agent.

Bacillus coli. We have found bacillus coli in about 2 per cent. of infections of the middle ear, ethmoids and mastoids, producing a thick, creamy discharge of fecal odor. However, foci of bacillus coli are rare in these regions, they are usually encountered in the region of the kidneys, the rectum or the urethra.

Bacillus coli being always present in the intestines, it is difficult, if not impossible, to state in a given case whether the germs have wandered out from the enteric tract or were taken in with the food, water or from similar sources.

The most common focal colon infection is a cystitis. It has been claimed that between 80 and 90 per cent. of all inflammations of the bladder are due to bacillus coli. The irritation may be so slight as to provoke hardly any symptoms, and again at times is so extensive as to cause considerable distress, pain and fever.

The infection can easily travel upward and give rise to a pyelitis

and nephritis and finally septicemia. A colon nephritis is not at all uncommon, especially in women, and, in our experience, can always be greatly benefited by colon vaccines.

Infection, by the colon bacillus, of the bile passages with subsequent jaundices is also a rather common occurrence; it predisposes the patient to gall stone disease.

As stated in the introduction, this paper is intended to deal with the most important bacteria only. Cases of focal infections by other bacteria are, of course, numerous enough to deserve mentioning, but we have had very little opportunity in our laboratory to see and to study such cases. They were few and far between, and I could but repeat data from the literature.

John Wanamaker, who was Postmaster-General of the United States in the Cabinet of President Harrison, has erected churches and Y. M. C. A. buildings in India, China, Japan, and Korea, and in other ways has been conspicuously identified with religious activities. His department stores in Philadelphia and New York made his name a household word with the housewives of those cities. Mr. Wanamaker tips his Stetson to the profession:

"In a long life I have learned to take my hat off to the physicians and surgeons that have come under my notice. Every man has some defects, no matter what his profession is, but I think the medical profession has less of them than any other."

FOCAL INFECTIONS.

Edward L. Cornell, M. D.,

Chicago, Ill.

FOCAL infections are justly attracting attention to-day, and it is wise that this should be. No subject has been so neglected by the medical profession. With so many of the foci within easy reach, I often wonder how the physician came to be so blind. We might, perhaps, blame it on the American's manner of rushing. We, as a race, hustle through with everything. We eat our breakfast in five minutes in order to catch the 8:05; we scan the headlines for the day's news and are satisfied; we turn to the "sporting" pages for a few minutes' pleasure. By this time we are on our way to business. All this done in about an hour. This "hurry-itis" makes us less observant of the things that really count. The average American's day is a repetition of the breakfact train episode. Who among us professional men—especially the younger ones—is not only anxious but eager to be able to do an appendix in six minutes, a Cæsarean section in seventeen, or a tonsil in three? How many of us take a flying 100 mile-an-hour-look at a throat and nose and proclaim them "all right!" Think it over, friends. The old saying, "Be sure you are right, then go ahead," applies with great force to the question of focal infections.

The failure to recognize the importance of focal infection as a cause of serious systemic disease should not be placed entirely upon the shoulders of the mass of physicians. The ones who should shoulder the blame are those conducting medical schools. Have we ever had a course in school dealing with the teeth as a cause of systemic infection? What do we know about the diagnosis of apical abscesses? Yet the teeth should be carefully examined, especially by nose and throat men. The average physician should be able to discover a loosened tooth, dento-alveolitis (pyorrhœa), or a decayed tooth. As marks of chronic infection are frequently present in the gums, the gums should be carefully inspected. These may indicate an apical abscess with a small opening. Another question to be considered in the observation of

the mouth is: Are all the teeth erupted, and have any been extracted? Upson, many years ago, made the following statement:

"Of the viscera responsible for the more obscure cases of nervous and mental derangement, I have no hesitation in designating the teeth as the most important. This is not only on account of the common, almost universal, occurrence of dental diseases, but because these organs move, during the period of their development, through the solid framework of the jaw, highly innervated and clothed by a membrane sensitive to impact and to corrosive toxins. The two most important lesions—impaction and abscess—are, in some cases, obvious to inspection, but frequently they can only be discovered by skiagraph. Impactions may be in any region of the jaw. They may be indicated, with some probability, by a gap where the missing tooth should be, but such a gap is by no means conclusive. An extraction may have been made and forgotten, or teeth fail to develop, leaving a gap or a temporary tooth persistent sometimes for years. Supernumerary teeth may be impacted. Many other lesions are potent in causing irritation. Fillings which encroach on the soft tissues or bone are often revealed by the skiagraphs and so remedied. I am unable as yet to give any estimate of the importance of pulp nodules. It is only possible for me at present to make the broad, general statement that irritation and septic poisoning should be removed in every case, and that local results of dental lesions are trifling in comparison with their profounder effect on general health."

Among the diseases due to dental and oral maladies he mentions:

Insomnia.
Insomnia with arterial disease.
Melancholia.
Neurasthenia.
Hysteria minor.
Mania.
Incipient dementia præcox.
Dementia præcox.
Hypomania.

This is indeed quite a formidable array and strongly emphasizes the importance of a careful survey of the mouth.

The more the normal mouth is studied, the more interesting it becomes. In the past year I have been surprised at the frequency

with which abnormal conditions are encountered. It is rarely that a normal mouth is seen, even in children. In the past few days, out of six new patients coming for a diagnosis, not one presented a mouth which would pass 100 per cent. One had an unerupted cuspid; one, two apical abscesses; one, a mild pyorrhœa; two, decayed teeth with mild inflammation of the gums; two (over 30) with unerupted wisdom teeth. In two of these cases I feel certain that the teeth have much to do with the general condition.

I have laid considerable stress on the teeth as a factor in the cause of systemic infection. Equal emphasis should be laid on other portions of the oral cavity. The tonsils should be very carefully inspected. Merely sticking a tongue depressor in the mouth is not the way to look at a tonsil unless the tonsil happens to stick out in the center of the throat. Many a deep-seated, chronically inflamed tonsil is missed in this manner. The pillars should be pulled forward and the tonsil closely inspected. If this does not suffice, the tonsil should be pushed out by external pressure. The condition of the pharyngeal wall, also the shape and condition of the uvula, should be noted.

Perhaps it is puerile of me to suggest in detail the methods of examining the mouth, nose and throat, but it is discouraging to one in general practice to consult a so-called specialist and have him make a cursory examination, and this is being done all the time. Whether the specialist thinks the general practitioner knows nothing or whether he doesn't care for cases unless the diagnosis is clear and easy, I can not say. I seldom send a case to a nose and throat man unless there is good and sufficient reason, and that reason is the lack of pathology elsewhere to account for the general symptoms. In the past few years it has been a great pleasure to work with the men I have been associated with, as we have developed great "teamwork."

Besides the diseases mentioned by Upson, we know that acute infections, such as rheumatic fever, endocarditis, myocarditis, pericarditis, chorea, systemic gonococcus infection, nephritis, appendicitis, cholecystitis, gastric and duodenal ulcer, pancreatitis, erythema nodosum, herpes, osteomyelitis and thyroiditis may have their origin in focal infections. Chronic conditions, such as arthritis, peptic ulcer, endocarditis and nephritis may be due to the same cause. This was admirably brought to my attention by the following case:

Mrs. C. F., was referred to me by a dentist. She was 26 years old and had been married three years. She was taken sick five months previous with a severe tonsillitis. She had a temperature of 104° for three days. This illness caused her to be confined to bed for two weeks and to the house another two weeks. Six weeks after the onset of tonsillitis she had an attack of wry neck. At this time the feet and ankles were painful and swollen. She was in bed for one week. Two weeks later she had a relapse, which put her to bed for a month. In this last attack she had an acute articular rheumatism and an endocarditis. She complained of great difficulty in breathing; at times it seemed almost impossible for her to get her breath. When I saw her she complained of tiring easily, shortness of breath, pain in the back, sides and feet on walking. She had edema of the feet at night. Her appetite was poor. She was able to sleep fairly well lying prone. Previous illnesses: The usual diseases of childhood, together with frequent attacks of tonsillitis until she was 12 years of age, at which time her physician removed the tonsils. Examination revealed a pale, pasty-looking young woman, who evidently was suffering from malnutrition due to some toxemia. The tonsils were very large and ragged; otherwise the nose and throat were negative. The heart was markedly enlarged and full of murmurs. At the apex a systolic murmur was predominant. The liver was tender, also tenderness was noted in the right lower quadrant of the abdomen. Vaginal examination revealed a cystic tube. The blood pressure was 116 and 70. Urinanalysis was negative. Blood examination showed a marked anemia with a mild grade of leucocytosis. She was sent to the Requiesca, put on forced feedings, increased elimination and iron medication. In two weeks her tonsils were removed by Dr. Haseltine. Forty-eight hours after their removal her entire disposition changed. She became more cheerful; in five days she wanted to go home, stating that she felt perfectly well. However, she was kept in the hospital for three weeks after the operation. During this time she gained six pounds in weight, and her blood pressure reached 124 and 60. Her general appearance improved remarkably. A letter received ten days after the patient left the hospital stated that she gained seven pounds in weight, and that she was feeling very well. Her brother told me yesterday (Dec. 9) that she has made a total gain of 25 pounds in two months.

This is a case of poor technic on the part of the first physician who removed the tonsils. Had they been properly removed, she would have escaped the endocarditis, which has left her with a permanent mitral insufficiency. It is just such work as this that sends people to Christian Science.

That chronic nephritis may be due to the tonsils was proved to me by another case:

Mr. G. M., age 56, was referred to me for a general examination. The patient complained only of lack of "pep," stiffness of the neck and a dull feeling in the right ear. His appetite was good, his bowel actions regular and he slept well. His teeth were in good condition, his dentist having made an examination shortly before. He denied any venereal disease. He had had acute articular rheumatism and peritonitis many years previous. He was sick for three months. He had had no operations. The tonsils were small, submerged and showed only a very mild chronic inflammation. Urinanalysis showed no albumen, but hyalin and granular casts fairly numerous. He was placed on a milk and buttermilk diet and heavy catharsis. He returned in one week stating that the "drag" had disappeared. the neck was much better and the blood pressure was 150 and 94. One week later the blood pressure was 142-92. The urine was about the same. Two weeks later he felt better, but the pain in the cords of the neck had returned, and he also complained of pain in the right wrist and ankle. Blood pressure was 160 and 104. He had still remained on a diet, and had had two or three bowel actions a day. During all this time he was not attending to business; he was out of doors the greater portion of the day. I advised the removal of the tonsils at this time. Four days after the tonsils were removed he reported back. The blood pressure was 146-76. He had no pain anywhere in the body, his general appearance was better, and the granular casts had disappeared. One week later the hyaline casts had also disappeared and the patient was feeling better than he had for several years.

DeLee has recently called attention to the fact that still-births may be due to bacterial infection. Of course, this excludes cases due to the spirochete pallida. It has been his experience that some fœtuses die as a result of intra-uterine infection. I have recently had a case which bears out this contention.

Mrs. E., age 26, had been married for four years. She had had a still-birth with the first child at full term. The infant weighed seven and a half pounds and had a nasal discharge. Two years later she had an abortion which required a curettement. The patient came to me in the eighth month of pregnancy complaining of severe cramps in the abdomen and bleeding from the nose. Under appropriate intestinal medication she improved. She had had her appendix removed three years previously and her tonsils six years ago. The latter apparently were only clipped. The blood pressure was 130 and 70. Urinanalysis was negative. She went into labor at full term and was progressing nicely for ten hours. The fœtal heart tones were taken regularly when suddenly they became weaker and finally disappeared within thirteen minutes. It was impossible to effect artificial delivery before its death. Autopsy on the infant revealed no pathology except that all the serous cavities contained more fluid than is usual. Cultures were made from the dura, pericardium, nose, heart's blood and pleural and abdominal cavities. The pericardium gave a pneumococcus and a gram positive bacillus. The pleural cavity gave a pneumococcus and a staphylococcus.

Wassermann reactions on the child and mother were negative. Cultures taken from the tonsil crypts and vaginal discharge of the mother showed a pneumococcus and staphylococcus in each. In spite of this the episiotomy wound healed by first intention.

Of course, it is too early to draw any definite conclusions from this case and those reported by DeLee. This work, however, is being kept up and every case of still-birth is being carefully analyzed.

I have had the impression that some of the abortions for which we cannot account may be due to bacterial infection—whether of focal origin it is difficult to say. Just recently Davis has tried to show the relation of focal infection to ovaritis. I firmly believe that we will be able to trace some of the obscure cases to oral infections.

In the diagnosis of these conditions many obstacles are met. Focal infection is quite the thing to-day among the medical profession. The dentist has long known the relation of the teeth to systemic infection and he has passed through the stage of enthusiasm; not so the medical man. I, therefore, wish to warn you not to neglect all the finer details of diagnosis and all you have depended on in the

past. The cause of an obscure condition should be sought and focal infection accused as a last resort—more by exclusion. The blood picture should always be studied. The white blood cells may give definite information. Logan has formulated some conclusions from his study of chronic oral infections. They are as follows:

1. He found that neither pronounced nor moderate anemia were commonly associated with chronic oral infection in his series, as pronounced anemia was seen but once.

2. That leucopenia was more constant than leucocytosis in pyorrhœa cases where the blood findings were abnormal; furthermore, leucopenia was more frequent in those cases where the pyorrhœa pockets did not involve the root ends and in the absence of periapical focal infection without discharging sinuses.

3. That leucocytosis, when associated with pyorrhœa, was most frequent where the pyorrhœa pockets extended to or did involve the root ends.

4. That abnormal blood findings were present in only 48 of the 110 pyorrhœa cases examined. However, it should be kept in mind that these cases did not have confined infection at root ends.

5. That abnormal blood findings were present in 98 of the first 108 cases of periapical infections without dicharging sinuses, divided as follows: Leucopenia, 12 times; leucocytosis, 86 times.

Let the foregoing statement be not misconstrued to mean that either leucocytosis or leucopenia is always present when a periopical infection without a discharging sinus is found. He had ten cases of chronic infection at root ends where the blood findings were normal, for, naturally, periods arise when the effect of the pathogenic bacteria and toxins is so slight that no blood change is manifested. But, since severe secondary infections could occur during this period, a focal infection, though producing no characteristic blood change, must always be looked upon as a menace to the health of the patient and its eradication demanded.

6. It would appear that the normal range of variation in the leucocyte count and polymorphonuclear percentage is more limited than generally stated by our authoritative works; therefore, he has accepted as normal the following table which is employed by certain well-known laboratories:

Hemoglobin .....85% to 100%
Erythrocytes per cu. mm. .....4,250,000 to 5,000,000
Leucocytes per cu. mm. .....7,000 to 8,500
Polymorphonuclears .....60% to 65%

with the proper balance of large and small mononuclear lymphocytes and eosinophiles.

From these conclusions one can formulate the following: In a given case in which chronic infection is suspected the differential white blood count plays an important factor in the diagnosis. Where the number of white cells is 8,000 or over and the polymorphonuclear cells run over 65 per cent. we can usually rest assured we have a chronic infection. It is seldom the total white cells reach 14,000. In conjunction with this we have some degree of anemia. I believe this count will hold true in other conditions beside periapical abscesses, for I have seen it in cases of submerged chronically inflamed tonsils.

The following case is an example of the blood picture:

Miss E., age 24, a school teacher, came Sept. 23, 1916, complaining of pain in the right arm and shoulders for the past three years. She dates it from a streptococcic sore throat. The pain has gradually become worse and more extensive. She is unable to play the piano or to write on the blackboard for more than fifteen minutes at a time. The pain is not constant, it comes on with use. She is not troubled at night. For the past few months there has been pain in the right leg and foot. She suffers more or less with constipation.

Previous illnesses: She has had usual diseases of childhood and streptococcic sore throat. Her tonsils were completely removed in April, 1916, with no relief of the symptoms.

Habits: These are regular. She does not drink tea, coffee or liquors. Family history: Mother died of Bright's disease at 46 years. Otherwise the history is negative.

Briefly, the examination showed a well developed, large woman, who looked somewhat toxic, but who would not attract attention as an invalid. The blood pressure was 140-90. The heart, lungs, abdomen and extremities were normal. All reflexes and sensation tests were normal. The tonsils had been completely removed. The teeth on inspection were apparently normal but contained many fillings. On palpation only one tooth was loose.

The blood examination was as follows:

Reds, 3,370,000.
Hb., 90 per cent.
White, 7,650.
Polymorp., 68 per cent.
Lympho., 22.
Large mono., 8.
Eosin., 2.

X-ray pictures of both revealed the following abscessed teeth:

The upper left cuspid—upper right second bicuspid
The lower left 2nd bicuspid
1st molar
2nd "
The lower right 2nd bicuspid
1st molar
2nd "

The upper right central root canal filling extended into the bone.

Four of the worst teeth were extracted. This caused more pain in the arm than usual for a few days. A blood count taken October 14, 1916, sixteen days after the extraction, was as follows:

Reds, 4, 100,000
Hb., 85 per cent.
Whites, 8,200
Polymorps., 61
Lympho., 30
Large mono., 6
Eosinophiles, 3

The blood pressure was 110-60. She looked much better. The dentist is endeavoring to save the other teeth. Her pain in the shoulder is relieved, but not entirely gone. It is rather early to draw any definite conclusion, but it is remarkable how this woman could have so many abscesses of the teeth and yet show no local symptoms. This is frequently characteristic of focal infections.

The treatment of these focal infections cannot be summed up in a few words. Each case is individual. It becomes necessary to seek the location of the focal infection and attack it in the most appropriate manner. Sometimes this necessitates conference with men in many fields of practice with a discussion as to the line of procedure. A patient with chronic appendicitis, chronic inflammation of the ton-

sils and poor teeth presents a difficult proposition many times. It is this type of case that requires the highest degree of judgment. From my own experience I have found no definite line of procedure. I have endeavored to choose that focus which seemed most likely to be the cause of the greatest damage. Sometimes this has produced brilliant results, at other times dismal failure. After the focus of infection has been removed, the ideal method of procedure is, briefly, as follows: The patient is placed in a small home or sanitarium where visitors can be excluded and where there is little to disturb. The elimination is increased and the entire body is given daily massage, particular attention being paid to the abdomen, the large and small intestines being thoroughly kneaded. The patient is then built up. One can compare the treatment to an old building which is entirely reconstructed and made modern. You first tear down and then build up anew.

In conclusion, I wish to emphasize again the fact that most physicians are making too cursory an examination of the mouth and associated parts. Also I wish to repeat the word of warning against a too enthusiastic race after the focal infection to the detriment of the well established laws governing diagnosis.

122 S. Michigan Ave.

Mamma: "What is Willie crying about?"

Bridget: "Shure, ma'am, he wanted to go across the street to Tommy Greens's."

Mamma: "Well, why didn't you let him go?"

Bridget: "They were havin' charades, he said, ma'ma, and I wasn't shure as he'd had 'em yet."—*Doctor's Leisure Hour.*

FOCAL INFECTION AND INEBRIETY.

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Chicago, Ill.

THIS paper is presented to you with the idea of giving some new views on an old, but sadly neglected, subject from a medical point of view.

It is not presented with an idea that a new therapy for inebriety has been discovered, but for the purpose of showing that inebriety in itself is not a disease and that the habitual use to excess of narcotic drugs is not the true underlying condition, but is a symptom of some definite pathology.

Before proceeding, it is necessary to state that we will class the users of alcohol or drugs under the one general term—"inebriates." Each form of inebriety is distinct, the same as each form of chemical poisoning is distinct. We can have alcoholic inebriety, morphin inebriety, aspirin inebriety, et cetera. Along general lines all inebriates can be considered as a class.

In the past, inebriates were considered as criminals and treated as such—it is possible that an inebriate is a criminal, but being an inebriate does not necessarily mean that he is a thief or a murderer. Later, it became the fashion to class inebriety as a distinct disease, and, as in most diseased conditions in the past, the idea was to find a cure for a name and to treat all cases of inebriety *en masse,* not to consider the individual.

Alcoholism may be the presenting symptom and the exciting cause for many other symptoms, but when alcohol is used, as it is, by an inebriate, it is not a disease, but one symptom of an abnormal psychophysical condition, although its use will accentuate any previous existing mental abnormality.

The discovery of the tubercle bacillus by Koch, although a great advance in science, has not settled the whole question of tuberculosis. The fact that alcohol or some narcotic drug is used and is an exciting factor for many symptoms does not settle the question of inebriety and prohibition or the work of reformers does not cure the inebriate.

Also, to treat the inebriate intelligently, a man already poisoned by potent drugs, it is not reasonable to suppose that beneficial results can, or will, be obtained by using other drugs. It is possible that symptoms will be relieved, the patient will feel improved and the friends and relatives able to secure more enjoyment in life, but the duty of the physician has not been realized, he has not cured the patient—he has not removed the cause—he has not given attention to underlying processes.

This paper, being presented to specialists, can only touch on a few of the many fundamental conditions which must be considered if one hopes to cure the inebriate permanently. The correct treatment of any condition requires an accurate knowledge of the patient's general physical state and not based upon the history obtained. This is especially true when dealing with a chronic illness which does not cause pain or localized discomfort. The majority of patients disregard existing pathology unless it causes suffering—this is to be expected, but a large number of physicians do not look for pathology unless the patient is complaining and then appear satisfied if the symptoms are relieved.

To treat successfully the inebriates, it is essential that the internist work with the specialist—the specialist with the internist—satisfactory results will only be secured with thorough, conscientious work. It may mean for the internist co-operation with the surgeon, the gynæcologist, urologist, dentist, oculist, aurist, laryngologist, et cetera. However, from a wide experience, I will state that team work with the specialist about the head will predominate and give the most satisfactory results.

In many cases of inebriety the use of alcohol or narcotic drugs is the result of a chronic toxic condition and the therapeutic results from the removal of the foci of infection are positively spectacular. The focus of infection acts as an incubator, and the patient suffers from chronic systemic illness with the result that he is anemic, complains of chronic fatigue, has many nervous symptoms and even mental instability. He is not 100 per cent. efficient.

In endeavoring to secure relief from a condition which he fails to recognize as illness, he attempts to be his own physician and uses high-balls to stimulate and Bromo-seltzer to dull.

It is not only necessary to remove the foci of infection in all cases, but it is essential to remember that the patient is loaded with toxins which nature will ultimately remove, if the patient lives long enough, but the internist can assist nature in many ways. It must also be remembered that the removal of the foci of infection is not a panacea and because infected tonsils have been enucleated in an artistic manner is no reason to believe the man will immediately have a halo placed above his cranium. Also, it is always possible for a man to have more than one condition present at the same time, and it is likewise possible to have more than one focus of infection in the same individual. The removal of all teeth, no matter how badly infected, will not make the man physically perfect, who is walking around with a chronic appendix or an infected prostate.

It is along this line that I again wish to emphasize team work. To be a successful internist it is necessary to employ the specialist, but it is impossible to be a truly successful specialist unless he works with the internist. For the patient to obtain the best from either it is essential that they work together. The management of the case must be with the internist, and it is similar to any protracted disorder—the patient and not a disease requires treatment. Rest may be required. Dietetics will be an important element. Physical culture and massage may be necessary. Drugs may be indicated. Nothing alone will succeed in every case. But the specialist has a definite field as he alone may recognize the underlying pathology and educate the public that although a man is an inebriate he is also human and, being human, may have abnormalities which deserve consideration. The public condemns what it does not understand—what is objective it accepts, but what is subjective it ignores. The underlying cause in all chronic conditions is usually subjective to the layman, it should not be and will not be so to the careful diagnostician.

It is not necessary to give numerous case histories to show the importance of careful management, and the satisfactory result to be obtained with these difficult, but many times misunderstood, patients. One case will serve to illustrate. The one selected presented many complications and, in the beginning, appeared hopeless, but the outcome medically, sociologically and economically justified the means and shows that this type of patient deserves the same consideration as any patient who is not well mentally or physically.

Case No. 492. History was taken December 26th, 1912. Patient was a single man, 27 years of age, employed in the real estate business.

The family history was as follows: Father living, age 54. He had suffered with alcoholic inebriety for years, and at the present time has some form of kidney disease and symptoms of dementia. Mother living, age 57. At the present time her general health is good, but in the past had frequent attacks of tonsillitis, and at 37 years of age was ill with a serious condition diagnosed as general peritonitis.

The paternal grandfather died at 90 years of age, the cause of death was unknown, but he had always enjoyed splendid health. The paternal grandmother died at 66, the cause of death was not known.

The maternal grandfather died at 57 following an operation for gall stones. The maternal grandmother died at 90 years of age, cause of death unknown.

Two brothers living, aged 29 and 31, each enjoying good health and considered successful in the business world.

One maternal uncle had an aneurism of the arch o fthe aorta and suffered with nervous symptoms practically all his life.

The previous history of the patient was as follows: He was considered delicate as a baby, and at three years of age had a severe illness which was diagnosed as whooping cough. Following this illness hay fever developed and patient has continued to suffer yearly with this unpleasant condition. No other illness in childhood except a mild attack of measles at four years of age. The fontanelles did not close until some time in the 'teens.

There was no other serious illness, but relatives recognized the patient was not strong physically, that he suffered from chronic fatigue, and had many symptoms which were classed as "nervous." He was depressed, lacked ambition, and did not seem to obtain any joy in living.

At 22 years of age the patient commenced to use alcohol to excess, and was classed as an alcoholic by his relatives. At 23 years of age, when using alcohol to excess, the patient had an attack of unconsciousness, which lasted 24 hours. At 24 years of age his condition was very bad, and he continued daily drinking to excess for some weeks, at this time he was sent West for six months. While there he had a bad time, and it is believed he attempted suicide—in any event, he took an

overdose of laudanum. Following this he returned home and his mother prevailed upon him to go to an institution for inebriates where he remained for four weeks, and upon leaving showed considerable improvement, but within six months was using various forms of alcohol as previously. In the past two years the patient has been placed in two other "alcoholic cures" three times. Periodic outbreaks occur every two or three weeks, and last for two to three weeks, during which time the patient may disappear from his usual surroundings. The patient is considered agreeable, but not sociable, and may refuse to join a friend in a drink and immediately take several drinks by himself.

At the time this history was taken the patient was just over one of the periodic attacks and refused any medical assistance. He was depressed, morose, and presented many mental symptoms. He appeared weak and emaciated, and in no way could he be classed as a normal man.

Four months later—in April, 1913—the patient was again brought to me, but at this time he was under the full influence of alcohol, as he had been daily drinking whiskey to excess for a little over three weeks.

A complete physical examination was not made until the use of alcohol was discontinued, at which time the following was noted: The weight was 110 lbs., the head and face were asymmetrical. The muscular tissue was poorly developed and the skin was parched. Examination of the eyes showed unequal pupils, the left being dilated, both responding to light and accommodation. There was a marked deformity of the nasal septum. The tongue was covered with a heavy fur and, upon extension, pointed to the right of the median line. The throat appeared negative. The heart action was regular, there were no adventitious sounds present, but the normal sounds were without force. The abdomen presented no signs of rigidity or tenderness, liver dullness was normal.

Rectal examination showed a marked constriction of the anus and a severe condition of external and internal hæmorrhoids. All the deep reflexes were present, both sides equal and no marked exaggeration observed.

The blood pressure by auscultation method was diastolic 70 mm., systolic 116 mm. At this time the patient was morbid, his ideas were slow, he appeared depressed, and had no hope or ambition for the future.

The patient was under active treatment for two weeks when he was sent to the hospital for an operation for the hæmorrhoidal condition He was kept under observation in May and June, during which time he showed some improvement, but he continued to have signs of toxæmia, which refused to yield to treatment. The tongue remained coated, anorexia continued and chronic fatigue was marked. The intestinal tract refused to act without cathartics. Insomnia and many nervous symptoms continued, and the blood pressure remained subnormal. The only true improvement observed was a gain of nine pounds.

On July 2, 1913, the patient reported and was having some difficulty with hearing, also was living in fear of the hay fever he was certain would occur. He was referred to Dr. Haseltine, who reported the deviation of the septum, but in his opinion a nasal operation would not give the patient all the benefit desired. The patient was referred to Dr. Haseltine several times, and, finally, he agreed to operate with the understanding that there would be improvement in breathing, but too much was not to be expected. The operation was performed on July 28, 1913, at which time, in addition to the deformity of the septum, there was found a chronic infection of the ethmoid cells.

The patient's general condition, both mentally and physically, seemed immediately to improve. Much to everyone's surprise there was no attack of hay fever that fall. Also there was no desire for the effects of alcohol.

On December 30, 1914, the patient reported and was delighted with his general condition. Again he had passed a fall without an attack of hay fever. He was in business for himself and feeling physically fit.

In September, 1916, the patient was requested to report. At that time he stated that he had been free from colds since the operation, there was no catarrhal trouble and no attack of hay fever for three years. The appetite was normal, the intestinal tract acted regularly, he slept well, and was free from headache. He has lived a regular life, exercising regularly, playing tennis, golf and hockey. The chronic fatigue has disappeared and physical strength has increased.

There has been no desire for alcohol; in fact, never gives it a thought, although he is with people, both socially and in the business world, who are using it constantly.

His weight was 132 lbs. The blood pressure was diastolic, 80; systolic, 130.

Examination showed the pupils equal, the tongue was clean, and there was no deviation from the median line. The muscular tissues were firm and the skin was active. The general personality of the patient appeared altered. He is now full of life and energy. He is filled with ambition and hope for the future. He is a man!

Although it is impossibe to deal exhaustively with this important subject in the short space of the present article, we may sum up the main points as follows:

1. That each patient must be considered as an individual.

2. That in all cases a detailed examination should be made which includes a careful history, a thorough physical examination, laboratory findings, co-operation with the roentgenologist and the specialist in the various branches of medicine.

3. That the diagnosis of the underlying pathology is often difficult, and in many will be overlooked even by the most careful observer.

4. That the discovery of one pathological condition does not exclude abnormal conditions elsewhere.

5. That after a focus or foci of infection are removed it is necessary to manage the case and not discharge the patient from observation, but to give him every attention and to employ every possible means for him to become physically and mentally fit.

Professor Clifford Allbutt some few years ago advised the medical profession of England to pay less attention to words and more to the patient and we shall do well to bear this in mind in dealing with the subject of inebriety and focal infection.

122 S. Michigan Ave.

With the artificially-fed child, dyspepsia is very commonly symptomatic of infection.

FOCAL INFECTION IN AURAL DISEASE.

GILBERT J. PALEN, M. D.,

Philadelphia, Pa.

FOR many years we have recognized the important bearing which chronic suppurative conditions of the middle ear and mastoid have upon the general health of the individual, and in former writings have pointed out the importance of the careful examination and treatment of these cases. While in our earlier years we were not in a position to explain how these deviations from health were brought about, we knew that we were correct in stating that a variety of disorders could be produced by aural suppuration, because we had repeatedly seen such conditions clear up after eradication of the suppurative aural process.

Clinicians the world over, for a century or more, have noted the association of such conditions as arthritis, endocarditis, chorea, etc., with tonsillar and nasal conditions, but what the special agent was which accounted for such association was not known until within recent years. Through the co-operative work of clinicians and laboratory experts it has been proven that the streptococcus is the main cause for these systemic infections, this acting from a primary focus of infection and from secondary, ofttimes more virulent, foci.

The study of the gradual steps which led up to the discovery of focal infection is a most interesting one. As we read through the literature we are impressed with the fact that no one individual can claim the entire credit of this discovery. It has been brought about by a gradual process, each succeeding investigator profiting by the work of those who have gone before; the impetus of each one's work having been given by the suggestions gained from the work of others. It is true, however, that from among the many who have worked along these lines there are a few who stand out prominently.

We have in former articles* reviewed somewhat the subject of

*Focal Infection, Journal of Ophthalmology, Otology and Laryngology, July, 1915.

Focal Infection, The Hahnemannian Monthly, Sept., 1915.

focal infection and shall, therefore, in this article deal solely with the ear and its bearing upon the subject.

From the work that has already been done, the ear has been proven to be a prominent factor in focal infections. According to some investigators it stands third in the order of frequency, the tonsil being the main offender while the nasal sinuses and the teeth are second in order. As nasal, tooth and tonsillar conditions are much more common than aural conditions, this is probably so, but we believe that the percentage of systemic infections from aural conditions is equally as large as is that from the other conditions named.

A study of the anatomy of the middle ear and of the mastoid shows at once how well they are formed to act as harbors for foci of infection. Here we have typically the recess or pocket formation, bony cavities lined with secreting membranes favorable for pus collection, supplied with warmth; surely ideal incubators for germ growth. In addition, the external auditory canal and Eustachian tube connecting these cavities with the outer surface; the external canal offering marked possibilities for continued aural infection; the Eustachian tube being both a channel for aural infection as well as a carrier for systemic infection.

Within these cavities, during the course of chronic suppurative conditions, are found all the types of organisms which are known to cause infections and under anatomical conditions favoring their growth.

It is proven that infection from these diseased structures may take place:

(1) By drainage into the throat through the Eustachian tube.

(2) Through the blood or lymph systems.

(3) By extension to surrounding structures, the general infection resulting from the secondary condition.

(4) By formation of a secondary foci.

As pointed out in a former article ("Focal Infection," *Hahnemannian Monthly*, September, 1915) we must not assume that a chronic otorrhœa is the primary focus of infection until we have thoroughly examined our case for other foci. In the presence of such foci the history of the case is of value in deciding which is the primary focus. An interesting case illustrating this point is recorded in the above mentioned article (case 4). It is quite common to find in the same

case chronic suppurative middle ear disease with pus conditions in the fossa of Rosenmuller, sinus disease, tonsillar disease or pyorrhœa, and it is ofttimes difficult to decide as to which was the original focus.

It has been our custom for years to thoroughly examine all aural cases. We have laid a great deal of stress upon the importance of a thorough general subjective examination, and have frequently called attention to general disorders which we felt were due to the aural condition. Our study along this line has convinced us that there are few cases of aural suppuration which do not exhibit some general disturbance, either of a mild or severe character, which have often been of long duration. The possible aural cause of these disturbances has been overlooked and the patient treated with no thought of the aural condition acting as a focus. Only by thorough systematic examination has the cause been determined. Every aurist, who has kept careful records, can recall many cases of cured middle ear or mastoid disease in which a marked improvement in the general condition of the patient has been noted.

In many cases the severity of the toxæmia or the condition produced is out of all proportion to the apparent amount of local destruction; in others, while the local destruction is intense, there is either no apparent general disturbance or only mild toxæmia. In the one case there is lessened, in the other increased resistance, or the intensity or mildness of the produced condition is due to the virulency or type of the infecting organism. It is well known that there are great differences in the virulency of the different types of pyogenic bacteria as well as in the different strains of the same type. Local conditions also play a part in virulency by being either favorable or unfavorable to growth of bacteria.

It is unnecessary to mention the various conditions now known to be due to foci of infection, suffice it to say that no organ or tissue is exempt. The systemic disturbances due to aural foci are no different than those due to other foci; they are the deviations from health due to:

(*a*) The infecting organisms, the symptoms of general toxæmia.

(*b*) The result of disturbances of function of the parts affected.

(*c*) Further disorders consequent upon the lowered vitality of the individual.

It is highly important that we are alive to the possibility of an aural suppurative process causing general systemic involvement and

that we, therefore, thoroughly, systematically and carefully examine such cases, so that we may early recognize systemic involvement and institute proper treatment.

Patients suffering from focal infection are prone to complain of general lassitude, inability to concentrate the mind, dull stupid feeling in the head, drowsiness, dull pain in the occipital and cervical regions; mild depression, or, in more severe types, even suicidal tendencies; in other words, the symptoms of toxæmia just as found in intestinal or other toxæmias. Continual toxæmia leading to lowered resistance, we find these patients taking cold easily, due to changes in the nasal mucosa or the mucosa of the sinuses. Because of an existing intestinal stasis these toxic symptoms may be attributed to that as a cause and the case so treated, when the aural condition may be the focus causing the entire syndrome.

While there are a few cases of chronic suppurative otitis media and mastoiditis which demand radical operative treatment, the vast majority we believe are capable of cure by thorough local and general treatment. The establishment of free drainage, careful frequent thorough cleansing of the ear, including the Eustachian tube, together with vaccines and general treatment, will result in a cure of many cases.

2102 Chestnut St.

The man of great financial prominence had met with an accident. "We'll have to probe," said the doctor. Just at that moment the man recovered consciousness, and exclaimed: "If it's a surgical operation, go ahead, but if it's another investigation, give me an anæsthetic."—*Nebraska State Journal.*

THE RELATION OF MAXILLARY SINUS AND DENTAL INFECTIONS.

Ira O. Denman, M. D.,

Toledo, Ohio.

MAXILLARY sinus and alveolar process infections are not pathologically different from other focal infections. However, there are some points which will bear emphasis, and I shall also repeat herein some new ideas regarding the relationship of these two fields which I presented in a paper before the joint session of the National Dental Society and the Interstate Association of Anæsthetics at Louisville, Kentucky, July, 1916. (*American Journal of Surgery, Anæsthetic Supplement,* Dec., 1916; *Dental Summary, Dental Cosmos,* and *National Dental Association Journal,* Dec., 1916.)

Due credit must be given dental pathologists for their invaluable contribution to the fund of knowledge concerning focal infection, and I would not minimize their accomplishments, but rather would I congratulate dentistry for the great amount of scientific research which its workers have made, and we rhinologists are proud to recognize them as co-workers in the field.

There are, however, some border-line controversies which I wish briefly to discuss.

The maxillary sinus or the antrum of Highmore has been long and still is claimed by our friends, the dentists, as their property. A deliberate verdict would not condemn them for this when we reflect that they have priority rights by reason of discovery. Dentists have been extracting second bicuspids and first molars and draining "antrums" through their sockets into the mouth long before the rhinologist was born. The fact that some of these cases were cured by such drainage and ventilation encouraged them to continue to extract diseased teeth and sound teeth as well, which were painful because of inflammation and pressure within the antrum. The dentist's opportunity to administer to these cases is more abundant than any other practitioner, because the vast majority of such patients have a toothache as an early symptom, and, therefore, first consult the dentist.

The dentist is still further justified in his line of treatment by occasionally finding a diseased root which no doubt in a small percentage of maxillary sinus infections is the ætiological factor. But who can estimate the number of sound teeth sacrificed in ineffectual efforts to cure a suppurating maxillary sinus which is being constantly fed by pus from the opposite side of the cavity.

Comes now in recent years the rhinologist, whose interpretation of the anatomy, physiology and pathology of the upper air passages with their accessory spaces, not only broadens the scope but puts a new light upon some of the older theories. We now see a *group* of sinuses of which the antrum of Highmore is only one, and most noteworthy is it that nature has placed it in the most dependent position of all where by gravity the infected secretions from all the others may flow into it through its natural osteum with which it communicates with the *nasal cavity*. This is another feature for emphasis. The maxillary sinus is an accessory *nasal* cavity and not an accessory *oral* cavity. Furthermore, the rhinologist's physiology teaches that the nasal accessory sinuses are lined by the same kind of membrane which lines the nasal passages, and that they assist in moistening and warming the air we breathe. We learn also that inspired air is constantly laden with bacteria, many of them pathogenic, and that frequently an infection of the nose and sinuses occurs, and that the area most often attacked is the superior portion in the region of the middle turbinated body. The sinus most often involved is the ethmoidal, then the frontal, and, thirdly, the maxillary. The location of the maxillary being below the others, subjects it to secondary infections from the others above, and its natural opening being high, near its roof, its drainage is thereby rendered more difficult. At the most dependent portion of the maxillary sinus, over the alveolar process, the roots of one or more teeth penetrate upward through the floor of the sinus into its cavity, and here we find the clew for the dentist's claim on the sinus. They would have us believe that 75 per cent. of antrum infections are due to dental *caries* (Brophy, Oral Surgery). I maintain that this percentage should at least be reversed, if not reduced still further to perhaps 5 or 10 per cent., of all cases arising from dental infections. In view of the anatomical position as emphasized above, is it not reasonable to conclude that it is well within the range of possibilities for dental caries to

be secondary to a maxillary sinus infection, which gravitates to the most dependent portion and perhaps lies imprisoned there sufficiently long to necrose the tips of the teeth roots where they penetrate the sinus. Color is lent to this theory by the clinical history of such patients. Few cases of maxillary sinus infection are seen which do not present either a co-existing or signs of a pre-existing nasal affection.

All honor to the dental profession for their conscientious efforts to control and cure these antrum cases, but it is time for them to be relieved of the majority of the responsibility which they have assumed for it.

The treatment of maxillary sinus as well as other sinus infections is ventilation and drainage, which must be secured through the nasal passages. If the patulency of its natural osteum cannot be sufficiently restored to secure this, then surgery must supply an artificial orifice for the accomplishment of these two requisites for a healthy sinus. Drainage of pus into the mouth by extracting a tooth is unsanitary and irrational, and its practice will no longer stand scientific scrutiny.

Antrum infections are the *bete noir* of most dentists, they are not prepared to cope with them, and so soon as they decide to share these cases with the rhinologists both they and their patients will be much happier.

425 Ohio Bldg.

A LARYNGOLOGICAL LIMIRICK.

A maiden, who wore a large goitre,
Was afraid that her beau would desoitre;
Her poor brain was wracked
Till she thought it was wcracked,
For she feared operation would hoitre.

—*Pickwick.*

EYE SYMPTOMS SECONDARY TO FOCAL INFECTIONS.

J. J. Wynn, M. D.,

Louisville, Ky.

IN considering the eye symptoms due to focal infection one is impressed by the fact that the physician of to-day needs a very broad vision, one that can go over the entire body and hunt out the hidden point of disease and correlate it to the eye. Since these cases are first seen by the family doctor, on him rests a large share of the responsibility, for in studying the case the oculist needs his co-operation and advice. These cases need good team-work if we are to get at the root of the trouble, which may be in the teeth, tonsils, intestinal tract or urinary organs. The eye symptoms may vary from a mere temporary blurring of vision to the most severe inflammation of the iris, ciliary body, optic nerve or glaucoma.

The regional anatomy of the eye is of first importance in studying this subject. We must remember the close relationship of the nasal accessory sinuses, whose walls are very thin, allowing an easy extension of inflammation by continuity or through the many venous and lymph channels. The floor of the frontal sinus forms a large part of the roof of the orbit, while the ethmoid cells are between, and the maxillary sinus forms part of its base. The optic nerve is closely related to the ethmoid and spheroidal sinuses in many cases, so that inflammation in these cells is frequently associated with visual disturbances.

The arterial supply is through the ophthalmic, a branch of the internal carotid, while the veins drain into the ophthalmic vein, then to the cavernous sinus and the general circulation. The lymph channels, which are very numerous, are divided into an anterior and posterior set. The anterior set drains into anterior ciliary veins through Schlem's canal, while the posterior ones drain into the subdural and subarachnoid spaces of the brain.

Starting at the head we find of first importance infections of the mouth and teeth. Much has been written and studied in recent years of the systemic effect of abscesses at the roots of the teeth, and from

pyorrhœa alveolaris, and many cases of iritis, choroiditis, hazy vitreous, etc., have been cured by good dentistry. In a review in the *Arch. of Ophthalmology*, March, 1913, Terson shows that diseased teeth may cause blepharospasm, abscess of the lids, paresis of the muscles, and corneal ulcer. These may be caused by direct mechanical irritation of the nerve trunks or terminals by inducing atrophic or nutritional neuroses, thereby lowering their own resistance as well as that of the immediately adjacent structures.

Ibershoff reports a case of sudden impairment of vision in a young woman of apparently good health. There was no inflammation or pain in the eye, no increase in tension, and the pupil reacted normally, but the vitreous was full of floating opacities. Careful examination showed no sinus or nasal disease, but the teeth were in very bad condition with numerous cavities. After about a month under a competent dentist vision had become normal and all opacities cleared up. The doctor reports a later series of cases ranging from floating spots, temporary diplopia, photophobia, lachrymation and phlyctenular conjunctivitis, all of which were cured by appropriate local treatment to the eye with good dentistry and care of the general health.

In nasal disease Dowling was one of the first to point out the relation between sinusitis, especially of the ethmoid, and glaucoma. In 1910 he reported to the O., O. and L. Society a series of cases that were cured by nasal treatment.

I would say, in passing, that a mere cursory examination of the nasal fossæ will often fail to reveal sinus disease that is causing the most severe focal symptoms. It must be most thorough and painstaking to be of any value, and I have found great help from the use of Dowling's tampons, which consist of a cotton tampon about two and a half to three inches in length, soaked in argyrol, 10 per cent. solution, and placed in the middle meatus for about fifteen to thirty minutes. If the sinus is affected there will be a free flow of muco-pus, and the tampon will be discolored. This is not only a method of diagnosis, but also the best form of local treatment in these chronic cases, if they are not operable. The benefits obtained are due to the effects of induced capillary attraction, which drains the ethmoid cells of retained secretions and depletes the turgescent soft tissues. The immediate effects produced by the tampons are conjunctival congestion, sneezing and a flow of muco-pus.

At the present time I have a patient, age 68 years, who has had a chronic frontal and ethmoidal disease for years, and due to her general enfeebled condition it is impossible to do any operative work that would allow constant drainage of the cells, and cure the case, so she takes treatment only when there is an exacerbation of her symptoms. About the middle of October she reported with an inflammation of the left eye of several days' duration. There was slight ciliary injection, pain in the eye and radiating to the forehead, with diminished vision and a dilated pupil, and increased intra-ocular tension, in fact, a case of subacute glaucoma. This eye had been subject to attacks of iritis in the past, and the vision had been reduced as a result of deposits on the posterior surface of the cornea and synechia between the iris and lens. Treatment was instituted toward the relief of the sinus disease, and locally, eserine ¼ per cent. solution, was dropped into the eye every three hours. After a week to ten days there was relief of pain and congestion in the eye, and the tension was normal. The nasal treatment has been continued with marked improvement there also.

Dowling claims to find sinus disease in almost all cases of glaucoma, and while his ideas were opposed at first, we are more and more coming to believe that he is right.

Another case showing the effect of nasal disease on the eye is as follows: Mrs. C. came to me in September of this year complaining of inability to do any close work without great discomfort in her eyes, especially the right. There was no external sign of inflammation, and distant vision was good. She had been wearing for four years O. U. + .75 D. s. = .12 D. c. ax. 180, with perfect comfort and normal vision. Testing with the trial case showed no changes were needed in her glasses. Nasal examination revealed an enlarged and bulbous tip of the right middle turbinal, which pressed tightly against the septum. This was removed with a wire snare and proved to be undergoing polypoid degeneration. There was an immediate relief of all symptoms and since then she has had perfect comfort with her glasses. This enlarged tip, by blocking drainage in the upper part of the nose, was evidently causing a sinus congestion that was extending to the internal rectus muscle, and caused the pain on convergence. This patient was also treated for a couple of weeks after the operation with Dowling's tampons.

Optic neuritis and its sequelæ atrophy are to be placed at the door of sinus disease in many cases. When we consider the close anatomy of the parts, especially of the ethmoid and sphenoid cells to the optic nerve, we are not surprised that inflammation of the nerve so often accompanies sinus disease. The nerve may be affected by direct pressure, or pressure on the nutrient vessels, local œdemas or through the action of toxins. Necrosis and perforation of the bone are not essential to the extension of the process, as it may be caused by the venous anastomoses that exist through the mucous membrane and dura mater.

A one-sided neuritis or atrophy is very suspicious of sinus disease. As a rule, the neuritis is of low grade, there being only slight blurring of the edges of the disc, with distended veins, and impaired vision. There may be some contraction of the color fields, but the field for white is usually normal in the early stages.

Disease of the uveal tract, including iris, ciliary body and choroid, is frequently caused by inflammation of the mucous membrane, as shown in an extensive report by Chas. Goulden in the Royal London Ophthalmic reports. In 37 cases of iritis, 16 were due to gonorrhœa and 19 to syphilis. In 142 cases of irido-cyclitis diseased mucous membrane was found in 78 cases, 64 being due to septic teeth. In 9 cases of disseminated choroiditis one was due to septic teeth and in four cases of a single patch of choroiditis all were due to diseased mucous membrane, and two were from the teeth.

Gonorrhœa is frequently a cause of iritis, especially in the well established cases with arthritis and fever, for in these cases the gonococcus is circulating in the blood stream, and is carried directly to the eye. It may cause a slight inflammation or a most extensive plastic irido-cyclitis, and it is reasonable to suspect this as a causative factor in those recurring cases without outside infection, for it has been proven that the gonococcus may remain viable in the deep urethra, prostate or seminal vesicles for years after the original infection.

Septicæmia, especially during the puerperium, or in acute infectious diseases as typhoid or meningitis, is frequently followed by an acute suppurative choroiditis or panophthalmitis, shown by the appearance of intense swelling of the lids, pain in the eye, inflammation of the conjunctiva and iris, with the appearance of pus in the anterior chamber,

and later, the entire eye becomes a mass of suppuration. However, if the organism is non-pyogenic, there is set up a plastic inflammation of the retina and choroid that causes blindness without an external sign of inflammation, and is only diagnosed by the ophthalmoscope.

This is a very brief review of some of the more important eye symptoms and diseases due to focal infection, and if it serves as a hint to this large field that has been, and is being, opened up for the study and cure of disease, it will have served its purpose.

PASTEURIZING MILK.

Any housewife can pasteurize a one-quart bottle of milk by boiling two quarts of water in a ten-pound tin lard pail, placing the slightly warmed bottle from the ice chest in it, covering with a cloth and setting in a warm place. At the end of one hour the bottle of milk should be removed and chilled promptly. *The water must be boiled in the container in which the pasteurization is to be done.—Health News,* Sept., 1916.

FOCAL INFECTIONS IN RELATION TO GENERAL SURGICAL CONDITIONS.

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Ann Arbor, Mich.

THESE remarks will be limited to the consideration of foci of infection located in the mouth, nose, throat, ear and accessory sinuses and their influence in the production of certain surgical lesions more or less remote.

A careful study of the history of patients presenting the more common surgical diseases is frequently surprising. A definite chain of events may be notated, beginning ofttimes in childhood and continuing down to the present. These events being correlated from the standpoint of common etiology. We are justified, at any rate, in assuming this common etiology from the trend of recent bacteriologic research.

The so-called "Streptococcus History" is common in every clinic, whether medical or surgical. This history begins with a tonsillitis or scarlet fever, the latter quite frequently being complicated with a more or less severe nephritis; this is followed by recurrences of "sore throat" and possibly one or more attacks of rheumatic arthritis may have intervened; at times the patient has been told by the physician of a valvular heart lesion. The final link in the chain may be discovered in an attack of appendicitis, which has been influential in bringing the patient to the surgeon for treatment.

Some such story as the above with various modifications is frequently found when a careful study for the chronological sequence of events is made. To ignore such a history mitigates against a good result from the surgical procedure. This sequence is more definitely followed in chronic abdominal lesions and with greater difficulty elsewhere.

Appendicitis, gall bladder disease and ulceration of the upper gastro-intestinal tract are the more common abdominal diseases, and when studied from the standpoint of ultimate etiology they present many features in common. Quite a proportion of the cases will present the streptococcus history or a similar history implicating some

other organism. The events in these histories will vary in kind and sequence, but a definite chronologic sequence may unfold itself. There may be a middle ear disturbance with exacerbations and remissions running through several years, a chronic sinus involvement varying in intensity at various times; recurrent attacks of erysipelas associated with tonsillitis are not uncommon. Furunculosis, pyorrhœa and repeated "catching cold" are some of the variations. The statements made by the patient relative to his more remote previous history are too lightly considered since no importance is attached to them by the patient himself.

The individual with an old infection in the nose, throat, ear or accessory sinuses is reasonably safe from involvement of distant areas just so long as his resistance is not lowered. The leucocytic barrier is sufficient to protect the rest of the body. Exposure, over-exertion, trauma, dietary indiscretions, etc., may break down this barrier just long enough to permit secondary deposits of septic material. This deposit is more apt to take place in organs less thoroughly protected by nature. For instance, the anatomy of the appendix and gall bladder render them peculiarly susceptible; in either case a slight inflammatory process near the opening transforms them into closed cavities. The relatively poor lymphatic supply of the gall bladder as well as its pendulous position makes it still less resistant. The appendix is constantly in the path of infectious material from the intestinal content and from the portal stream and, as a consequence, is readily involved. Nose and throat lesions may discharge infection by way of the gastro-intestinal tract, but the more plausible route is the blood stream.

It is less easy to explain the frequency of pyloric and duodenal ulceration on the ground of anatomic weakness, but it is well to remember the frequent traumatic influences brought to bear by the passage of food. The history in these cases shows quite a number of instances which may be explained only on the ground of metastasis.

While the internist has long recognized the close association of diseased tonsils with rheumatic fever and heart lesions, it is only recently that infection from a distant focus has been studied in clearing up the etiology in a large group of joint troubles. Gonorrhœa, typhoid and tuberculosis are not the most common causes of surgical joints. Pyorrhœa, sinus disease, middle ear disease and the much maligned tonsil

are frequently etiologic in mono-articular as well as polyarticular joint involvements. Therapeutic measures directed elsewhere than to the primary focus are useless and unscientific.

Evidences of infection from nearby foci are less frequent. A good illustration is cervical adenitis. Glands of the neck have been removed again and again in the same patient when a tonsillectomy done at the time of the first operation would have been sufficient. A pathologic examination of tonsils removed from children with enlarged tubercular glands of the neck will frequently disclose the active focus. Cervical adenectomy without preliminary tonsillectomy is not good surgical practice.

We have seen two instances of apparent cure in toxic goitres by surgical procedures aimed at remote foci. The first case had marked relief twenty-four hours after tonsillectomy, and the second had a complete subsidence of symptoms one week after a radical ethmoid operation. The connection between thyroid intoxication and the infected foci is difficult to point out, but, clinically, the association was marked.

The field opened up by the consideration is so broad and the possibilities so unlimited that nothing more than a few observations may be presented. Suffice it to say that by considering infection from remote foci we are approaching closer the true etiology in a large number of hitherto misunderstood lesions.

815 Forest Ave.

"Cleanliness is the watch dog of the healthful home. Diseases find it hard to enter any home when guarded by cleanliness, both of person and things."

PROSTATIC INFECTIONS.

FRANK WIELAND, M. D.,

Chicago, Ill.

AS time goes on, and the search for first causes becomes more watchful, the part that the prostate plays in the male economy is more and more recognized. I feel that I am safe in saying that there is no gland in the whole body that may so modify the comfort and the health of men past the age of puberty. We all know that the prostate is one of the largest factors for disease and finally death in men past fifty-five years of age. It then enjoys the paradoxical position of being a physiological cause of grave pathology. If one could only put aside his prostate, as he does other childish things, and hang it up in the closet with his other mementoes of other days, it would be a happy solution of most of the problems that confront late middle life. But the prostate is a real Frankenstein. We cherish it and glory in its activities, and when one has reached the top-notch of success, and is ready to settle down to the enjoyment of a life of leisure, after fifty years of arduous work, up bobs the prostate to upset all of one's plans. It has been almost the last organ in the whole body to be studied critically. And yet, in its relationship to obscure infections, it rivals tonsils.

Any plan of treatment that considers only results and disregards causes is doomed to failure. Many genito-urinary men, in consideration of an urethral discharge, are inclined to treat the discharge with no attention to the things back of it. When we hear of gonorrhœas lasting months and years, when no self-respecting gonococcus wishes to survive beyond the sixth week, we know that somewhere there is a reservoir of pus, and that the urethra is only a fistulous tract, so to speak. As this symposium is on focal infections, why may not the lowly prostate come into its own, and take its place in the receiving line with the teeth, the middle ear, and the tonsils. If it should be awkward in so polite society, it is because it is not used to good company and is in the climber class.

If one cares to study the anatomy of the urethral tract, which

few do so care, the only wonder that will come to him will be that all gonorrhœas do not invade the prostate. The gonococcus delights in heat, in moisture and in darkness. The urethra offers him little privacy, and he is more constantly in danger of being drowned than a resident of Cincinnati. Being of a shy and retiring disposition he naturally objects to the introspection of his host, who counts that day lost that does not begin with a stripping of the urethra, to see if there is any discharge. Now most urethras will eventually supply some sort of discharge, if they are massaged long enough, although it is a habit I cannot recommend, even to a conservative crowd like this. The outraged gonococcus takes refuge in flight. The orifices of the prostatic ducts offer him sanctuary. He enters, and he does not leave hope behind. In his secret heart he knows that not one physician out of ten is going to seek him in his lair, and rout him out. Nine men out of ten will continue to treat the urethra, which is as unoffending as the external ear.

The persistent morning drop never means an urethral patch. Any discharge that keeps showing up, after a night of dissipation, is not of urethral origin. Always there is back of it a reservoir of pus, and this is most often in the prostate. No one absorbing pus is ever quite well. So we have the malaise of toxæmia, the worry of an uncured gonorrhœa, and the mental depression of the fear of impossibility of cure. Nothing is so simple as the cure of these cases, if one goes about it in the right way. If a man has led a promiscuous life, even if his genital symptoms are very little in evidence, if he has occipital headache, and irritability and mental depression, if he is nervous and introspective, search the prostate. I had this impressed upon me by the wife of a prominent banker in Chicago, who said to her husband at breakfast: "Do stop in and have your prostate massaged, on your way home, dear. You are getting so irritable." So if one wished to have an early morning office hour, he might advertise to sweeten tempers for the day's work.

Seeing many prostatics, of one type or the other every day, I have come to some conclusions that I know are correct. Ninety-five per cent. of all gonorrhœal cases have a prostatic involvement. This does not mean that gonococci are always found in the prostatic secretion. Frequently the gonococci have died out, leaving only the pus infection.

This will spare the wife, as the average mixed infection never does more than cause a leucorrhœa, or an endometritis, both of which are fairly easily controlled. But even if gonococci are not present in the prostatic secretion, the morning drop will be there, to worry the patient, and the latter will be much more susceptible to subsequent infections.

I can best show what the burden of my plaint is by a few cases that are quite characteristic of the majority.

Mr. X. was in the Mercy Hospital thirteen months with gonorrhœal rheumatism. In the time he had every known treatment but the right one. He had three hundred injections of anti-gonococcus serum, his legs were in plaster, they were in extension, etc. He left the hospital wretchedly lame and despondent, after over a year of inactivity. He was sent to me. We stripped out an infected prostate, getting a quantity of dark and disagreeable pus. His recovery was magical. He now drives a car, using both feet for the brake and clutch, and quite recently I saw him dancing at a down-town cabaret. What earthly good could serums and vaccines do when the reservoir of pus remained untouched? He has become a good advertiser.

Mr. X. His wife is an invalid, his stenographer has red hair. A hastily cured gonorrhœa left him a nervous wreck. His occipital headaches were so intense that he became delirious. His prostate was found to be as large as one's fist, filled to bursting with us. Massaging this has cured his headaches, his prostatitis, and his mental attitude towards red haired secretaries. He had gone meantime, on a long vacation, during which time he had gotten steadily worse. He has never had a headache since his first massage.

Mr. X. has been married six years. He has had no discharge since long before his marriage. But he has had at times a suspicious morning drop, which would not recur, sometimes for weeks. His wife, meantime, has developed an infected kidney and has a persistent leucorrhœa. The marriage has been childless. An examination of his prostate showed both pus and gonococci.

Mr. X., a farmer, aged 28, married, developed enlarged inguinal glands, on both sides. One always thinks of syphilis in such cases. But he had no syphilis, had never been exposed to it to his knowledge, and, living on a farm, had little opportunity of picking it up, adventitiously. He had been examined several times, had been treated for many things.

The most superficial examination of his prostate showed carcinoma, a rare trouble for one of his years, and quite incurable.

These are only incidents to demonstrate a point. I have always taught my students that any examination of a man that did not include his prostate gland was only half done, and hence of little value.

Volumes could be written on the relationship of the prostate to sex neuroses. The cause of these irregularities is plain, if one stops to think a moment. In late middle life sex gratification at home, at least, is not always possible. If a man has much desire, and no relief, his prostate is going to become engorged with fluid. The pressure of this, upon the ends of the seminal vesicles, is bound to produce a persistent sex-nagging. In the end he is apt to do some things that the world at large is going to regard as foolish. What he regarded as sex desire was only sex-irritation. This can be overcome by massage of the prostate. Any other treatment, such as sedatives, is superficial and will have no results.

If your patient is a male, past twenty-five, and has vague urethral symptoms; if he has a morning drop, many months after a gonorrhœal infection; if he loses prostatic fluid, which he will interpret as semen, during bowel actions; if he has occipital headaches; if he has great sex desire, with a poor quality of power; if his case is in any way obscure, search the prostate. Your reward will be immediate, and so will his.

122 So. Michigan Ave.

DISCUSSION ON FOCAL INFECTION.

Dr. Ferree: In medical meetings gone by we listened to this sort of thing. Mrs. J. would go to her doctor with a peculiar pain in a peculiar location, etc., etc. The aforesaid doctor, in his intelligence, would select the remedy. In due time the patient would part company with her pain. Now the medical man, in his superhuman way, discovers "Focal Infection," and proceeds to cure his patient by ridding him of this lesion.

Is there a great difference in the method of reasoning in the two incidents? Does it necessarily follow that the point of infection is the direct antecedent of a given sickness? Is this the kind of reasoning that a physicist uses in solving his problem?

Just two cases: Mr. C., age 40, right eye began to pain and present the picture of an iritis. In taking the case, a bad tooth was found, very

offensive. The tooth was taken care of and the case treated under counsel up to the most approved methods. Not only did he lose the original eye but the other one. Here was a "focal infection," as I take it.

A Chicago clergyman had repeated attacks of iritis, treatment up to the minute, with the result that this eye was enucleated. In a short while the other eye began in a similar way to the one enucleated. This created a more diligent search with the discovery of a gonorrhœal prostate. An autogenous vaccine was given him with very happy results.

In all fairness, is this a Simon-Pure case?

Dr. Cornell: Dr. Ferree spoke about team work. Sending patients from one department to another in a clinic does not accomplish the purpose unless the case is discussed at a "round table." You can't get any accurate information unless you get together and talk the case over. Rosenow's work is fully described in a book, published within the last ten days on Focal Infection, by Billings. I did not think about his work because I believe most of us are familiar with it. I don't think any man at the present time has done more on focal infection work than he.

Regarding the operation for entering the antrum. One of the doctors mentioned that it was wrong for dentists to go through teeth sockets. Many dentists treat antral infection by boring above the canine tooth root, thus draining the lowest part of the antrum. I have seen some very good work done by Brophy in this manner. The wound heals over and leaves the antrum in a normal condition. I see some of you shaking your heads. Brophy's results are good.

Regarding filling of teeth, not getting the nerve, etc., I agree that many times roots are curved but many dentists to-day take X-Ray pictures and see they are properly filled before putting on crowns. This practice will eliminate, as much as possible, the dangers of a subsequent focal infection.

As to the question whether vaccines are of any value. That subject is very big. If I had vaccines made from each particular case and injected them, I don't believe they would have accomplished any more. Let the patient rest and build him up with good food and elimination. I think that the resistance at the time of the operation is very low. A very large raw surface is made and there is great absorption of toxins.

I think that the injection of vaccine at that time would be very apt to do more harm than good. The place for vaccines is principally prophylactic against rather than a cure for disease. In 1898, at the time of the Spanish-American War, the death rate from typhoid was tremendous. Much more than from bullets. To-day, down at the border, there are, I believe, less than ten cases. In the case that Dr. Koons mentioned in which vaccine was used following massage of the prostate, I am rather inclined to believe he would have gotten the same results without the use of vaccine.

Gonorrhœal vaccine produced very little effect on any condition except possibly gonorrhœal arthritis. That is the one exception.

Dr. W. H. Phillips: It would be difficult, Mr. Chairman, to add much of value to what has already been said, for the field has certainly been well covered. The most that any of us could do would be simply to add testimony in the shape of cases. One thing I should like, however, woud be to have Dr. Haseltine apologize to this crowd for his paper. I think any man who would call focal infection a "fad" in the face of what has already been said here ought to be made to apologize.

I want, if I may, to take a few minutes of your time to just cite a single case to show, however, that we cannot be too careful, and that everything is not due to focal infection. Three or four weeks ago a man of 35 came to me complaining of gradual loss of vision. Last February he became conscious that he was not seeing clearly and went to see an oculist. The records of his vision at this time showed 20/30 V. O. U., with normal fundus. Later, feeling that his vision was still decreasing, and having some little catarrhal trouble he consulted a rhinologist. A sinus plate was made and a frontal sinusitis diagnosed. A portion of the middle turbinate was removed and the sinus drained from within. From his report no purulent infection was found, but after this his vision rapidly deteriorated. He was referred to another oculist, and the record of his vision at this time, with several tests, showed R. 20/80 to 20/200, L. 20/200; fundus showed pallor of the temporal halves of both discs. No diagnosis was given, and not being satisfied, he consulted another oculist with no more definite results.

At the time I saw him he was wearing — 4.00 lens O. U. With them his vision varied in R. from 20/200 to 20/60, L. 20/200. Fundus showed temporal pallor, both discs. Pupils active to both light and

accommodation. R. field showed a temporal hemianopsia, not absolute, as there were still islands of vision present. L. field showed narrowing on the temporal side, an enlargement of the blind spot, and a central scotoma for red and green. His reflexes were generally somewhat increased, no headaches, apparently no loss of mental acuity, no vomiting, pulse 74, Wassermann negative. A plate of the sella turcica showed small sella of the bridged in type. In the absence of any positive signs of pituitary lesion as he had none of the changes of dispituitarism, I had his teeth X-rayed on the hypothesis of a toxic neuritis from focal infection. Three large abscesses were found in the upper alveolus.

About this time, with my consent, he consulted a well known internist who came to me with the statement that the patient had a bitemporal hemianopsia, and, therefore, an hypopseal lesion. As, in the face of the plate and my findings at the perimeter and the total absence of headaches or signs of dispituitarism, I could not accept this diagnosis; he visited another oculist. This man confirmed my field findings, but diagnosed a lesion of the pituitary body. Finally it was decided he should go to Boston to consult Dr. Cushing. Here the fields, the findings of the X-Ray and the Wassermann were confirmed, also the total lack of signs of dispituitarism. A diagnosis of some supra-sellar lesion, cyst, aneurism, or solid tumor making pressure upon the chiasm, was made, and operation confirmed the diagnosis by the finding of a semi-solid, non-vascular growth, the classification of which I have not yet learned.

The point in the citation of this case is this: Many cases of optic neuritis and optic atrophy have been reported as toxic and associated with supposed sinus infections or focal infections somewhere. Here was a case, which from the dental findings, might easily have been included in this class, and the temptation was strong to so include it in the absence of positive pituitary symptoms. I am wondering, as I look back on the case, how many of the so-called cases of toxic neuritis, followed by atrophy, and reported as dependent upon focal infection somewhere, were really cases of pressure atrophy undiagnosed.

Dr. Koons: As the baby of the bunch, I would very much appreciate being present in the role of a listener. I had one case that seemed to be a focal infection. A young man came to me suffering

with a chronic conjunctivitis. He had consulted several oculists without relief. I found a few slight errors in his refraction, but not sufficient to account for the condition. I then examined his nose carefully and found a deflected septum and a very much engorged right turbinal (middle). I did a submucous and removed a part of the offending middle turbinal. To his delight and mine the whole condition cleared up. I saw him last week and he has had no reutrn of the eye trouble.

Another thing. As Dr. Cornell says, one of the biggest things is a careful and thorough examination. In the routine of a busy practice we are all apt to let the presence of the patient in the waiting room act to speed us up a little on the one in the examining room to the detriment of both the patient and ourselves. Many times we miss the crucial point in the case and get only the superficial ones, just as the other fellow had done. The point that had cansed him to fail gets by us just as it did by him.

Dr. A. C. Minor: There are several hundred other dentists in this city, and because I am the only one here and available, you call on me; reminding me of the stuttering small boy whom a traveling man asked for information that he might be directed properly. It was terribly embarrassing for the small lad, and that is the way I feel; the small boy was the only one in sight and that is likewise my position.

I hardly know what to say, gentlemen, about focal infection to you, who know so much more than I about it. Your discussion has touched upon the teeth pretty much here to-day, and I might say a few practical words about them relating to your subject, keeping away from the scientific or theoretical aspects, for I am not prepared to speak from that angle. Focal infection, attributable to teeth, arise from various causes. Ill-fitting crowns, poorly constructed bridge-work, clumsy fitting partial plates, crudely inserted fillings, which impinge upon the soft gum tissues, setting up irritations, with inflammation, suppuration and infection following. The poisoning of the peridental membrane and socket structure with the resultant absorption by the system of this toxic element is enhanced by the driving action of the articulating teeth. Remember that the jaws in articulation can exert a pressure of approximately one hundred and fifty pounds to the square inch; a tooth with such a pressure at one end, and an abscess sac at the

other, acts like the piston of a powerful pump; out goes the pus into the adjacent areas and tissues and focal infection is the result.

Consider again broaches broken off in the nerve canals, or forced through them into the process, or nerve endings left in root canals. Remember we can not get every particle of nerve out of every tooth. The nerves are in such fine canals, sometimes microscopical in diameter, that the smallest sized broach will not reach to the nerve end, or even enter the canal. Again, the type of root may cause you to leave a portion of a nerve. You must understand that roots buckle over, curve, have crooks, and oftentimes are twisted so you can not follow the canal with any broach. So do not censor us, we don't always have straight or large canals to deal with. Now, the nerve ends that we do not "get" develop abscesses at the apical end of the roots, and, perhaps, all unknown to you, you will be tolerating this abscessed condition quite serenely enough, until some sweet day you will discover a fistula over the gum, opposite the root end, or from other indications you find out positively, about it. Meanwhile you have been accommodating that tooth and absorbing all the poisonous by-products, and with one or several teeth of this character you, as doctors, know the harm done better than I.

Now don't send us your suspicious cases and expect us to examine the teeth and positively locate all the offenders of this class. We diagnose by tapping the teeth, and by the color of a tooth or the history of it, or by its being loose, that probably it has a diseased root, likely has an abscess there. However, we can't see the root end, and we can't always tell you positively what you want to know, though in most cases we are pretty accurate. If you want a positive diagnosis, however, at least far better than ours use the X-Ray, for, as I say, we are not always sure. Any practical dentist will agree with me that we do not locate all teeth that are bad of this class; we miss them now and then. Should you take an X-Ray before you send your patient to a dentist you will be better posted, and if infected areas are visible, a good pair of forceps will effect that local cure. As a rule, we dentists X-Ray those teeth only of which we are suspicious and can not determine their true character otherwise. Dentists of the ultra-conscientious class, who tried hard to save all abscessed teeth, admit to-day that they did far more harm than good, whereas the less conscientious

chap, who would not bother with this extremely difficult task, in reality better served the public, though his motives were not as high.

Therefore, gentlemen, if you wish to eradicate abscessed sacs and eliminate focal infection due to teeth, use the forceps since only a select number of abscessed teeth will respond favorably to treatment through the root canals.

Dr. Blackburn: The physician of to-day who does not take into account focal infection as a causative factor in disease, is overlooking the excellent research and experimental work which has been done in very recent years.

While there is some danger that we may go to extremes in the matter, yet I believe that we have found, in the various focal infections, a cause for many systemic diseases which heretofore have been obscure. In the past we have heard much of auto-intoxication, acidosis, etc., as a cause of disease, and we cannot gainsay the fact that these agents are in many cases an important etiological factor. With our attention now called to focal infections we have with autotoxicosis and acidosis a trio which may be the means of telling "why it happened." Many of our infections, of course, come from without, but invading bacteria must find conditions within the body favorable for their deadly work, and thus we see how focal infection may keep the body in a state of lowered resistance thus not only being a cause itself of disease, but a predisposing cause for outside invasion. By maintaining a proper balance in the body between waste and repair, we are able to ward off disease. There is constantly being formed in the body a certain amount of waste matter which must be eliminated by the proper organs. If we have within our bodies areas of focal infection there is more or less toxic material from these areas, being carried through the blood and lymph streams which puts an extra amount of work on the eliminative organs. In this the organs become overworked. The protective forces of the body are weakened, we are subject to an offensive campaign by the invading enemy which we have been harboring within our own bodies and are quite likely to succumb to these attacks or at least to be badly crippled.

The real physician to-day recognizes in his patients areas of focal infection when present, and is prompt in advising the patient what to do to clean up these areas, and loses no time in applying the proper remedy, whether it be medical or surgical or both. Diseased tonsils

and gums, chronic catarrhal affections of the accessory sinuses of the nose, chronic suppurating ears, diseased prostates, infected fallopian tubes, infected nails, etc., may each or all be an exciting or direct cause of some systemic disease among which may be mentioned endocarditis, inflammatory or other forms of rheumatism, nephritis, ovarian abscess, appendicitis, cholecystitis, pyelitis, gastric or duodenal ulcer, urticaria, eczema, thyroiditis, herpes and with their attendant serious consequences. These may occur by the hematogenous route or through the lymphatics.

Aside from the various diseases which may be produced, focal infection areas should be cleaned out, for cleanliness is even ahead of Godliness, for without cleanliness—strictly speaking—I do not believe we can possess Godliness. Many persons cause themselves to be avoided in society because of an offensive breath which, in most cases, is due to diseased tonsils, oftentimes to diseased gums, and frequently to chronic infection of the nasal accessory sinuses. Other infections of the body are just as harmful, but are less noticeable on account of location, yet there is no excuse for getting rid of any focal infection that can be located if it is at all amenable to treatment.

Dr. Burrett: Mr. Chairman, I think this meeting represents one of the best evidences of good to be accomplished by team work. The work that is being carried on by this group of specialists has always seemed to me to be along the right line and of great importance. Recently, one of the younger surgeons of the country suggested to me that we might well emulate the plan which is in operation by you O., O. and L. men. The papers to which we have just listened have been of great value, I am sure, to all of us, whether eye, ear, nose and throat men, or in some other field of practice. The papers and discussions, up to this time, have shown that we can not ignore the whole patient even though the complaint may be of some particular part of the body.

Doctor McCleary has just asked me if I had a case that might have some bearing on the question of "Focal Infection." I, therefore, wish to call your attention to a case of arthritis deformans. The patient, a woman, holding an important position in the University, had been compelled to leave her work because of progressive arthritis, which had been diagnosed by a number of prominent physicians as "arthritis deformans." She had spent several weeks at one of the best sanatoriums in the State where the above diagnosis was confirmed.

She finally had occasion to go to her dentist for a defective tooth, and in the course of the examination in this connection an X-Ray diagnosis was called for. It revealed an abscess at the root of one of the incisors. This condition called to mind a former infection of the tooth which had drained through the gum and finally closed spontaneously. Since the work in the mouth has been completed, her joint condition has been constantly improving until the present time she is in better health than she has been for years. Some one has stated that the case was not diagnosed correctly, originally, which, no doubt, is true. The point about it is, that, undoubtedly, the focus of infection was in the tooth and since correcting it the arthritis has gradually improved.

Team work is the watchword among the progressive medical people of the time. At our university clinic we have splendid opportunity to make use of the knowledge of men in the various departments who are specialists in their field. Each week a round-table is held, at which time the border-line cases of the clinics are brought up for discussion. During the week the men are in such close touch that frequent consultations are held when desired. The time has passed when one person is able to go to the bottom of a complicated physical ill, which is just such work as is being accomplished by such meetings as we are attending at this time, and which has brought about this new era in medical practices.

Dr. Silbernagel: Whether or not it has been proven this afternoon that focal infection is the cause of all the diseases mentioned, the discussion has been a most interesting and profitable one.

Like the rest of you I have had individual cases which left no doubt in my mind that focal infections were the inciting causes of the diseases with which the patients were afflicted.

The subject, at the present time, is a far-reaching one, and there seems to be no limit to the ailments produced by focal infection. Dr. McGavan, of Columbus, recently reported the histories of one hundred cases of arterio-scleroses, and in this series there were twenty-three cases he had proven to his satisfaction to be due to focal infection. One case was that of an abscessed tooth, which was discovered by the X-Ray, and there were six cases of infected tonsils mainly of the small submerged type.

The improvement of these cases was very satisfactory after the proper attention had been given to the local condition. Dr. C. D. Hay,

a general surgeon, who specializes in diseases of the bones and joints, sees many, many miserable cases of arthritis, and he classifies all of them as metastatic arthritis. He claims that there is a definite focus of infection always present, and he practicaly always finds it. He has the local infection cared for, injects formalin and glycerin and uses autogenous vaccines. His results are uniformly successful. I have performed tonsillectomies in quite a number of his cases and the tonsils are nearly always small and submerged, a type easily overlooked.

Another thing I am unusually interested in is focal infection in tuberculosis.

I see many tubercular patients and have been greatly impressed by the number of bad tonsils and bad teeth in these cases. I hope to make a systematic study and report of these cases later.

Dr. Moon: I might report to you a case of focal infection that was fatal but very interesting to me.

July 1, 1911, Mr. H. A., age 33, occupation, clerk. For a year distance vision had not been good. An examination of the eyes showed the presence of near-sightedness; this was corrected by wearing glasses which gave him normal vision.

Feb., 1912, patient reports that he could not sleep for past three nights because of a severe pain in the right side of the head, and that he could not breathe through the right nostril. Examination showed this side of the nose to be full of polypi. Upon removal of the growths the pain disappeared.

July, 1912, patient says that the right eye feels as if something was in it, also has a stiff feeling in the eye. This time two medium-sized polypi were removed, which brought about relief of the eye symptoms.

Feb., 1914, complains of fifty-seven varieties of headache, mostly right-sided, worse at night, temperature 100°, coated tongue and constipated. He was referred to his family physician for treatment. At this time there were no growths in the nasal cavity, but a mucopurulent discharge from the nose had been present for a short time. He remained in bed three weeks, running a mild temperature, complaining most of the time of noisy sensations in the head, insomnia, nausea, lies with his face down and wants a vessel near him on account of the nausea. He has a constant mild headache, and says he cannot see so well. I notice that he speaks slowly and is some time in answering

questions. The pupillary and patellar reflexes are normal. Examination of the eyes shows a mild optic neuritis present—most marked in the right eye. Vision in this eye is reduced to 20/200, and the left to 20/70. An X-Ray examination of the head and sinuses was reported negative by an expert man. In the face of this report, however, a persistent muco-pus discharge continued from the right side of the nose, which grew gradually less under detergent treatment, and by May 4, 1914, his vision was normal with his glasses on, and there was no evidence of optic nerve atrophy.

On Oct. 15, 1914, he came in for examination—not having any complaints. I examined his nose and found a small collection of polypoid tissue in the right nostril and a slight amount of thick mucous secretion. This degenerated tissue was removed and no further trouble occurred until Jan., 1916, when he had a severe cold in the head, a slight rise in temperature and headache. During the latter part of Feb. he reported to me and said he had had several convulsions on Feb. 10, 1916. There was no disturbance of vision, but he did complain of much nasal discharge. Examination of the right nostril showed the middle meatus overflowing with pus. The pus could be seen flowing out of two small openings in the middle meatus. The ethmoid cells were opened and contents curetted away. Inspection showed it to be a mass of small granulomas. Of course, this gave immediate relief. Patient remarked a few days later that his head had not been so clear for years. The discharge gradually ceased and the patient felt well until Oct. 10, 1916, when he returned, saying there was an increase in the discharge and his head felt heavy and dull. The ethmoid cells were again filled with granulomas. This time the cells were cleaned out and packed with iodoform gauze for twenty-four hours, after which they remained clean and there was no discharge in the middle meatus on Oct. 20th. A naso-pharyngoscopic examination showed the cavities to be lined with a normal mucous membrane.

Oct. 27th, the family physician told me of the death of this patient, which occurred the day before. He was seized with two series of convulsions, nine in the first series, and twelve hours later eighteen. The cause of death was reported as epileptic convulsions. An autopsy could not be held, but I believe the convulsions were a result of focal infection.

Dr. Arndt: Inoculating with streptococcus viridans will produce in one person corneal ulcer; in another, appendicitis; in another, ulcers of the stomach or duodenum; in others it will produce no effect whatever. It seems to me that this is the really interesting aspect of this subject. What is the difference between resistance and susceptibility? Our business as therapeutists, whether internists, general practitioners or specialists in any sphere, would be the same, namely, to cultivate immunity. The patient has not been satisfactorily treated until no further susceptibility exists.

Now how is resistance developed? By educating the phagocyte.

By all means remove or destroy foci of infection and this may prove to be all that is necessary to be done to enable the patient to restore himself to complete health, in fact, the majority of young patients need no further help, but in the remainder there is a continuing disability calling for the help of the therapeutist, and I believe the most scientific, as well as the most effective, treatment is the autogenous vaccine. Chronic cases are the special field for autogenous vaccines, and that is nature's way of establishing immunity or educating the phagocyte.

Dr. Smith: I can only add the report of a case of double optic neuritis that may be of interest. A girl of twelve was referred to me because of rapidly failing vision. A history of otitis media, which had apparently subsided several weeks before, a very considerable increase of white cells, and about a half of a degree of temperature over the right mastoid with a slight rise of body temperature, seemed to warrant me in taking a "long shot" in advising a mastoid operation at once. The aurist to whom the case was referred preferred to await more definite symptoms, operating two days later, and found much pus and "beginning involvement of lateral sinus" in spite of which the patient finally recovered normal vision.

ABSTRACT.

Belladonna.—To the specialist in eye, ear, nose and throat work the most interesting drug from a utilitarian point of view is belladonna. Used externally or internally it will effect in certain ways the regions in which we work. It may be of interest, omitting a resumé of its well known local uses, to pass directly to a consideration of its less generally known internal powers. Bradford's Index to Provers will show in some measure the extent of the work on the internal use of the drug, and this list may well be used as a starting bibliography.

The belladonna picture of hot, red skin, flushed face, throbbing, pulsating congestion and burning sensations is familiar, but many of the particular symptoms are overlooked or forgotten in an indifference to careful prescribing. It is these symptoms, "rare, singular and peculiar," that Hahnemann and his followers persistently emphasized. It was upon them that they made their nicety of selection and developed the science to a fine art. There follows in an easy tabulated form a brief of these particular symptoms as observed by the best masters of our art: Hahnemann, Jahr, Bœnninghausen, Hering, and others:

MIND AND DISPOSITION.

Nervous anxiety, restlessness, desire to escape. Stupefaction, with congestion to the head; pupils enlarged, delirium. Loss of consciousness. Fantastic illusions (when closing the eyes). Rage, madness, disposition to bite, to spit, to strike and to tear things. Disinclination to talk, or very fast talking. Delirium, with frightful figures and images before the eyes.

HEAD.

Vertigo, with stupefaction, vanishing of sight and great debility. Vertigo, with anguish, and falling insensibly on the left side, or backwards, with flickering before the eyes, especially when stooping, and when rising from a stooping posture. Congestion of blood to the head, with external and internal heat; distended and pulsating arteries, stupefaction in the forehead, burning, red face, worse in the evening—when leaning the head forward, from the slightest noise, and from motion. Stupefying, stunning headache, extending from the neck into

the head, with heat and pulsation in it; worse in the evening, and from motion; better when laying the hand on the head, and when bending the head backward. Boring headache in the right side of the head, changing to stitches in the evening. Pressing headache, as if the head would split, pupils contracted, voice faint. Periodical nervous headache, every day from 4 P. M. till 3 A. M., aggravated by the heat of the bed, and when lying down. Jerks in the head, especially when walking fast, or when ascending steps; better from external pressure. Inflammation of the brain, with burning and pulsation in the head; first in the cerebellum, then in the forehead, and, later, in the whole head. Headache from taking cold in the head, and from having the hair cut. Headache worse on the right side. External heat and soreness of the head.

EYES.

Congestion of blood to the eyes, and redness of the veins. Heat in the eyes—distention of the sclerotica. Yellowness of the whites of the eyes. Eyes sparkling, red, glistening, or dim. Look, wild, unsteady, wavering. Continued lachrymation (tears sharp and salty). Distortion, spasms and convulsions of the eyes. Photophobia or photomania. Extropium. Blindness at night (moon-blindness). Things look red. He sees sparks of fire. Diplopia. Squinting. Paralysis of the optic nerve.

EARS.

Inflammation of the external and internal (right) ear, with discharge of pus. Stinging in and behind the ears. Humming and roaring in the ears. Paralysis of the auditory nerves. Inflammatory swelling of the parotid glands—stitches in the parotid gland.

NOSE.

Inflammatory swelling and redness of the external and internal nose. Bleeding of the nose, with redness of the face. Over-sensitiveness of the sense of smell. Putrid smell of the nose.

FACE.

Purple, red, hot face, or yellow color of the face, pale, sunken, with distorted, anxious countenance. Alternate redness and paleness of the face. Convulsive motions of the muscles of the face and mouth. Spasmodic distortion of the mouth (risus sardonicus). Erysipelatous

swelling of the face. Swelling of the upper lip. Ulcerated corners of the mouth. Mouth half open, or spasmodically closed by lock-jaw. Stitches in the articulations of the jaws. Swelling and inflammation of the sub-maxillary glands.

TEETH.

Toothache, drawing and tearing up into the ear, with swelling of the cheek; worse in the evening and at night; aggravated by the cold air, by contact, while masticating, by mental exertion. Grinding of the teeth. Swelling of the gums, with burning heat and stinging.

MOUTH.

Dryness of the mouth, without thirst. Inflammatory swelling and redness of the inner mouth and soft palate. Tongue hot, dry, red, cracked; or only red on the edges, with white coating on the middle; coated white or brown, or covered with mucous. Inflammatory swelling of the tongue, painful to the touch. Heaviness of the tongue, with difficulty in talking. Stuttering. Speaks through the nose, speechlessness. Hæmorrhage from the mouth.

THROAT.

Inflammation of the throat, with sensation of a lump, which induces hawking, with dark redness and swelling of the velum palate and pudendum. Burning and dryness in the œsophagus. Stinging in the œsophagus, in the tonsils; worse when swallowing, and when talking. The œsophagus feels contracted, spasms in the throat not permitting one to swallow, the drink swallowed is discharged through the nostrils. Continual inclination to swallow. Tonsils inflamed, swollen, ulcers rapidly forming on them.

D. M.

GILBERT J. PALEN, A. B., M. D., F. A. C. S.

PHILADELPHIA, PA.

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Editorial

GILBERT J. PALEN, M. D.

DR. GILBERT J. PALEN was born in Tunkhannock, Pa., May 12, 1870. In 1877 moved to Germantown, Pa. He was educated at the Public Schools and at the Germantown Academy, from which he graduated in June, 1888. He entered Haverford College in September of the same year and received from this institution the degree of A. B. in June, 1892. In October of the same year, he entered the Hahnemann Medical College of Philadelphia, Pa., receiving a degree of M. D. from this institution in June, 1895.

After graduation he went abroad, where he remained until the fall of 1898, studying in Dresden, Berlin and Vienna. During his stay in Berlin, he was assistant in the eye clinic of Professor Hirschberg, and in the nose and throat clinic of Professor B. Fraenkel. Returning to this country he started the practice of his specialty in Germantown, Pa. At the same time he became associated in the eye and ear clinic with Professor C. M. Thomas, and became demonstrator of Otology in the Hahnemann Medical College. In 1902 he opened his office in Philadelphia, Pa., where he is now practicing.

In the year 1909 he was appointed Professor of Otology at the Hahnemann Medical College, which position he still holds. Dr. Palen is Otologist at the Hahnemann Hospital; is also in charge of the eye, nose, ear and throat clinic of the hospitals of the Women's Homœopathic Association of Philadelphia, Pa., of the Children's Homœopathic Hospital, and holds consultant position as Otologist in the Homœopathic Hospital at Allentown, Pa., and Ophthalmologist and Otologist to the Crozer Hospital at Chester, Pa. Also a Fellow of the American College of Surgeons.

A RECENT TRIP TO NEW YORK.

I WENT to New York on January the tenth, primarily to attend a dinner of the medical staffs of the hospitals of the Department of Public Charities. The trip was such an enjoyable and profitable one that I cannot refrain from sharing it with others, a desire which we, as humans, all have in common.

I arrived there at noon and went directly to Brooklyn to see my friend and classmate, Dr. John H. Schall. John, whom I have known since boyhood, is of a genial warm disposition, dead in earnest in everything he undertakes, and as loyal as they make them. No more unselfish person have I ever known, and the possession of his friendship makes me that much the richer. After lunch, at his home, we made a trip to the Cumberland Street Hospital, where John is the surgeon in charge of the surgical department. He took me through the wards showing me interesting cases. Like every good surgeon, he cannot refrain from giving his intimate friends a private clinic. Among other things I saw a case of extensive compound fracture of the skull, including the base; a case of compound fracture of the long bones of the leg, plated and screwed together, and a case of gangrene of the bowel with a large section excised. All were doing nicely and well on the way to recovery. Such results to the casual observer are sufficient testimonials to a man's surgical skill, but to me they were as nothing compared to the records which he produced. Being a stickler on the subject of careful records, they appealed to me strongly. The written records of his cases were quite complete, but to make them more so, he had them illustrated with drawings. His records, including the drawings, reminded me of the clinics seen in Vienna. Eventually John will have accumulated a sufficient number of accurate records to afford important data upon which to base some valuable conclusions. Would that there were more surgeons of his type. The lack of careful observations has led many a man, posing as a scientist, to accept the ill-founded conclusions of some authority, specific instances of which I have had occasion to point out on former occasions.

While at the hospital, in came the Hon. Henry C. Wright, First Deputy Commissioner of Public Charities, to whom I was introduced. I found him to be less of a politician than one would expect to find in a man occupying his position. He was more of the business type of a

man, and very much interested in the welfare of the hospital and the care of the sick. He is evidently suited to this kind of work, and does it for the love of it. Although he had other engagements calling him elsewhere, it was hard for him to tear himself away from the hospital. In the short time he was there, he visited patients in their beds, the X-Ray laboratory, conversed with Dr. Schall, and the superintendent, Miss Lawrence, and consulted with them over the plans of the new $600,000 hospital to be erected on the site of the old institution. The Hon. John A. Kingsbury is to be congratulated upon his ability to choose a man like Wright for Deputy Commissioner. Incidentally, I met Miss Lawrence, the superintendent, who is an active little woman, quite as interested in her part of the work as the gentlemen referred to above. There was a geniality about the whole thing that told me that here was a house united and that success was bound to come. This friendly spirit took such a hold on me that had I remained much longer, I would have been calling the Deputy Commissioner and the Superintendent by their first names. I had occasion to look over the plans of the new hospital and found them comprehensive from every angle, with laboratories on each floor. With Commissioner Kingsbury and Deputy Commissioner Wright in the harness to look after it, the $600,000 appropriated will be spent judiciously, and the entire amount will be represented in the new institution.

In the evening we went to the dinner at the Hotel Astor, where we met close on to three hundred physicians representing the staffs of the nine municipal hospitals of Greater New York. It was a get-together meeting, the first of its kind. The idea is an excellent one, and will, no doubt, be followed by others. The menu and the service were as perfect as the Hotel Astor could make it. One thing about the dinner touched my tender spot, and that was the absence of liquors.

More enjoyable than the feast were the speeches that followed. All were of first-class order. The Hon. John A. Kingsbury acted as toastmaster, and he did his part well. He is a live wire with the spirit to do well by the taxpayers of New York and render them the best possible service. He together with Mayor Mitchell and Comptroller Prendergast, are doing not only the City of New York a valuable turn, but, by setting an example for other cities, are rendering the whole country a service. They have visited all the municipal hospitals

of New York and investigated carefully the buildings, laboratories, the management, and, in fact, everything possible to investigate, including the work of the staff. Where they have found anything not measuring up to their ideals, they have made changes for the better. The improvements already made and those contemplated for the future will unquestionably bring the standard of efficiency up to a mark not excelled anywhere. Their intention is to make New York, in the words of Kingsbury, the Medical Mecca of the world and, judging by the vim these gentlemen are putting into their efforts, victory seems to be assured.

Mayor Mitchell was the first speaker called upon. He was given a most cordial welcome. Every one arose during the applause. Mayor Mitchell is a clean-cut, serious type of man, who appears to be considerably under fifty years of age. His seriousness and soberness and lack of ostentatiousness strikes one the moment he arises to speak, and these qualities cling to him throughout. He is not a flowery speaker; it might be said of him that he lacks oratory, for which we can admire and love him the more. Studying him closely, one can read in him honesty. Everything about him breathes the air of seriousness, honesty and motive power.

Hon. Wm. A. Prendergast, the comptroller, is a man of action, Rooseveltian in type. Broad of mind, big in heart, a man who does things and talks about them afterwards, if necessary. Like all men of his type, he is likely to be maligned at times by the narrow-minded. This does not annoy him, however, for he is too big to be annoyed by trifling matters. He is one who finds things to do and he has the push to put them through. For instance, when the commissioner saw that something had to be done to improve hospital conditions in New York and knowing that money was needed, he went to Prendergast, the man who holds the purse strings, and, when Prendergast realized how urgent was the need, why he simply did his part in spite of the obstructionists. To sum it up, Prendergast is a man who does things. The word "can't" is not in his dictionary. His address was in keeping with his past actions.

Dr. Orrin S. Wightman is another live wire who works for the love of it, and never renders a bill even for postage. The Department of Public Health and Charities conceived the idea that a Hospital Bulletin would be a good thing to spread the knowledge of what was

being accomplished in a medical way in New York to those doctors who have not the opportunity to visit public clinics. The Bulletin's first number appeared in October, 1916. The second number was published on time in January, and I have it before me now. Dr. Wightman is the editor who is willing to yield the honor up to any one else who is willing to take it at the same salary that he is receiving. That salary is nothing. As I look over the second number I find it contains nineteen original articles on the subject of Pathology, Medicine, Surgery, Neurology, Gynæcology, Skin Diseases, Nose and Throat and Genito-Urinary Diseases. The articles are from the pens of the physicians who comprise the staffs of the nine municipal hospitals of Greater New York.

The last speaker of the evening was by no means the least equipped. Dr. James J. Walsh represents the brainy type of man, one who is equipped with facts and figures. He is knowledge personified. He has lived long enough to see new things come in and most of them go out again. He is the antithesis of the faddist. He is a practical man. His lesson to the young man is to practice observations and not to follow blindly a leader, even though that leader be some accepted authority. Aside from the fact that he is a man of knowledge, he fortunately possesses the rare faculty of being able to impart it. His address was one of the best I ever listened to. There was meat in everything he said. In short, he is what we may properly term a scholar. His speech polished off the evening's proceedings.

I was glad to see so many familiar faces among the gathering. McLean was there and so was Hetrick, both of them valuable men to our JOURNAL, and active in the Society. Dr. Hetrick has been recently appointed on the staff of the Metropolitan Hospital, a position which he well deserves. Dr. McLean is on the consultant staff of the Cumberland Street Hospital, a position which he has earned by his worthy efforts in his special field.

May the Mayor, the Commissioners and the Comptroller succeed in their earnest and honest efforts to make New York the veritable medical center of the world.

G. W. M.

THE GENERAL PRACTITIONER AND THE SPECIALIST.

THE tendency toward specialization in all fields is ever increasing. This tendency is especially evident in the practice of medicine. Any prejudice that may have existed in former years on the part of the general practitioner is disappearing and rapidly giving way to a feeling of co-operation.

Unfortunately there exist a few practitioners yet who prefer to hold a case that is beyond his skill than to submit to a consultation with a specialist. This neglect of the patient on the part of the general man is due in some cases to an indifference resulting from a superabundance of work; in other cases to a lack of knowledge of his own limitations and of what the specialist is capable of accomplishing; to a prejudice against operations in general and rarely to a downright selfishness.

The more efficient and progressive among the general practitioners are they who frequently find it necessary to consult the specialist. They are the men who attend medical meetings and keep in touch with the medical literature; men who realize the importance of a correct diagnosis and appreciate the fact that the best results are obtained by direct treatment. They are, in other words, generally well informed men.

The advantages of thorough co-operation between the general practitioner and the specialist are many, and not the least of these is the benefit to the patient, not to mention the better feeling promoted between the two classes of physicians by the consultation.

The specialist is by no means a man of superior knowledge except in his own particular line. The more efficient specialist realizes this fact and is willing to learn what he can from the general practitioner.

The general practitioner is prone to call the specialist when he has a critical case of some acute condition where promptness is called for. On the other hand, there is a large class of chronic cases which he is willing to hold and wait until the consultation is forced upon him by the family because of lack of results in the treatment. His holding such a case too long may be his undoing with that particular family should the case fall into the hands of an expert specialist, especially,

too, if he had referred the case to the specialist. It would have been far beter for the general practitioner had he referred the case to the specialist earlier.

The specialist can do a great deal toward promoting a friendly and co-operative spirit between the general practitioner and himself by educating the general man on the subject of diagnosis; in short, how to recognize certain conditions when present, gain the confidence of the general man by the fairest kind of professional and business dealings. The specialist should never be too busy to take time to show and explain everything to the general practitioner that he may want to know.

Finally, when the general man comes to the office of the specialist, no matter how far he may have been off in his diagnosis and treatment of the case, there is always some way to be found whereby the specialist can put the general man right in the eyes of his patient. The least that can be said in such a case is that the general practitioner was a broad enough man to recognize his limitations and call in the specialist.

G. J. A.

THE BRITISH JOURNAL OF OPHTHALMOLOGY.

In the first issue, January, 1917, *The British Journal of Ophthalmology* comes into existence through the union of three well known periodicals: *The Reports of the Royal London Ophthalmic Hospital, The Ophthalmic Review,* and *The Ophthalmoscope.*

It is now nearly sixty years since the Staff at Moorfields began to issue periodical *Reports* of their clinical and operative experiences, and of the researches carried out in the museum and laboratories of the Hospital. Established in 1857, these invaluable *Reports* now fill twenty volumes. *The Ophthalmic Review* apeared in 1881. Its purpose was to give critical notices and abstracts of current ophthalmic literature, especially of that published abroad, and to provide a channel for the prompt publication of short original papers. It has carried on this work without a break for thirty-five years. *The Ophthalmoscope,* the youngest of the three, was established in 1903. It quickly attained a high place in the estimation of ophthalmic surgeons, and a wide circulation.

The prospectus of the new journal carries the idea that the purposes of the promotors are four-fold, the instillation of new wine in the old casks, economy, efficiency and, not unlikely, financial returns.

We wish that the new journal may keep the prestige that it derives from the journals it consolidates, and we trust that sustained endeavor will fulfill the hopes of its sponsors.

D. M.

DEFECTIVE TEETH IN CHILDREN.

A recent investigation made by the United States Public Health Service in connection with studies of rural school children showed that 49.3 per cent. had defective teeth, 21.1 per cent. had two or more missing teeth, and only 16.9 per cent. had had dental attention. Over 14 per cent. never use a tooth brush, 58.2 per cent. used one occasionally, and only 27.4 per cent. used one daily. Defective teeth reduce physical efficiency. Dirty, suppurating, snaggle-toothed mouths are responsible for many cases of heart disease, rheumatism, and other chronic affections. The children are not responsible for the neglected state of their teeth. The ignorant and careless parent is to blame for this condition—a condition which hampers mental and physical growth and puts a permanent handicap on our future citizens. School teachers are doing much in inculcating habits of personal cleanliness on the rural school child, but this will fail of the highest accomplishment unless parents co-operate heartily and continuously.—*Medical Times,* Dec., 1916.

INFILTRATION ANÆSTHESIA FOR REMOVING ADENOIDS.

Geo. J. Alexander, M. D.,

Philadelphia.

EVER since the presence of adenoids has been acknowledged as a pathological condition and their removal advised, a certain per cent. of them have been removed without the aid of a general anæsthesia. Even in this era of progress and efficiency of the rhinological surgeon, I regret to admit, the operation is practiced with no attempt at the use of an agent, locally, that may have some influence in reducing or allaying pain. Some, however, may and do apply a cocain solution in various strengths in the vain hope of getting results in the form of an actual anæsthetic effect upon the tissues; or perhaps through the mental impression or suggestion to the patient. On the other hand, there are those who still pursue the barbarous practice of removing adenoids without any attempt whatever at the use of anything locally to control the pain; prominently among them are the European clinics where the operation is done daily in this manner. Observation of many of these operations in the European clinics and a number in my own locality impressed me with its inhumanity and the possibility of making it more tolerable and, if possible, an entirely desirable operation, by the use of some means against pain. With this end in view, I began some time ago the method of infiltration anæsthesia for the removal of adenoids painlessly, which, so far as I know, has not previously been practiced, for in my search of the literature I have found no word mentioned and nothing written on the subject.

Of course, the idea of removing adenoids by local anæsthesia is received with enthusiasm by some and will not be considered by others, both among the profession and laity; some are willing to be shown, others are not. Be that as it may, we all know there is a certain demand for the removal of adenoids without a general anæsthetic, and for this reason every rhinologist should be prepared to do the operation as skillfully with the use of a potent local, as with a general, anæsthetic.

The question of advantages in the use of infiltration anæsthesia

for the removal of adenoids has frequently been asked me by the profession and patients. The answer is—there are a number; for instance:

1. Simplicity. There is not the commotion of preparation and journey through the hospital routine and general anæsthesia for such a small operation that can otherwise be accomplished in ten minutes by infiltration anæsthesia.

2. Safety. With this method the dangers of anæsthesia are reduced to a minimum as well as those of hæmorrhage.

3. Position of patient. The upright position together with the co-operation of the conscious patient make for the ideal in this operation.

4. Time consumed. There are numerous instances where the loss of time from business, employment, school, etc., is an important factor, and patients will often submit to and choose this method because of these advantages who would otherwise put it off indefinitely and probably never have it done.

5. Expense. There are a number of patients who cannot very well afford the expense entailed in the use of a general anæsthetic, and can have the work done and pay a moderate fee charged for the operation by this method. Again, there are those who would rather allow their adenoids to remain intact than go to the expense necessitated by becoming a hospital patient.

6. Dread and fear of ether and of the hospital are other factors that will win converts for this method and, incidentally, dollars for the surgeon.

7. Inability to take a general anæsthetic, either in their own mind or at the advice of a physician, is a condition occasionally encountered.

8. Hæmorrhage, always profuse under a general anæsthetic, is peculiarly slight by this method.

9. Absence of pain. The most important of all inducements that can be offered the patient for acceptance of this method is, as will be shown later, that pain is seldom experienced.

Objections tendered by the patients are usually temporary, based upon timidity or fright, and can be neutralized by explanation of some of the above advantages, while those of the profession are the result of inexperience clothed in the term precaution.

There are three things that are pre-eminently important to the patient at the suggestion of this operation with infiltration anæsthesia, namely, fright, nervousness and pain. Patients will frequently say they are so frightened, and that they are so nervous, they fear they will not be able to sit still. With a few assurances to the contrary and procedure with injection of the anæsthetic, the patient's confidence is almost invariably gained and by the time the operation is completed, pain is forgotten in their surprise that there was none.

Principal among those offered by the profession are:

(*a*) Bad impression upon the patient toward operative work.

(*b*) Shock to patient.

(*c*) Patient should be put to bed immediately after operation.

(*d*) Post-operative hæmorrhage.

(*e*) Danger of death from the anæsthetic.

As far as my own experience goes, I have never encountered any of these enumerated unpleasant results. My patients are usually impressed with the dispatch and simplicity in which the work can be done. There has been no shock so severe that a bed was an immediate necessity, and no particular inconvenience has been experienced by the patients between the time they left the office and had access to their beds. As for post-operative hæmorrhage it is an event yet to be encountered by me; and the danger of death from the anæsthetic is practically nil, as will be shown later in taking up the technic of administration.

In presenting some fifty-two cases, twenty-seven males and twenty-five females, ranging in age from seven to thirty-eight years, I wish to emphasize the fact that there was no effort whatever made to select those that might be most suitable to my purpose except in the instance of the four seven-year-old patients. These were chosen for the special purpose of getting the natural unbiased and unaffected statement of the child, whose actual statements will appear later, in order to eliminate as far as possible plagiary or deception by the patient, thus strengthening and making more convincing the merits of this method of anæsthesia.

The following list shows distinctly, too, that the ages in which it will be used most frequently and to advantage, range from nine to twenty years.

TOTAL NUMBER OF CASES, FIFTY-TWO—MALES, 27; FEMALES, 25.

AGE AND NUMBER OF CASES OF EACH.

Seven	years;	cases,	4	Twenty-three	years;	cases,	3
Eight	"	"	1	Twenty-four	"	"	0
Nine	"	"	3	Twenty-five	"	"	1
Ten	"	"	1	Twenty-six	"	"	0
Eleven	"	"	5	Twenty-seven	"	"	3
Twelve	"	"	3	Twenty-eight	"	"	1
Thirteen	"	"	2	Twenty-nine	"	"	1
Fourteen	"	"	2	Thirty	"	"	2
Fifteen	"	"	2	Thirty-one	"	"	1
Sixteen	"	"	4	Thirty-two	"	"	1
Seventeen	"	"	0	Thirty-three	"	"	1
Eighteen	"	"	3	Thirty-four	"	"	0
Nineteen	"	"	2	Thirty-five	"	"	0
Twenty	"	"	2	Thity-six	"	"	0
Twenty-one	"	"	1	Thirty-seven	"	"	0
Twenty-two	"	"	2	Thirty-eight	"	"	1

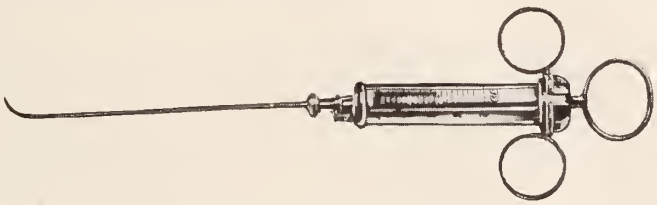
In beginning this series of cases for the purpose of working out the possibilities of infiltration anæsthesia for the removal of adenoids, I used a 1 per cent. solution of cocain. This was done to prove, if possible, the disadvantages of this drug and thus emphasize more strongly the virtue of novocain in a 1 per cent. solution which I have used in all the cases in this report.

With the cocain, as have others, I experienced all the usual disadvantages of the stage of excitement; for example, incessant talking, laughing, and difficulty in keeping the patient seated in the operating chair. One patient, a nurse, began to cry, saying she was losing her mind, deliberately arose from the chair, walked to the middle of the office, and laid down on the floor flat on her back. Fortunately, I have escaped any of the alarming incidents of the stage of depression, and in instances where fear was the cause of administering probably a too small amount, there was little result as to the control of pain.

With novocain in a 1 per cent. solution all is different, namely, absence of danger, an easy mind of the operator and a quiet patient. This agent can be used liberally and in highly sufficient quantity to be entirely effective, without any concern or anxiety on the part of the surgeon, as will be seen in the outline of the technic. In all my experience with the use of novocain (and I use it extensively), I have

not been able to observe in a single instance an undesirable effect from its use.

Technic of administration of novocain preparatory to the adenoid operation: A 20 per cent. solution of cocain is first applied to the surface of the posterior faucial pillars, soft palate and post-nasal space; after waiting about two minutes three to four c. c. of a 1 per cent solution of novocain containing three drops of adrenalin chloride 1:1000 is carefully injected into the submucous tissues of the post-nasal space under the adenoids. This is accomplished with a two c. c. glass record syringe with a specially constructed hollow needle 12 centimeters in length and curved upward at its distal end, as shown in the illustration.



Record syringe, showing the long needle with its distal end turned upward, for infiltration anæsthesia of the post-nasal space.

There are three points of advantage for infiltration, one on either side high up in the post-nasal space or upper end of Rosenmueller fossæ, and a third just behind the soft palate into the posterior wall of the pharynx in the median line. The two high points of injection are readily gained by placing the needle against the soft palate and pushing it upwards; the needle is then plunged through the entire body of adenoid tissue into the submucous tissues beneath. If the technic is not carefully carried out in this step, the patient is apt to experience some pain from striking the posterior extremity of the septum or coming in contact with pharyngeal orifices of the Eustachian tube with the curette. At first it was my custom to cocainize the nose and inject a few drops of the novocain solution with a straight needle under the periosteum on either side of the posterior end of the vomer to counteract any pain from contact of the curette with the posterior end of the septum. The needle was then changed; the long needle with the upturned end being used and plunged through and under the adenoids on either side, as explained earlier. I soon found this was not practical as it could not be done in every case on account of the presence of a deviated septum,

septal ridges, spurs, etc., gradually realizing after developing a more perfect technic that the whole procedure could be carried out through the mouth with even better results and a great deal less annoyance to the patient.

To the possible question—does not the insertion of the needle into the tissues cause the patient pain?—I can answer, "No." This seems to be nicely controlled by the application of cocain, though the latter is not deep enough in its action to control the pain of the operation without injection of novocain. Since cocain has little or no action upon adenoid tissue, I have concluded that it must find its way along the mucosa and slightly affect the tissues beneath the adenoids; at any rate, there is no complaint from the use of the needle and the procedure for the most part is a painless one.

One of the greatest and most pleasant surprises to me in removing adenoids by this method of infiltration anæsthesia has been the astonishingly small amount of bleeding. An operation which, under ether anæsthesia is one of the most bloody, in this instance is for the most part comparatively free from hæmorrhage; the amount ranging from no blood at all to several drams, and rarely to one or two ounces.

There is one special disadvantage I have found in removing adenoids under a local anæsthesia to which I want to call attention: this is the likelihood of failure to remove the uppermost portion of the adenoids on the vault of the pharynx. I have found it much to my displeasure in a number of my cases, but have been able to overcome this fault by improving my technique and by the use of certain sizes of curettes. Applying the indicated large size for the first or central stroke, pushing the curette up as high as possible against the septum, then pulling it forward as far as it will go and sweping it upward, backward and downward. This is followed by one stroke on either side with a size small enough to fit into the choanæ, making a total of three strokes, the small sized curette being the most important feature in securing a clean post-nasal space, as it is in the depression behind the choanæ where the unremoved adenoid stumps are usually found. I am pleased to say that this method of infiltration anæsthesia has been just as successful in the hands of some of my acquaintances and friends as in my own, notable among whom is Dr. Geo. W. Mackenzie.

Considering the entire list of fifty-two cases, too lengthy for report of conditions found during operation, I have simply taken thirty

of them, as they hapened to come in my collection without any attempt whatever at special selection, with the exception of the four seven-year-old children, and practically all statements are in the patient's own language. Another fact of special interest is that in nearly all instances tonsillectomy preceded adenectomy, making the results of the test doubly valuable and convincing. All of the seven-year-old children are included in the tonsillectomy.

REPORT OF THIRTY CASES.

First child, female: A little frightened, but sat quietly; did not cry, and said it did not hurt. Bleeding, about two drams.

Second child, female: Calm; said it did not hurt. Bleeding, about one ounce.

Third child, female: A good patient; did not cry or show any signs of pain. Bleeding four drams.

Fourth child, male: Became frightened and stubborn, and would not say if he had pain or not. I concluded, however, that it was slight, if any.

MISCELLANEOUS GROUP.

1. Male, 15 years: No pain and bloodless.

2. Male, 15 years: Only a little bit of hurt. This was on one side in Rosenmueller's fossa. Blood, four drams.

3. Female, 11 years: Operation painless. Child said she only felt the thing pressing on the back part. Bleeding, one and one-half ounces.

4. Female, 13 years: An exceptionally intelligent child. When asked if the operation caused her pain, she was very decided and emphatic in her reply that there was none whatever. Bleeding, one-half dram.

5. Male, 31 years: An unruly bad patient. Said he had pain. Lost an unusual amount of blood—about one and one-half ounces.

6. Female, 20 years: Operation painful. Bled rather freely; amount, about half ounce.

7. Male, 21 years: Operation painless. Loss of blood, a few drops.

8. Male, 23 years: Enthusiastically stated that there was absolutely no pain, and that he could stand three more operations like it. Bleeding, a few drops.

9. Female, 27 years: Said the operation was absolutely painless, and the only thing she felt was that of a grating sensation. Bleeding, a few drops.

10. Female, 13 years: Question: Did you have any pain? Answer: Not a bit. Bleeding, rather free.

11. Male, 12 years: Said he felt the removal of the adenoids, but it was no real pain. Bleeding, three drams.

12. Female, 9 years: A bad cantankerous patient; said everything hurt. Bleeding profuse at result of her behavior. Amount, two ounces.

13. Male, 18 years: Operation painless. Bleeding, a few drops.

14. Female, 19 years: A very nervous patient. No pain or blood.

15. Male, 30 years: Operation painless. Bleeding, one dram.

16. Female, 28 years: A stubborn and utterly bad behaved patient; nervous. Said everything hurt her. Bleeding, slight.

17. Male, 38 years: Operation painless. Bleeding, about one ounce.

18. Male, 19 years: Operation painless. Bleeding, four drams.

19. Female, 11 years: Very nervous. Moved entirely out of position during operation; cried, and said it hurt her. Bleeding, slight.

20. Male, 10 years: Patient insists that the operation was painless; felt like something breaking. Bleeding, four drams.

21. Female, 11 years: Operation painless and bloodless.

22. Male, 18 years: Operation painless. Bleeding, a few drops.

23. Female, 12 years: When asked if she was hurt, said no; she only felt a little sticking of the needle and only a little bit on either side. This was due to contact with the choanæ and orifices of the Eustachian tubes by the curette. Bleeding, rather free.

24. Female, 9 years: A bad patient, but very decided in declaring that she did not have any pain. Bleeding, slight.

25. Male, 11 years: Child said the operation was painless. Bleeding, four drams.

26. Male, 16 years: Said there was no pain at all, only a pulling or dragging sensation. Bleeding, rather free.

Of the thirty cases, the following table gives the percentage of operations that were painless, painful, etc., the amount of bleeding and that of nervousness and fright.

		Cases.	Per cent.
Operations: Painless	21	21	70.
" Pain a question	1	1	3.33
" Pain slight	3	3	10.
" Painful	5	5	16.67
Total	30	30	100

Amount of Hæmorrhage.		Cases.	Per cent.
Operations: Bloodless	3	3	10.
" A few drops	5	5	16.67
" One-half dram	1	1	3.33
" One dram	2	2	6.67
" Two drams	1	1	3.33
" Three drams	1	1	3.33
" Four drams	6	6	20.
" One ounce	3	3	10.
" One and one-half ounces	2	2	6.67
" Two ounces	1	1	3.33
" Slight bleeding	2	2	6.67
" Rather free bleeding	3	3	10.
Total	30	30	100
Nervousness and fright		4	13.

Thus the table shows a remarkably high percentage of painless or slightly painful operations and a pleasingly low percentage of painful ones; that the amount of blood lost decidedly favors a small amount, and that the number of patients that suffer from nervousness and fright is exceedingly small considering the wide difference in age of this group of cases.

Other facts brought out, too, are that where the most pain is experienced, and the greatest amount of blood lost, not to mention the troubles of the operator, is usually among the nervous or badly behaved patients, these being confined largely to adults; the advantage to the patient and operator then of the proper mental attitude of the patient as to whether he wants to make things easy or as difficult as he can for all concerned, is indeed conspicuous.

Again, close observance of the child under the same circumstances will in some instances show the disposition to make everything as difficult and disagreeable as possible, while the majority, I am proud to

say, are much more apt to adopt the honor system or show a disposition to bravery, particularly if they are handled carefully and quietly. Lastly, in these little patients so full of wonder and anticipation of what is next to come, the operator can see in their open faces and actions a reflex of his every move and can profit by and be guided accordingly in his work.

1831 Chestnut Street.

The opposing counsel, in cross-examining the young doctor, made several sarcastic remarks, doubting the ability of so young a man to understand his business. The result proved the young physician to be as quick-witted as the learned counsel.

"Do you know the symptoms of concussion of the brain?"

"I do," replied the doctor.

"Well," continued the attorney, "suppose my learned friend, Mr. Baging, and myself were to bang our heads together, should we have concussion of the brain?"

"Your learned friend, Mr. Baging, might," said the doctor.—*Doctors' Leisure Hour.*

REPORT OF SIX CASES OF EYE INJURY WHICH REQUIRED ENUCLEATION.

Le Roy Thompson, M. D.,

Chicago, Ill.

THE question of eye enucleation following traumatic injury is one which has been passed on again and again by all our great ophthalmologists, but there seems to be quite a difference of opinion as to the time which should elapse before deciding to remove the affected organ. The "Safety First" propoganda, which is being developed especially by large corporations, tends to decrease the number of eye injuries, but there will always be a certain number of cases in which the oculist is called upon to decide as to whether treatment or enucleation is the advisable course to pursue.

I submit the following report of six cases which speak for themselves as to what can be done or not done where a foreign body has penetrated the eyeball.

CASE I.

Name: T. T. *Date:* April 18th, 1914. *Address:* Chicago. *Age:* 23 years. *Occupation:* Laborer. *Nationality:* Italian. *History:* While breaking concrete with a sledge hammer and chisel, on the afternoon of April 17th, 1914, felt something hit him in the right eye. Kept on working, having no particular pain. Vision began to fail the same evening, but did not seek medical advice, although told to do so. Sent to me the following day.

Findings: Corneal abrasion, centrally located about 3 mm. long. Lens opaque, apparently swelling rapidly. X-ray picture taken, which did not definitely locate foreign body.

Diagnosis: Traumatic cataract and probably implantation of foreign body in vitreous or posterior scleral wall.

Prognosis: Very grave.

Treatment: After consultation, cataract extraction was done under general anæsthesia, successfully. Patient put back to bed. Acute iridocyclitis developed with considerable pain, and we decided to use magnet

even though our pictures were not definite. This was done by incision through the sclera in region of anterior inferior internal quadrant and inserting sterilized tip of magnet into the vitreous. The result was unsuccessful.

Patient absolutely refused to have eye removed and left hospital against everyone's advice. Five days later sympathetic ophthalmia developed in the left eye, and he was persuaded to return and have eye removed. This was done, and conjunctival wound closed by means

"T. T." Case No. 1.

of a purse-string silk suture which was taken out in seven days. The patient made an uneventful recovery, and prothesis was inserted four weeks later.

On examining the enucleated eye we found a very small particle of metal, about 2 mm. by 1 mm., deeply imbedded in the sclera (encapsulated) just below the optic disc.

CASE 2.

Name: J. P. *Date:* October 15th, 1914. *Address:* Chicago. *Age:* 12 years. *Occupation:* Attends Public School. *Referred by:* Clinic. *History:* On October 11th, 1914, while splitting a block of wood by means of two small hatchets, edges were inadvertently brought

together and a piece of metal struck him in the right eye. Parents took him to the family physician the following day, who dropped some medicine in his eye and told him "he thought he would be all right." Vision began to fail rapidly, and the boy's father, becoming alarmed, brought him to my clinic.

Findings: Vision O. S. 20/20 and J. I. No fundus reflex in right eye, and barely able to count fingers; considerable pain on pressure; conjunctival vessels engorged; pupil contracted; small scar at the corneal scleral margin on the inner lower quadrant. I had an X-ray picture taken as soon as possible, which showed plainly a foreign body imbedded posteriorly in the region of the optic disc.

Diagnosis: Penetration of eye by foreign body, probably metal (still present).

Prognosis: Very grave. (Probable enucleation.)

Treatment: Boy prepared for general anæsthesia as quickly as possible and operated upon immediately. Incision made in the median line of the posterior inferior internal quadrant and a sterilized tip of powerful magnet inserted into the vitreous. Repeated attempts and manipulations failed to attract the foreign body and the eye was bandaged up, as I could not get permission from the father to remove it.

He was kept in bed five days and later the eye was removed as some symptoms of sympathetic ophthalmia began to develop in the other one. The conjunctival wound was closed by means of a purse-string silk suture, which was taken out six days later. Uneventful recovery occurred and prothesis inserted at the end of fourth week.

On careful examination of the enucleated eye I found the foreign body to be a piece of metal, knife shaped with roughened edges, deeply imbedded in the sclera and partially encapsulated, which readily explained the ineffectual efforts to remove it by means of the magnet.

CASE 3.

Name: H. N. R. *Date:* November 18th, 1914. *Address:* Chicago. *Age:* 29 years. *Occupation:* Telephone lineman. *Referred by:* Corporation. *History:* While using a hammer and a cold chisel, chip of metal struck him in left eye, causing excruciating pain. Patient brought to my office immediately.

Findings: Vision O. D. 20/40 and J. I. O. S. could count fingers only. Perforation of the eye at the corneal scleral margin; fundus re-

flex partially gone; unable to see foreign body by means of ophthalmoscope; X-ray picture located foreign body posteriorly, either in the scleral or orbital tissue very close to the disc. After consultation, decided to endeavor by means of the magnet to extract the imbedded metal.

Diagnosis: Penetration of left eye by foreign body located in sclera or orbital tissue, close to optic disc.

Prognosis: Very grave.

"H. N. R." Case No. 3.

Treatment: General anæsthesia administered and effort made to remove foreign body. Magnet used by inserting sterilized tip through an incision in the posterior inferior external quadrant. Gave up after repeated attempts accomplished nothing. Eye was bandaged and patient put back to bed, as he refused to consent to enucleation without another effort being made to remove foreign body. Seven days later I operated again and by means of magnet attempted to remove the metal, but without success. Eye enucleated and conjunctival wound closed by means of a purse-string suture, which was taken out eight days later. Very severe cellulitis developed, otherwise an uneventful recovery. Prothesis was inserted within three weeks.

Examination of eyeball showed metal imbedded in scleral tissue

and absolutely immovable, due to sharp serrated edges. Vision of right eye brought up to normal by means of correcting lens, as he had myopic astigmatism.

CASE 4.

Name: G. T. *Date:* October 4th, 1915. *Address:* Chicago. *Age:* 16 years. *Occupation:* Plumber's helper. *Referred by:* Clinic. *History:* On October 1st, 1915, while holding an iron pipe was struck in the right eye by a piece of metal which flew up when cold chisel was hit by hammer in the hands of a master plumber. Went right on working, after being told to go and put on an eye shade to keep out the light. Did not see a physician until the following day, who looked

"G. T." Case No. 4.

in his eye and gave him an eye wash, telling him "he would be all right in a day or two." The following day the father became alarmed and took him to see the physician again, who repeated the same examination and advice. Was brought to my clinic October 4th.

Findings: Vision O. D. perception of light only. O. S. 20/20 and J. I. Fundus plainly visible and foreign body plainly seen, imbedded about one mm. below, and internal to the disc. X-ray picture verified observation.

Diagnosis: Foreign body imbedded in sclera.

Prognosis: Doubtful.

Treatment: Operated upon same night under general anæsthesia and effort made to extract foreign body by means of the magnet, inserted through an incision in the superior internal posterior quadrant. Not successful; and removed eye with father's permission, as there was great loss of vitreous, due to my manipulation. The conjunctival wound was closed by means of a purse-string silk suture, which was removed in seven days. Uneventful recovery and prothesis was inserted four weeks later.

CASE 5.

"E. W. P." Case No. 5.

Name: E. W. P. *Date:* February 9th, 1915. *Address:* Oklahoma. *Age:* 34 years. *Occupation:* Stillman for oil refining company. *History:* Five months ago, while cleaning rust from inside of large tank, felt something fly into left eye, but paid no attention to it at the time. He consulted a physician the following morning, who treated the eye by lotions, etc. Vision failed rapidly and he consulted an eye specialist, who kept him under treatment for four months, seeing him three times a week; finally telling him the eye would have to come out. Came to Chicago to me for examination and advice.

Findings: Vision, right eye 20/20 and J. I. Left eye very faint perception of light. Pupil markedly contracted; no fundus reflex; tension subnormal; intense congestion and redness at corneal scleral margin. Continuous pain, which radiated over the top of the head and down the left side of the neck. X-ray picture taken immediately and foreign body located in the posterior orbital tissue or in the sclera itself, very close to the optic disc. Right eye sensitive to light and exhibiting some symptoms of incipient sympathetic ophthalmia.

Diagnosis: Penetration of the eye by foreign body which is still present.

Prognosis: Hopeless so far as saving the eye is concerned.

Treatment: Eye enucleated under general anæsthetic and conjunctival wound closed by means of a purse-string silk suture which was removed eight days later. Atropin instilled in right eye. Uneventful recovery and prothesis was inserted four weeks later. The right eye retained vision of 20/20 and J. I., and patient returned to his original occupation.

CASE 6.

"E. O." Case No. 6.

Name: E. O. *Date:* April 13th, 1916. *Address:* Hinsdale, Ill. *Occupation:* Laborer. *Referred by:* Corporation. *History:* While

working on the street breaking concrete was struck in the right eye by a piece of metal dislodged from the burred edge of a sledge hammer wielded by a fellow workman. Another fragment buried itself above the right eyebrow cutting a jagged wound. Patient stated that he could not see out of the injured eye immediately after the accident, but had practically no pain. A near-by physician removed the metal from the forehead but did not touch the eye.

Findings: Penetrating wound at the corneal scleral margin at the inner median line. Iris still contracts and dilates. Anterior chamber still present but filled with blood in the lower half. No fundus reflex visible. Tension minus but eye not soft.

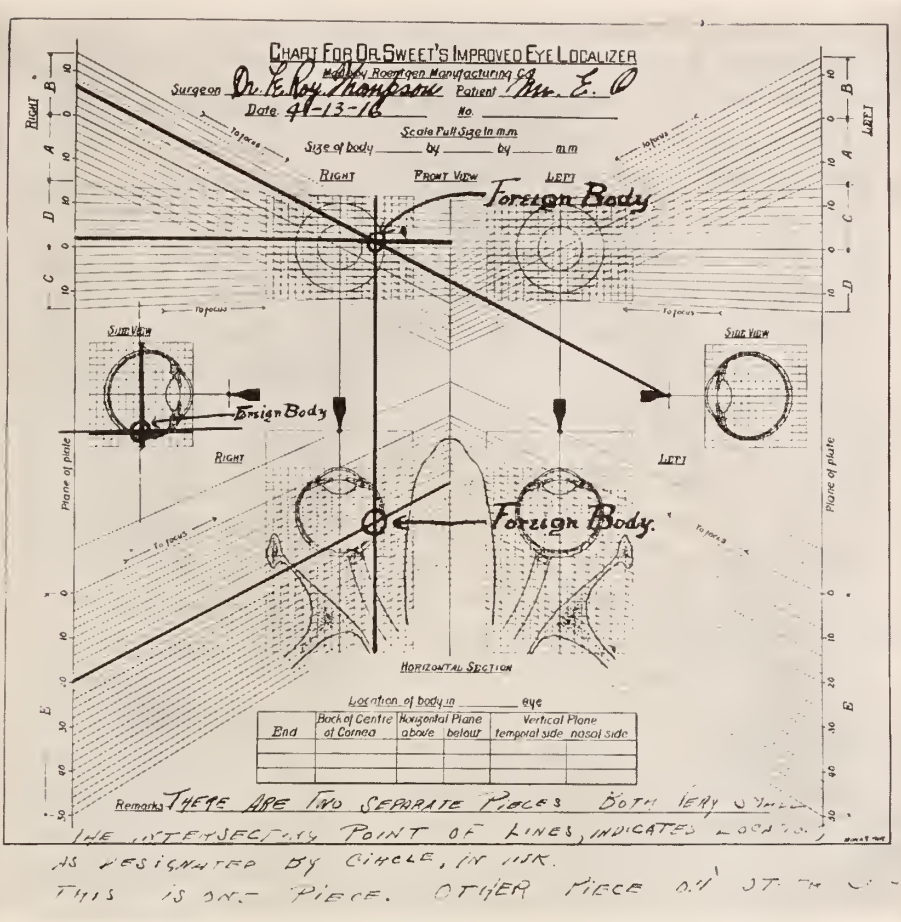
Foreign Bodies Magnified 24 Diameters.

"E. O." Case No. 6.

Diagnosis: Penetration of eyeball by one or more foreign bodies.

Prognosis: Probable enucleation.

Treatment: Atropin Sulphate solution, 1 per cent., one drop in eye every five minutes for three doses, which obtained good dilatation. Patient was then able to count fingers; fundus reflex became visible; ophthalmoscopic examination revealed interocular hæmorrhage in the lower field. Radiographic pictures taken, using Sweet's localization method, showed two distinct foreign bodies deeply imbedded. Patient was put in hospital and made ready for general anæsthetic and operated



"E. O." Case No. 6.

on the same evening using powerful magnet, tip being inserted through the wound made by the foreign body entering eye. We were unsuccessful and it was decided to wait until hæmorrhage had somewhat absorbed before attempting further manipulation. Three days later I was able to discern clearly the glittering pieces of metal imbedded in the retina by means of the electric ophthalmoscope and decided to operate again.

The technique followed was somewhat different to that in the previous cases in that the assisting surgeon manipulated the magnet through a cut made in the median line through the sclera externally and opposite to the foreign body, while I watched and guided, by

means of the electric ophthalmoscope, the direction of the tip and was able to observe the smaller piece of metal (No. 3) jump from its implantation in the retina near the ciliary body to the metal tip of the magnet which was withdrawn and specimen preserved. A second insertion was made through the same opening and carried directly through the vitreous to within three mm. of the second foreign body (No. 2), which was seen to pull itself out of the retinal tissue and stick to the tip of the magnet which was again successfully removed and specimen saved.

The field of vision was now obscured by hæmorrhage, and as we had two foreign bodies which corresponded with our radiographic findings, naturally supposed the operation had been successful. Another set of radiographic pictures disclosed the fact that there was still another foreign body imbedded (No. 1) apparently in exactly the same location from which we had successfully removed the second piece of metal (No. 2). Within twenty-four hours the eye began to show signs of inflammation, which rapidly grew worse, and it was decided to enucleate.

On careful dissection of the enucleated eye I found a particle of metal imbedded, 2 mm. long and 1 mm. wide with jagged edges which had resisted our magnetic pull. The other fragment which we had removed had not been so deeply imbedded and was so closely adhered to the one remaining that we had all made an error in assuming that there were two foreign bodies when in reality there were three.

The patient made an uneventful recovery and prothesis was inserted in four weeks.

CONCLUSIONS.

The prognosis in all cases should predict the ultimate removal of the injured eye and any contrary result be the exception rather than the rule. Radiographic pictures should be made immediately and effort made as early as possible to remove the foreign body, even though the history does not conclusively point to foreign body penetration. I am greatly indebted to Dr. C. Gurnee Fellows, Chicago, for consultation and surgical assistance in cases No. 1, No. 2, No. 3, and No. 6. Safeguard the patient and oculist by consultation, accurate records and straightforward advice so that any medicolegal complications arising afterwards may be dealt with fairly.

30 No. Michigan Blvd.

SOME OBSERVATIONS UPON TUMORS OF THE EYE.

Charles Leslie Rumsey, M. D.,

Baltimore, Md.

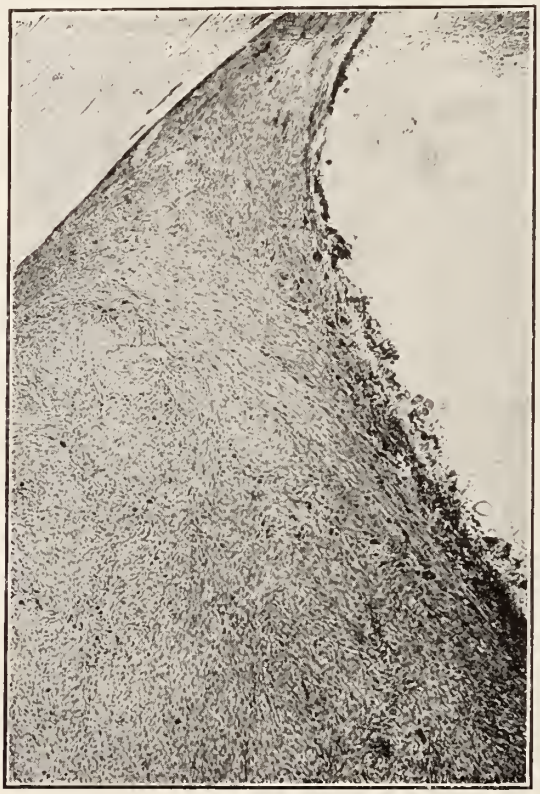
THE interest pertaining to the subject of ocular tumors prompts me to publish some of my observations upon them. The malignant growths in the eye are not only important in themselves, but also because of the light they are apt to throw on obscure parts of general pathology. A good prognosis can often be given to early diagnosis and enucleation. The following cases have attached microscopical sections.

Case I. A. B. Aged 4 years. May 1, 1898. According to the anamnesis, the father first noticed an altered appearance of the left eye two weeks previously. The right eye was normal, the left eye free from irritation, but blind; the pupil was sufficiently dilated without a mydriatic to see a pronounced golden yellow reflex behind the transparent lens. The tension of the eye ball was + 2. The media was clear, the child's health unaffected. The growth was covered with a plexiform net-work of vessels and had a finely lobulated surface. The growth apparently increased in the direction of the vitreous humor—Neuro-epithelioma endophytum. The usual form of glioma retinæ begins in the inner granular layer and grows outward toward the choroid (glioma retinæ exophytum). In rare cases it begins in the inner layers of the retina and grows inward (glioma endophytum). I regard this a better nomenclature. The enucleation was performed May 7th. The microscopical examination of the retinal tumor revealed glioma structure throughout—round cells with relatively large nuclei imbedded in an exceedingly delicate network of the thinnest fibres and numerous vessels of the most varying calibre. The optic nerve showed no trace of gliomatous degeneration; the lamina cribrosa was likewise not infiltrated with cells nor crowded backward. I last saw the patient four years afterwards, March, 1902, when he was developing into a strong lad.

Glioma has only a short primary stage in which it is curable, but

if the tumor is removed while it is still encapsulated in the eye, there is great probability that it will not recur,—provided the optic nerve is not involved. Unfortunately, I have not been able to keep track of the patient, as the family moved from the city. Excluding this case, I have observed two cases of glioma in different clinics, all appearing in the left eye.

Case II. Miss C. V. Aged 45 years. October 23, 1912. Father probably died of cancer. Sister had a hysterectomy for cancer of



Case II.

cervix. Patient had been under the care of an oculist for two months before consulting me. Complained of "nervous, weary feeling" in right eye, with gradual loss of vision. Vision 20/200 at four feet. Left eye normal. Right eye: conjunctival vessels enlarged, particularly on nasal side; tension 30 mm. Pupil action normal, but sluggish; nerve indistinct, but not raised. With Euphthalmine, one per centum solution, a full mydriasis showed a dark mass in the nasal area with

a beginning detachment of the retina. By means of the perimeter I located a scotoma in the field of vision, corresponding to the site of the tumor. The scotoma grows until total blindness ensues. (The ophthalmoscope showed retinal detachment and the blood vessels of the retina may be traced a considerable distance without interruption over the tumor, whereas in an idiopathic detachment the blood vessels cannot be traced because of the folding of the retina.) My advice to remove the eyeball was deferred until November 7th, 1912; examination of the specimen after operation revealed round and spindle cell sarcoma of choroid. Up to the present time no metastasis has occurred.

As these tumors are very vascular and newly formed blood vessels abound, having for their walls the cells of the growth, extravasation of the blood is frequent. These hemorrhages may be the cause of the glaucomatous symptoms which supervene sooner or later. Such a case was observed in Dr. Dimmer's class in Fuchs' clinic. The pigmentation may be from (1) that formed by the cell itself—autochthonous pigmentation; (2) that from the blood—hematogenous. The former is a product of cell metabolism and at a distance from the blood vessel; the latter abounds near a blood vessel. It is said that tumors with hematogenous pigment appear to be less malignant than others. To differentiate between autochthonous and hematogenous pigmentation, Kerschbaumer proposed the following:

1. In autochthonous pigmentation, the pigment cells are uniformly distributed. In hematogenous, irregular clumps occur near extravasations or along the vessels.

2. In autochthonous pigmentation there is a brownish black coloration and uniform fine granulation; in hematogenous, the color is golden to deep brown, and there is irregular, coarse granulation.

3. In autochthonous pigmentation the cells resemble normal chromatophores. In hematogenous they differ greatly in size and shape.

4. In autochthonous pigmentation no iron reaction is given; in hematogenous this is present, especially in the stage of coarse granulation. (Parson's Pathology of the Eye.)

To test for the iron present in the hematogenous pigment, any of the recognized tests will hold. Perls prefers the following: The section is placed for a few minutes in a two per cent. aqueous solution

of potassium ferrocyanide. Then it is transferred to a one per cent. solution of hydrochloric acid. The iron stains blue. The iron is present as hemosiderin.

To test for melanin in the autochthonous variety, the addition of caustic soda will cause the pigment to turn red. According to Virchow, the addition of sulphuric acid to the section will turn the pigment green, which changes to blue and then to red.

In the later stages the forward pressure of the tumor or hemorrhage into the eye or both block the filtration angle of the eye, which gives rise to shallow anterior chamber, insensitive and steamy cornea —iridocyclitis—cataractous lens with the tumor passing through the sclerotic and invasion of the orbit—which may all occur within a short period of time, giving rise to metastasis to the liver, lungs and stomach. Parsons states that metastasis or recurrences occur more frequently in the mixed type, to the extent of 37 per cent.; in the round cell type, 20 per cent., and in the spindle cell type, 19 per cent. Knapp maintains that spindle cell tumors are outgrowths of outer layers of choroid, and that the round cell variety are developed from the inner layers and choroid capillaries. Hirshberg believes that choroidal sarcoma can be considered completely cured when patients remain healthy four years after enucleation of an eye. However, judging from the reports of cases, we never know with certainty the complete cure of a choroidal sarcoma, as C. Lilly reports a melanotic sarcoma of the liver secondary to melanotic sarcoma of the eye removed ten years previously (London *Lancet,* August 5, 1911). The greatest enlargement of the liver by melanotic tumors is caused by primary sarcoma of the choroid. Transillumination by the lamp of Wurdemann for the anterior portion of the eye, and the diaphanoscope of Hetzel for the posterior portion of the eye, are valuable. The latter is a water cooled lamp of eighty candle power illumination. It is introduced into the mouth after the current of water has been set going. The mouth is closed over the instrument and the light turned on. It is best to put over the face a black mask with holes through which to observe the eyes. If no tumor is present, the previously dilated pupil lights up uniformly. If tumor is present, the pupil is dark. Shrunken eyes may be the seat of sarcoma. Reuss warns against all exploratory operations in supposed intraocular neoplasms, since they are apt to produce extrabulbar propagation or general metastasis. In the early

stages, sarcoma of the choroid develops slowly and without pain to the patient. The difficulty in diagnosis lies in the tumor being covered by the detached retina. From the frequency of reported cases, it would seem every detachment of the retina in elderly individuals which comes in without pain and without an accident can be suspicious. Myopia and lengthening of the axis of the eye is the usual cause of spontaneous detachment, but sarcoma can also happen in such eyes, as was seen in the following case:

Case III. J. S. Aged 34 years. July 5, 1900. Patient stated he had always been near-sighted. Worked on a farm near Easton. Could give no family history. While on his horse at a water trough, he was suddenly thrown forward over the horse's head, and, on rising from the ground, found he could not see out of the right eye. He came to Baltimore two months later, when I diagnosed detachment of the retina. The patient was healthy, and complained only of his right eye. Right eye showed pericorneal injection, shallow anterior chamber, tension +1. Pupil dilated with no fundus reflex; detachment of retina diagnosed with suspicion of tumor owing to the marked increased tension, as diminution of tension favors simple detachment. Left eye: normal fundus, with refraction Sph. — 10.00, D = Cy. — 1.00, Axis Vertical. The eyeball was enucleated July 20, 1900, owing to increasing tension, with increase of pericorneal and conjunctival injection, and beginning pain. The eye was placed in weak Muller's fluid, and when opened in about twenty-four hours a small quantity of chocolate colored fluid ran out. There was a tumor 5 mm. square, somewhat nodular, attached immediately at the posterior pole. The microscopical section showed a round and spindle cell sarcoma. The patient was to return to the farm, but his employer wrote me he had never returned, so I lost all trace of the case.

Case IV. A. B. 55 years old. January, 1899. Patient first noticed a small elevation on the outer corneal margin of his left eye one year ago. It had become black since Christmas, which he thought was due to the cold weather and high winds in the country. He had also experienced slight pain for about three weeks. Patient had always been healthy. The right eye showed normal fundus with normal vision. The left eye showed a growth measuring 10 mm. from above downward and 6 mm. broad. It covered the left third of the cornea and a part of the sclera, and was firmly attached. It sent out prolongations

like a thick pannus. The growth was of deep black color and conjunction bulbi was losing its transparency. Vision was 20/50. There was perfect closure of lids, although there was a tendency of the lower lid to go under the edge of the growth. The general appearance did not impress me that there had been infiltration of sarcoma cells. There was no involvement of lymph glands. I advised careful and complete removal of growth at one time, owing to the normal fundus and good vision, with the provision that if the microscopical

Case IV.

examination revealed malignancy, the entire eyeball was to be removed. The tumor proved to be an epithelioma and not a melanotic sarcoma. I have never understood what caused the black color, as the growth failed to show pigmentation in the section under the microscope,—though I have asked many pathologists. The eyeball was enucleated the next day and the patient is still living and in good

health. I did not have the facilities for immediate microscopical examination.

Case V. S. A. H. Aged 67. March 18, 1908. Patient gave the following history: In 1906 a lump appeared on lower lid of left eye; this had been cauterized by an oculist, and was later curetted by another oculist. Previous to consulting me, the patient had X-ray treatment by a Roentgenologist. The patient gave a good family history. The lower lid of left eye was ulcerated, extending from the middle

Case V.

lower border, involving the lachrymal sac and approaching the upper lid. I enucleated the eyeball, eyelid and lachrymal sac, making a lower lid after Ammon and Lagenbeck's method, and an upper lid after Frick's method, uniting the lids. Four and a half years later, November 4, 1913, the patient again consulted me, having received a scratch on the upper left eyelid while being massaged by his barber

two weeks previously. Patient had used salves and home remedies, without benefit and says: "ulcerated area has increased in size the last week." I advised radium treatment, which he received from Dr. Kelly, and in February, 1914, he reported at my office, to find the entire ulcerated area cured. On further inquiry, I learned that the patient died in May, 1914, of pneumonia.

In presenting these slides, I was unable to secure one from Case I and III, as the staining of tissue had faded and the sections were not thought sufficiently clear by Mr. A. J. Martin, who kindly made the slides and micro-photographs.

812 Park Ave.

DISCUSSION OF DR. RUMSEY'S PAPER.

William F. Beggs: I notice that the doctor had a microscopical examination made of a piece of the growth and received a report that it was an epithelioma. Then he removed the growth the following day. In my judgment it would have been better not to have made a section for microscopical examination unless he was prepared to do a radical operation.

C. L. Rumsey: Yes, that is the correct procedure, but I did not then have the facilities for microscopical work immediately preceding any surgical operation. I do not know of any clinic that had those facilities at the time that this case came under my care. The question presented for your consideration is,—Would it have been wiser to remove the whole eyeball at that time instead of the growth alone. I would also like to hear an expression of opinion on the results of the radium and the X-ray treatment in such cases.

George D. Arndt: In 1907 I had a case of epithelioma of the upper lid of right eye in a patient 80 years old; it had been operated on three times with prompt return of the growth. The patient objected to further operations and, indeed, there seemed to be little prospect for benefit from one. That seemed to make it a case for X-ray treatment. I used a low vacuum Piffard tube with a leather screen, the tube in direct contact with the lid. Each treatment lasted five minutes; it was kept up on alternate days for eleven treatments until there was dermatitis; this was followed by treatment with leucodescent lamp, 500 C. P., twelve treatments of twenty minutes each. By this

time the dermatitis was well and the cure was complete. The woman has remained well ever since. The diagnosis was confirmed by the Cleveland C. P. S. Path. Lab.

YE NOSE AND YE THROAT MAN.

Every ten minutes from nine until one,
He whirls on his stool, and has bushels of fun.
Through a dilating telescope poked up your nose,
All kinds of perfume with compressed air he blows,
Then a big wad of cotton on a crowbar he sticks,
And jabbing it through, does a lot of mean tricks.
Then he puts in a looking glass, jerks out your tongue,
And makes you sound notes that you never have sung,
And when you're not looking, and start to inhale,
Puff! goes the powder! You gasp, cough, and quail.

'Neath the palatal pillars, he digs and explores,
And carves the de-bris from the roof and the floors.
And indeed, by the time that this epic is written,
There are a few tonsils left to be gouged out or bitten.
But you nose and throat men can now cheer up again,
For the mastoids present quite a lucrative vein.
For a long while the specialty ran in a rut,
Until tube-work took in lungs, and stomach, and gut,
And since Chevalier Jackson has shown them all how,
They are taking out hemorrhoids through the tube now.

Dr. Joseph M. Jackson, *for the Medical Pickwick.*

PARTIAL BILATERAL STENOSIS OF THE NARES DUE TO SYNECHIA—PRESERVATION OF A CASE.

GEO. J. ALEXANDER, M. D.,

Philadelphia.

UPON looking into a nose that contains so marked a degree of bilateral stenosis as the one representing the subject of this article, one is so forcibly impressed that his mind quickly begins to search the different pigeon-holes of experience for the correct one of a number of conditions possible as the cause; coming to a diagnosis through the method of exclusion from facts furnished by the indispensable, carefully taken history of a case.

Stenosis caused by synechia as in this instance may have to be differentiated from such possible conditions, obstructive in character, as: 1. Congenital Occlusion; 2. Rhinoscleroma; 3. Fibroma; 4. Enchondroma; 5. Osteoma; 6. Cysts; 7. Exostosis.

1. Congenital occlusion is comparatively rare; occurs in the posterior choanæ, may be unilateral or bilateral, bony or partly bone and partly membranous, complete or incomplete.

2. Rhinoscleroma occurs in adults, is extremely rare in this country, and when found it is in patients from South East Europe, where it is quite prevalent. It is a chronic progressive inflammation which rapidly develops cicatricial tissue in the mucous membrane on the floor of the nose; it is pale and glistening in appearance becoming indurated and swollen, causing disfiguration and obstruction to breathing, catarrh, and, finally, complete stenosis.

3. Fibroma. Fibrous new growths are remarkably rare in the nose, gradual in development and occlusion; they are pedunculated, rarely sessile, occur on the septum or inferior turbinate, usually on its posterior end, finally filling up the posterior choanæ or dropping into the post-nasal space.

4. Enchondroma is exceedingly rare; present in young males, rarely on the floor of the nose, develops slowly with obstruction and an accompanying catarrh, and is apt to degenerate into a chondro sarcoma.

5. Osteoma is a rare neoplasm in the nose, usually ivory-like in consistency, springs from the ethmoid region, septum or floor of the nose, and has a short, slightly movable pedicle; when they become large, they cause obstruction, catarrh, pain and absorption of other bony parts.

6. Cysts, that occur on the floor of the nose, because of their location, are conditions which are of particular interest on this occasion. These are generally dentigerous, associated with some dental trouble, and may or may not be connected with the maxillary antrum. The dentigerous cyst is located just behind the vestibule on the floor of the nose, is sessile, round, pinkish-gray color, and as it grows upward, it pushes against the anterior end of the inferior turbinate. It may remain stationary for a long time, or it may grow rapidly, causing neuralgic pains and obstruction.

Fluctuation or crepitus can readily be detected by placing one finger in the nostril and another beneath the upper lip, while, if punctured, there will be a flow of amber-colored fluid.

7. Exostosis. Of all the foregoing conditions, these are the most important, because they are more common and more nearly resemble a synechia, such as I am discussing. Their location is for the most part on the floor of the nose. They are round, sessile, covered with a normal mucous membrane, seldom attain much size, cause only partial obstruction and are painless; the distinguishing feature being their hardness.

A summary of the above conditions shows the predominant symptoms and characteristics to be: slow growth, obstruction, catarrh, pain, absorption of bony parts, external or facial deformity in extreme cases, loss of sense of smell, impaired hearing and poor general development of the patient.

This brings me to the consideration of intra-nasal synechia, its cause and effect. I have been able to find comparatively little mention in the literature of this condition existing as the gross primary pathological cause of nasal obstruction, it being usually present in a minor way along with other nasal deformities, notably deviated septum, septal ridges and spurs. It may exist in any part of the nose, but is more commonly found as a bridge of varying size between the inferior turbinate and the septum, or attaching these two parts as a solid mass to the floor of the nose, as in this instance. The next location in fre-

quency is that in the form of an adhesion between the middle turbinate and the septum.

While there are a number of conditions that may result in synechia, those most likely in childhood are injury and highly inflammatory processes, as membranous, rhinitic and nasal diphtheria.

(*a*) Injury to the inside of the nose may be the result of a burn or accidental introduction into the nose of a foreign body or from manipulations or trauma in the removal of a foreign body from the nose; or it may follow operative procedures on the turbinates.

(*b*) Membranous rhinitis. By this I mean a condition in the nose which occurs so frequently in young children, is nearly always bilateral and presents a partial or complete white membrane, that is, all or a portion of the intra-nasal parts are covered with a membrane, which is firmly attached to the highly inflamed swollen œdematous parts that bleed profusely on attempt at removal of the membrane, is always accompanied by a profuse thin grayish watery or ichorous secretion that completely fills every remaining available space in the nose. The margins of the anterior nasal orifices are excoriated and often the entire upper lip.

The condition is due to a mixed infection in which the staphylococci and streptococci predominate, precipitated by an acute rhinitis. In nearly all these cases are found large adenoid growths, and in some few remaining ones the intra-nasal space is very small and contracted, these obstructions causing an aggravation of the condition by interference with drainage.

The nose is completely occluded, and when the membrane disappears, the parts are raw and swollen, so that there is contact which often results in adhesions or synechia, if great care is not exerted by the rhinologist. The condition is most likely to be mistaken for diphtheria, and the physician should be extremely careful to exclude the latter disease.

(*c*) Diphtheria. Is by far the most serious of the above mentioned causes of intra-nasal synechia and is of special interest on this occasion, for the reason that the presence of the synechia is the result of and can be traced back to a severe attack of this disease. The history as presented by the patient and her mother being the following:

Female. F. H., age 15 years, and rather undersize, came to my

notice November 24th, 1915, because of nasal obstruction and for relief of repeated attacks of tonsillitis and giving a history of rather poor health for most of her life; measles and chicken-pox at the age of five years, and attacks of tonsillitis two or three times yearly since then.

At the age of six years with what was supposedly a specially pronounced attack of lacunar tonsillitis, light temperature, backache, chills, etc. Dr. Oliver B. Waite, on being consulted, was suspicious, and made a culture from one of the tonsils; this proved to be positive to diphtheria, for which antitoxin was used at once with good results.

Following recovery from the diphtheria, the mother noticed that the child breathed constantly through her mouth, the latter being wide open all the time, with loud snoring during sleep; she contracted frequent colds, and when told to blow her nose she always assured her mother that it was impossible for her to do so.

One year after the attack of diphtheria, and after the usual number of attacks of tonsillitis, the tonsils and adenoids were operated, the former by the method of tonsillotomy at one of the hospitals; this was followed by the usual number of attacks of tonsillitis up to the present. Marked impairment of hearing followed the diphtheria, and she has had numerous crops of furuncles in the external auditory canals for the past few years.

At the present time she breathes poorly through the nose, getting only a scant amount of air through this organ.

Examination.—Nose: The ala nasi are of the collapsic type and almost close the anterior nasal orifices on every inspiration, due probably to negative pressure from behind, because of a partial stenosis of both sides of the nose due to synechia between the inferior turbinates and the septum, the right side being more extensive, including the floor of the nose, and extending about one and one-half centimeters anterio-posteriorly. That on the left side is less marked, forming a bridge between the inferior turbinate and the septum, the latter being deviated to the right side with the more pronounced deviation posteriorly. For some inexplainable reason the otoscopic findings and functional tests were not included in my record and cannot be recalled at this writing.

Mouth.—Both stumps of tonsils are enlarged, soft and diseased, especially the right one; a fairly large amount of adenoids found by

the digital method, which was used because the nasal method and that of the pharyngeal mirror were impossible.

On November 28th, 1915, under general anæsthesia, I removed the adenoids and tonsil stumps, the latter by the method of tonsillectomy, finding both stumps extensively diseased and containing much caseous material in the crypts. The patient made a normal recovery with some improvement in breathing and general health, and it is expected that complete restoration of the function of breathing through the nose and recovery of her general health will follow removal of the synechiæ and correction of the deviated septum. This, I anticipated, would be accomplished by a submucous resection of the septum and incision of the synechiæ, keeping the latter separated and bringing about healing and patency of the meati by shrinking the parts with 20 per cent. cocaine followed by argyrol tampons and use of vaselined gauze pack, and, if necessary, the application of silver nitrate, pearl fused on the end of wire applicator or in solutions, at all times keeping the parts well lubricated with vaseline.

On January 22d, 1916, under general anæsthesia, six c. c. of normal saline solution, containing four drops of adrenalin, were injected under the periosteum of the septum to control bleeding, the synechiæ were divided and the deviated septum corrected by a submucous resection, the nose packed on both sides with plain gauze which was allowed to remain in place three days. On removal, the gauze was fairly dry, there was no particular reaction in the nose, and a good free breathing space in both sides was the result of the operation. Following this, with the exception of removal of the lower border of the right inferior turbinate under local anæsthesia two months after the first operation, the patient was treated daily according to the method outlined above, and later, every two or three days over a period of three months, when healing was complete and the patient discharged with practically perfect results as to function and general conditions; that is, freedom from colds, marked improvement of intellect, rapid physical development and increase of weight, until, at the writing of this paper, nine months after her last visit to my office, her mother reports that the patient's appetite is wonderfully improved, her teachers notice a great change in her mental capacity, her facial expression is entirely changed for the better, her general development

has been wonderful and her hearing, which was markedly impaired, has become practically normal.

In the review of the history of this patient, it was shown that the most important evil effects of the existing intra-nasal synechiæ and septal deformity were collapse of the ala nasi constantly present, but particularly on inspiration, obstruction to breathing, frequent colds, sluggish mentality, poor state of general health (due to too little air and deficiency of oxygen taken into the lungs), and ear affections, more especially inflammatory or catarrhal, of the Eustachian tube and middle ear—all of which were overcome by the surgical procedures employed.

Of special interest is the fact that practically a complete response of the impairment of hearing for which, at the time of operation, fear was entertained, might have been at least partially the result of the attack of diphtheria, the collapsic ala nasi, as has been shown, being the only abnormal state that made a partial response to our efforts.

1831 Chestnut Street.

PHYSICIANS TO CHARGE HIGHER FEES.

Since the war began, the price of everything has greatly increased, therefore the cost of living is augmented. So far most physicians have not increased their charges. The Newcastle division of the British Medical Association, however, has decided to increase medical fees from 15 to 20 per cent., owing to the increased cost of living, drugs, etc.—*Jour. Amer. Med. Assn.*

"THE IMPORTANCE IN RHINOLOGICAL CASES OF HAVING ORTHODONTIC CO-OPERATION.*

Wm. F. Beggs, M. D.,

Newark, N. J.

THE Old Testament records the fact that the sun and moon stood still while Joshua and the Jewish hosts marched to the destruction of the Amorites. (Joshua 10:12.) All liberal scholars today will allow that no doubt the prophet was blessed with an extra bump of creative imagination when he made a record of the sun's doings. In this age we might call it "padding the returns." As this is about the only instance to my knowledge where standing still availed toward success; have recorded same even though it "ain't so." Nothing stands still. Atomic and molecular activity, is ever present throughout organic and even inorganic nature. We as followers of Hahnemann should remember this or else we will be followers rather than leaders in scientific medicine.

Noticeable among the recent innovations in medical practice are the teams and groups of general and special physicians and surgeons. Dr. Joseph C. Beck stated in a paper, entitled "Team Work," read before the Academy of Oph., O. and O.-L., at Chicago last year, that that city had over ninety teams or groups of M. D.'s working together for mutual benefit. While at the Mayo clinic at Rochester recently, was informed upon interrogation that there was a working force of eighty odd assistants, all experts, representing all departments of medicine and surgery, with its allied branches, and yet no oral surgeon or orthodontist. This, no doubt, is disregarded in Rochester because almost the entire clientage at Rochester has reached the adult age. The organization of hospital staffs and clinics throughout this land show much the same plan as to the groups and team formation only more amplified; nevertheless, the organized groups or teams rarely have associated with them either an oral surgeon or an orthodontist. As the latter only comes under this caption I trust you may pardon

*Read before New York County Homœopathic Society, Jan. 11, 1917.

my mentioning the oral surgeon. Have been recently told by a reputable orthodontist that there were a thousand places to one practicing operator (I refer only to exclusive operators). The expense attached, combined with the extended period of treatment (rarely under three years), has no doubt spelled impossible to many cases in the past. However, all large centers of population have now free clinics where this work can be properly attended to. It will never arrive at its true status till the medical fraternity does its part by co-operation.

Removing focal infections and correcting anatomical deformities is the up-to-date slogan in our work. In other words, prophylactic treatment has first place with all progressive physicians. All of us who are doing rhinological work must admit of a failure now and then to restore normal respiratory function after medical treatment and surgical procedure. A simple operative technic for p. n. adenoids may favorably lessen our failures, for most of us operate for adenoids by sense of touch alone. Our modern tonsil operation is now considered by all as about classical. In my opinion local anæsthesia offers the best results in the adult, lessening expense, shock and injury to pillars of the pharynx. The septum and sinuses and turbinal bodies are frequently operated to restore nasal function, nevertheless, it is generally agreed that during the formative period under puberty, operative work upon these structures is contra-indicated. Therefore, a minus rhinological function unable for correction through simple operative measures on naso-pharynx, must, of necessity, receive the necessary relief through orthodontic method, which must be done before puberty. There is a general erroneous opinion in the profession that orthodontic methods applied through a mechanical contraption in the mouth can produce at will a widening of the floor of the nose, say, ¼″ to ½″, according to the exigency of the case, and thus correct a stenosis. In the consideration of a case of orthodontia, it is absolutely impossible to say just how much width can be added, if any, to the nasal spaces. The normal arch must be restored; when this is done the improvement in nasal function will soon be manifested. All orthodontic work is best done before complete eruption of the teeth. If the case is of fairly long standing, approaching puberty, we will observe an apparent shortening of the upper lip (orbicularis oris muscle). This can in many cases be entirely corrected only by training and studying the individual

characteristics—as it at times simulates a habit "tic." The correction of mal-occlusion with or without the complication of mouth breathing is a serious menace to the health and cosmetics, independent of the stigma of "weak will." Proper mastication with a diet in coarser foods will give a freer and richer blood supply not only to the muscles of mastication and deglutition, but will also go a long way to correct the nasal stasis through the introduction of a more active blood supply. How frequently does a post-operative tonsil hæmorrhage, as well as apoplexy, occur after a hearty meal! It might be well to elaborate this idea a little here. Exercise to a muscle is bound to bring a richer arterial blood supply. All the muscles of mastication with the tonsils and nose have a common blood supply excepting the temporal. The facial artery supplies the pterygoid, mylo-hyoid, digastic masseter, buccinator and orbicularis oris muscles, the tonsils, septum and naso-pharynx. The lingual supplies the tongue, tonsils and soft palate. The internal maxillary supplies the pterygoid, masseter, buccinator and mylo-hyoid muscles, the teeth, antrum, septum, rhino-pharynx and ethmoid cells. This idea was advanced by John Kepke, of Brooklyn, in a paper, "The Relation of Mastication to Nasal Breathing," published in December, 1916, "The Dental Cosmos." The nasal bones, periosteum, mucosa, all enter into the receipt of better blood, and thus help is given toward the correction of a vicious circle.

It is not the purpose of this paper to enter into a scientific discussion of the biological causes leading up to this special class of cases, for I am not at present competent. There is an imbalance in the internal secreting gland, such as Thymus, Pituitary, Adrenalin, and Thyroid. Whether the pituitary gland with a disturbed function modifies the growth during early developmental life is a mooted question. We know that in rare cases it does after adolescence producing acromegaly. In my opinion the cause is not simple: over-civilizing influences with the host of problems which all that word entails represents the leading factor. Aboriginal races living a more or less simple out-of-door life and subsisting on coarser foods rarely suffer from respiratory errors; hence we will have to charge the faculty types to civilization with the expectation that evolutionary influences will in time adjust man to his newer environment.

Before concluding it might be well to individualize a little. A normal arch is one which will accommodate a full set of teeth. This

may be high, medium or flat, according to length of head or shape of face.

Type—Usual—High contracted arch with crowded teeth; lower jaw usually undercut. History of recurrences of adenoids after removal. Child is anæmic, catches cold easily, under-developed in every way, and usually neurasthenic and fatigues easily. Inheritance may be tubercular, alcoholic or syphilitic with hyper-thyroid tendencies. A less usual type is the cretanic; teeth small and undeveloped and very late in erupting, with a broad flat arch and imperfect occlusion. This type has the flat, broad face, great width between the eyes, thick lips and stupid expression. Hypo-thyroidism is the basic fault. Doses of thyroid extract over a long period will work wonders. Orthodontia cannot make a perfect child, but I have seen striking changes in the facial expression.

Thymic insufficiency exists many times in childhood—a thymus gland which commences a too early atrophy will give the type "status lymphaticus."

In inherited syphilis we have the Hutchison pegged teeth; frequently an incisor or bicuspid will fail to erupt. Snuffles ushers in the child and a vicious circle is established. The best we can do here is to temporize.

Rickets frequently gives a call for orthodontic help. The teeth are usually late erupting and show pittings on the face of the teeth, especially the incisors.

It is far from my purpose to have you think that orthodontia is a cure-all for respiratory ills. The journals of the experts frequently do much harm by espousing so blindly their cause. The truth we want and should have, and it many times lies in the mid-ground. The co-operation of the orthodontist is all that we should have, and then in the future our results will come nearer to the ideal (perfection) for which we are all striving.

In conclusion, the principal point that I wish to drive home is the necessity for co-operation—it is in the air. The winner of this great war in Europe, whether Allies or Entente, is going to be the one best organized, and that means of necessity absolute co-operation in every civic and industrial department. Geo. W. Perkins in the supplement of the N. Y. Sunday *Times,* writes of the necessity of better co-

operation in the distribution of foods to relieve the high cost of living. The necessity of greater co-operation between capital and labor is voiced in a popular lecture given by Frank A. Vanderlip, President of the New York City Bank. Dr. Van Hise, President of the Wisconsin University, writing along these lines says: "Co-operation on the part of men who are devoting their lives to research, he believes, will eventually cure most, if not all, the material and spiritual ills of the world."

"As for the truth, it endureth, and is always strong; it liveth and conquereth for evermore." (*Esdras.*)

A METHOD OF RENDERING CELLULOID PLASTIC.

Place the celluloid in ether solution; in a few hours the celluloid will swell slightly and become soft as jelly. Take it out of the solution, mould and let dry. The celluloid will resume its original thickness and appearance, but retain its new shape. Ether also being one of the most powerful bactericides, will effectually sterilize the mould and make it ready for insertion.—*Brit. Med. Jour.*

HIGH REFRACTIVE ERRORS AMONG SCHOOL CHILDREN.

Lewis C. Wessels, M. D.,

Ophthalmologist, Philadelphia Bureau of Health.

OUT of some twenty thousand children refracted by the writer in his official capacity as ophthalmologist of the Bureau of Health, in Philadelphia, there have been not a few cases out of the ordinary, and the relationship of hereditary or family trait is often quite striking.

Myopia is conceded to be hereditary in some families, while hyperopia is so frequently encountered we might almost say that it is a normal condition in children.

While hyperopia of six, seven, or eight diopters is not infrequent, one family of high hyperopia was particularly interesting. First, M. S., nine years old, in first grade, had a full correction of + 18.00 both eyes. She accepted + 14.00 o. u., vision 15/50, returned in one year and accepted + 16.00 o. u. She has a brother wearing + 12.00 o. u., one other older brother has a similar condition.

Four years later sister of the above was referred to the City Eye Dispensary for refraction. E. S., eight years old, first grade, full correction + 17.00 o. u., prescribed + 15.00, was difficult to find exact amount of improvement on account of ignorance of patient, improvement was noted. At the same time her brother, G. S., age nine years, second grade, full correction + 16.00 o. u., accepted + 14.00, vision 15/40 which will improve.

November 16, 1916. A. S., nine years old, first grade, same family, full correction + 14.00 o. u., gave + 12.00 o. u., improvement unknown on account of illiteracy.

Here are six children of the same family with exceptionally high hyperopia. Could not get any history of parents. The family is Italian.

Y. T., age seven years, grade first, Russian, full correction + 17.00, prescribed + 12.00 o. u.

High myopes are common. Five children in a colored family: M. M., age eight, third grade, wearing:

R.—6.00,—2.00, axis 30°.

L.—6.00,—2.00, axis 180°.

A. M., age six years, first grade, wearing:

R.—11.00,—4.00, axis 15°.

L.—10.00,—4.00, axis 165°.

A. M., age ten years, fifth grade, same family, wearing:

R. + 3.50, axis 90°.

L.—11.00,—6.00, axis 180°.

E. M., age eleven years, wearing:

R.—17.00.

L.—15.00,—4.00, axis 180°.

C. M., age eight years, wearing:

R.—17.00,—3.00, axis 180°.

L.—15.00,—4.00, axis 180°.

The first child in this family was refracted in 1908, the last November, 1916.

The highest myopia in a child was C. E., age 14 years, wearing:

R.—27.00,—4.00, axis 180°.

L.—25.00,—6.00, axis 180°.

Vitreous opacities, posterior staphyloma, etc. Advised removal to institution.

The largest amount of astigmatism was + 9.00 cyl. in a mixed case.

The seriousness of myopia in school children is not appreciated by our educational authorities, consequently it is not receiving the attention that its importance deserves. Close work should be reduced to a minimum and all home work and reading at night should be forbidden. The teaching of myopic children should be oral and their training vocational and manual, such books as are indispensable should be printed in large type on a mat surface. Special classes should be established for the teaching of myopic children. The regular classes are detrimental to the child's future; it would be better to take it out of school rather than jeopardize its sight.

Myopic children, as a rule, are good scholars; they are deprived of the health producing sports of out-door life on account of their poor vision for distance. While they have no difficulty in reading and

close work, so all their enjoyment is found in books, drawing or other close work which tends to aggravate the trouble. Unfortunately many of these children, through pride or ridicule, will not wear their correction, and ignorant parents are often responsible for this. This is all the more unfortunate because we have noticed if a child will wear its glasses constantly before the myopia has progressed, progression is often prevented.

The following is a typical case of indifferent wearing of glasses:

B. A. at the present time, age, thirteen years, seventh grade, came to us January 3, 1912. Correction:

R.—1.25, axis 30°.
L.—1.75, axis 165°.

March 9, 1914. Correction:

R.—4.50,—2., axis 15°.
L.—3.00,—3., axis 165°.

January 10, 1916. Correction:

R.—5.50,—2.50, axis 15°.
L.—3.50,—3.00, axis 165°.

Special classes for the teaching of myopic children or those suffering from other high degree of refractive errors are more important than special classes for the teaching of the mentally defective.

We hope in the near future to see such classes established in Philadelphia. In the meantime we must do all we can to educate the public to the importance of this little known or neglected subject.

A CASE OF SEROUS TENONITIS AND ONE OF ORBITAL CELLULITIS.

G. M. McBean, M. D.,

Chicago, Ill.

MISS B. Q., age 67 years, came to me September 7th, 1914, with a paralysis of the left external rectus muscle of about three weeks' duration. She had had a good deal of muscular rheumatism, and formerly a systolic blood pressure of 190 mm. On September 7th her blood pressure was 165 mm. systolic, and 100 mm. diastolic. She complained of some pain back of eyes. Her vision was 20/24 with correcting lenses in each eye. The ocular conjunctiva was œdematous; the media clear. The pupils small but reacted normally. The retinal veins distended and somewhat tortuous. Tension, normal. Diplopia from paralysis left ext-rectus. I gave her K. I. gr. x, t. i. d., and sodium salicylate gr. x, t. i. d.

October 8th, 1914. The paralysis of the left external rectus had entirely disappeared. The vessels of the conjunctiva were very dilated. Other conditions unchanged. A leech was applied to the temple. November 25th, 1914. Suddenly during the previous night she awoke with intense chemosis of left ocular conjunctiva so that she could not close the eyelid. There was moderate pain. Diplopia from impaired mobility of eye. There was a slight exophthalmos, and the ocular conjunctiva was so greatly swollen that it formed a sulcus about the cornea and projected from the lids. There was no excess of secretion from the eye. The lids were swollen and the lower one so œdematous that it was necessary to take a couple of Snellen sutures through the lid in order to reposit it. The fundus showed no change, the tension was normal, the pupil small, the vision corrected 20/32.

Treatment with Iodides and Salicylates was continued, multiple puncture of the œdematous conjunctiva, and a pressure bandage was applied. On December 24th, all the symptoms had gone except a slight congestion of the conjunctiva, and her vision was 20/24 — 4. She has had no recurrence in two years. This case was exactly similar

to the one described by Fuchs under Primary Serous Tenontitis, on page 709, of his text-book (third edition).

Strangely enough while this patient was in the hospital, I also had a case of orbital cellulitis there.

Case 2.—Olive Q., age 3 years, came to me November 1, 1914, referred by Dr. Honberger. For three days there had been a swelling of the left eyelid accompanied by a marked proptosis and a temperature of 100°-102°. The child complained of some pain, not very severe, coming in attacks. Pressure on the eye did not elicit much pain. There was a rhinitis on the left side with watery discharge. There was no chemosis of the conjunctiva and only slight limitation of motion.

November 5th, 1914, under general anæsthesia I made an incision over the upper inner orbital margin and another over the lower temporal margin. I passed the probe 1½ inches but found no pus. November 10th, 1914, a swelling had formed in the region of the tear sac. I incised again under ether, and deep probing showed denuded bone in the ethmoid region. I could find no pus in the nose. A drainage tube was inserted to the denuded bone but no pus was found at any time, only serum. The exophthalmos receded rapidly and the temperature fell to normal.

December 4th, the wound was dry, and there were no symptoms. Vision was apparently good, and the patient left the hospital. I followed the case up for a few months and there was no recurrence.

Probably there was some nasal sinus infection to account for this, but in a three year old child the sinuses are so small that diagnosis is exceedingly difficult if possible at all. The skiagrams in this case were of no assistance. The similarity in the two patients, both in appearance and in name, was sufficiently marked to excite comment in the hospital.

22 E. Washington St.

CASE OF ACUTE SUPPURATIVE OTITIS MEDIA WITH COMPLICATING SINUS THROMBOSIS. OPERATION AND RECOVERY.

Otis D. Stickney, M. D.,

Atlantic City, N. J.

R. V., age 5 years. Family and personal history unimportant. Had always been a healthy, robust girl.

Present illness may have had its inception during Christmas week, 1915, when she developed an acute rhinitis. This failed to clear up, leaving her with a muco-purulent nasal discharge. Her mother reports that about two weeks later the child had a convulsion and chill, followed by a temperature of 104.5° F. At this time she complained for ten or fifteen minutes of pain in the right ear. Her physician, an osteopath, did not examine the ear. He diagnosed her case as one of pneumonia, with a small consolidation in her right lung, which cleared up in five or six days. Then a patch of exudate was found on the right tonsil, which disappeared in a few days. Since then the mother says the child has never had a normal temperature, it varying between 99° and 101° F.

On February 13, the child began complaining of pain in her right ear. This persisted, and two days later I was called in consultation by Dr. Floyd McCall.

At my first visit I found a well developed child, with a temperature of 104° F., complaining of pain in her right ear. Her mastoid was somewhat tender. The membrana tympani was red and bulging. This was immediately freely incised. Under pressure, a discharge of sero-purulent nature appeared.

On the following day our little patient was more comfortable, and her temperature was about 102° F.

On February 18, and 19, her temperature had fallen to normal, and she complained of no pain, and looked better. Her ear was discharging freely.

On February 20, at noon, her temperature had risen again to 103.6° F. Soon after this she had a chill of several minutes' dura-

tion. I saw her within an hour, and was impressed by the decided change in her appearance from that of the previous day, when she was bright and playful, and had a fairly good color. Now she had a marked pallor, and was quite apathetic, and looked like a very sick child. Thinking that possibly the drainage from her suppurating ear was insufficient, the perforation was generously enlarged. A high enema was given, and a dose of Oleum Recini.

On February 21, at 8:00 A. M., she had another chill, with an abrupt rise in temperature from 100° F. to 104.2° F. She was more tender over the mastoid, and in the infraauricular region. There was no tenderness along the course of the internal jugular, and no fulness of the adjacent superficial veins. The movements of her hand and neck were free. She was drowsy, and irritable if disturbed; had a coated tongue with offensive breath. Her pupillary reactions were normal. She had a negative Kœrnig and a normal Babinski. Her eye grounds were normal. A blood examination made at this time gave a leucocyte count of 23,000 with 91 per cent. polynuclear cells. The aural discharge contained streptococci. The X-ray examination showed a cloudy mastoid, but afforded no information as to the condition of the sigmoid sinus.

At 2:30 P. M. I operated on the child in the Atlantic City Hospital. The usual simple masoid operation was performed. The cells were cleared out. The plate of bone over the sinus was intact. The sinus was next exposed from behind the knee to the tip. Its surface was covered with granulations, and about the knee was a yellowish fibrino-plastic exudate. The sinus was then incised parallel with its long axis. No bleeding followed, and a blackish clot could be seen within its lumen. The mastoid wound was temporarily packed with iodoform gauze.

The neck area having been prepared at the same time as the mastoid, an incision was then made along the anterior border of the sterno-mastoid muscle from the mastoid tip to the supra-sternal notch. The muscle and overlying tissues were retracted posteriorly with a broad retractor. The sheath containing the internal jugular vein, carotid artery and pneumogastric nerve was easily located. The vein was almost collapsed. Using two tissue forceps, it was dissected loose from the surrounding tissues; its branches were located and ligated.

Next, a ligature was placed as low down on the vein as possible, and another up as near the bulb as possible. The lower ligature was then tied and the vein cut through. A small quantity of blood continued to flow through the upper end of the vein, so the upper ligature was also tied. It had been my intention, if possible, to leave the upper end of the vein open, and to introduce a small drain up into the bulb if possible. This idea was abandoned on account of the bleeding. The ligated portion of the vein was now excised, the cervical wound sutured, and a small iodoform drain introduced into the upper and lower ends of the incision.

Our attention was next given to the sigmoid sinus. The clot was removed from its upper part, and was followed back until free bleeding was established. The vein was now followed downward nearly to its bulb, and more of the clot was removed. I did not succeed in securing free bleeding from the bulb end. The hæmorrhage from the horizontal portion of the sinus had been promptly controlled by iodoform gauze. Hydrogen peroxide was then poured into the mastoid cavity, and over the exposed dura, and this was then flushed out with hot saline solution. The cavity was then dried with iodoform gauze, and a thin wick of the latter was introduced into the bulb end of the sinus. The mastoid cavity was lightly packed with iodoform gauze, and the usual external dressing was applied for the head and neck.

The time of the operation was one hour and fifteen minutes.

At 4:15 P. M., about one-half hour after the child was returned to her bed, her temperature was 100° F., pulse 144, and respiration 36. At 4:45 P. M. she had another chill, and her temperature within an hour reached 104° F.

On February 22, at 8:00 A. M., her temperature was 101.8°, and at 8:00 P. M. it was 104° F.

On February 23, her temperature at 8:00 A. M. was 98.8° at 2:30 P. M. she had a chill, and at 5:00 P. M. her temperature was 105°, pulse 144, respiration 40.

February 24, 25, and 26, her daily temperature fluctuations continued. A blood count at this time showed her leucocyte to be 19,200. and the polymorphonuclear cells 84 per cent.

February 27, and 28, her temperature range was 97.8° to 99.8°, which looked encouraging.

On February 29, at 8:00 A. M., her temperature rose to 103° again; at 12:00 M. it was 101.2°, and at 4:00 P. M., after an alcohol sponge, it was 104.4°.

On March 1, at 6:00 A. M., temperature was 100.2°; at 8:00 A. M., 102°; after sponging it dropped to 100.2° again. In the afternoon it rose rapidly, so that at 5:00 P. M. her temperature was 106°, pulse 138, respirations 36.

March 2, by 1:30 A. M., the temperature had dropped to 97°. At 5:00 A. M. she had a chill, at which time her temperature was 103°, and at 8:00 A. M. another chill; her temperature was 105.4°, pulse 146, and respirations 36.

Three days after the operation I removed the iodoform gauze packing from the horizontal portion of the lateral sinus, the bulb end of which was washed out twice daily with a 1-5,000 bichloride of mercury solution, and at other times with H_2O_2, followed by salt solution. The neck wound was almost closed by the eighth day, excepting for a small place at the upper end of the incision.

On March 3, at 5:00 A. M., her temperature was 100.4°, pulse 112, and respirations 26. Her highest temperature on this day was 102.6°, and her pulse was down as slow as 96. Her general condition seemed good.

March 4, at 8:00 A. M., the temperature was 98.8°. It was the same at 2:30 P. M. At 5:30 P. M. she had a chill, the sixth one which had been observed during her illness. At 8:30 P. M. her temperature was 105°.

March 5, 6, and 7, the septic fluctuating temperature continued, and she had four chills. Her blood count at this time showed 15,400 leucocytes, and the polymorphonuclear cells 80 per cent. This was quite an improvement over the previous blood counts.

On March 6, the use of antistreptococcic serum was begun. This was given hypodermically in 10 to 20 c. c. doses, morning and night. At about this same date 8 or 10 drops of pus came from the bulb end of the lateral sinus.

On March 8, the temperature dropped to normal, and during the next few days it remained below 100° F., and after this it never rose above normal again, and the child made an excellent recovery, and was soon the picture of health. The antistreptococcic serum was used

twice daily for six days; a few drops were injected into the bulb end of the sinus at each redressing, and the iodoform gauze used in the mastoid wound was also moistened with it. Whether the antistreptococcic serum had a favorable influence or not, is difficult to say, as at about the same time as its use was commenced, as already mentioned, 8 or 10 drops of pus came from the bulb end of the sinus. However, if I have another similar case, and the infecting organism is the streptococcus, as it was in this case, I shall not hesitate to employ the serum again.

DEATHS AFTER WOUND OF HEART.

At a meeting of the Paris Société de Chirurgie (*Paris méd.*, October 7, 1916) Leriche communicated an observation of Desplas and Chevalier of a soldier brought in a dying state to the dressing station three hours after being wounded. No intervention was possible. The autopsy revealed the presence of a machine gun bullet in the front wall of the left ventricle of the heart, three centimetres above the apex. There was besides a vast hemothorax in the left chest (more than three litres of blood), with a perforation of the upper lobe of the left lung and a punctiform perforation of the pericardium, in which there was no blood. Leriche, in calling attention to the fact that the man had lived three hours after such injuries, said that in wounds of the heart death was immediate only in one of six cases.—*Brit. Med. Jour.*, Oct. 4, 1916.

DEPRESSED FRACTURE OF THE FRONTAL SINUS, COMPOUND COMMINUTED FRACTURE OF THE NASAL BONES FOLLOWED BY ACUTE ARTHRITIS.

Joseph V. F. Clay, M. D.,

Philadelphia, Pa.

THE patient, a young man twenty-five years of age, was working on a scaffold, which gave way, throwing him to the ground and a pile of bricks fell on him. He was brought to the Women's Homœopathic Hospital conscious, and presenting a lacerated wound of the right frontal region from which several small pieces of bone were removed by the receiving interne. Both bones of the right forearm were fractured. There was free hemorrhage from both nostrils. The case was treated in the general surgical ward until the sixth day when he developed diplopia at which time we were asked to see the patient.

Examination of the patient at this time disclosed a brawny swelling of the left eyelids, displacement of the eyeball forward, outward and downward, limitation of movements of the left eyeball in all directions, and suffusion of the conjunctiva. The eye grounds were normal. There was exquisite tenderness over the frontal sinuses. A lacerated wound presented directly over the right frontal sinus from which thick pus exuded. A probe introduced through the wound into the right frontal sinus apparently passed into the frontal sinus of the opposite side. The nasal septum was pushed to the right. The nasal mucosa was turgid, and pus was seen exuding from the left middle meatus. There was a compound comminuted fracture of both nasal bones, so that the bridge of the nose could be pushed from side to side.

Drainage of frontal sinuses and ethmoidal cells was advised and executed the same day.

Under ether and oxygen anesthesia the wound on the right side was opened and extended to the root of the nose. The outer wall of the right frontal sinus was found to be fractured, depressed and lying against the inner wall of the sinus, which was bathed in free pus. Sufficient anterior wall was removed to permit inspection. The frontal

sinus was curetted freeing it of granulations. There was a communication between the sinus of the right and left sides. The fronto-nasal duct was enlarged and the anterior ethmoidal cells opened. These also contained free pus. A drain was passed into the nose from above and the incision sutured with silk.

An attempt was made to sound the fronto-nasal duct on the left side; this was impossible on account of the swollen mucosa, the free hemorrhage and enlarged bulla, which was afterward clearly observed. The presence of a communication between the sinuses permitting the infection to pass into the left frontal sinus and the undoubted empyema of the left ethmoid led us to decide upon free drainage of both accessory cavities by an external operation. The left frontal sinus was opened externally, and found to be filled with granulations and free pus. A probe was passed through the fronto-nasal duct with difficulty, the duct being very diminutive. This was enlarged and the capsule of the ethmoid opened liberating pus. These cells were freely broken up and a drain passed through the fronto-nasal duct. The external wound was closed with fine silk sutures.

The comminuted nasal bones were moulded into shape and the bridge supported by packing. The external wounds were dressed with dry sterile gauze.

Twenty-four hours after the operation the wounds were dry and the packing removed from nostrils. The naso-frontal drains were partially withdrawn. The temperature at this time was 99° and pulse rate 80.

July 15th (next day), double vision less marked, the brawny swelling of the left eyelids subsiding. Removed all packing from the naso-frontal ducts.

July 16th. Removed sutures from wounds. Some pus from the right wound. The left wound is dry. Diplopia perceptible only in extreme position.

The temperature returned to normal and the patient was perfectly comfortable until July 23d, when he complained of frontal headache, sore throat and generalized aching. The temperature was 99°, the pulse 84. Both external wounds absolutely clean and a very slight amount of mucous secretion from the left middle meatus. The throat showed a slight general redness.

July 25th. Throat still sore; tonsils swollen; no exudate; nose free; breathing excellent; no discharge.

July 27th. Severe pain in the hip joints.

July 28th. Soreness and pain in all the large joints. Patient unable to help himself. He was at this time taken in hand by the medical department for treatment, it being decided the man was a victim of acute arthritis. He passed from my notice until August 18th, when he reported to me so badly crippled that he could scarcely navigate, at this time his chief pain and stiffness being in the spinal column and shoulder-joints. Examination of his nose showed it to be absolutely free from discharge, and his breathing perfect. I accordingly referred him to Dr. W. Rendell Williams for general treatment.

The regrettable fact in connection with this case is that we did not get a culture of the pus at the time of the operation, for we are all strongly of the opinion that the infection following the injury was responsible for the subsequent joint condition. The patient never had any previous joint manifestations.

2102 Chestnut St.

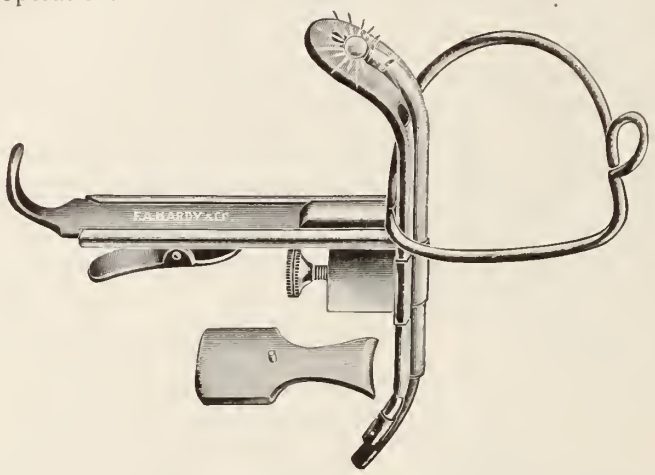
THE OPPORTUNITY OF THE INTERNIST.

The combined average mortality rate in all hospitals of the United States is over 12 per cent., whereas the death rate of the homœopathic hospitals of America is less than 4 per cent. The common statement that this is an age of drug skepticism in medicine does not apply to the homœopathic branch of the profession. The homœopathic physician uses all the known means to control disease, such as preventive measures, hygiene measures, diet, mechanical measures, and surgical treatment, and added to all of these the least amount of medicine that will increase bodily resistance to disease.—*The Polycrest,* Jan., 1917.

AN ADJUNCT TO MODERN TONSILLECTOMY.

A. B. Clapp, M. D.,
Muscatine, Iowa.

THE cardinal points to a successful tonsillectomy are, first, the anæsthetic; second, proper control of tongue and illumination of throat, and lastly, elimination of blood and mucus from the field of operation.



With these essentials in mind we have had constructed a modification of the Hitz-Sewall depressor-gag as illustrated. This gag is complete in that it holds the jaws apart and tongue down, giving a large area in which to work, carries its own illumination at end of depressor brilliantly lighting the entire throat, thereby dispensing with head mirror, and also conveys warmed ether vapor through a conduit in depressor to throat.

The usual method of application is to have patient anæsthetized before placing the depressor-gag into position, and then the anæsthetic regulates the flow of ether from the mixing bottle, and also by volume of air from motor driven pump which vaporizes the ether.

The ease of manipulating the anæsthetic, the proper illumination of the field of operation, the perfect control of the tongue with the removal of blood and salivary secretions by suction allows the operator to perform his labor in the least possible time which contends to less trauma and a rapid recovery of the patient.

Hershey Bldg.

CORRESPONDENCE.

Editor JOURNAL OF OPHTHALMOLOGY, OTOLOGY AND LARYNGOLOGY,
Cincinnati, Ohio.

Dear Sir:

I am mailing you herewith a booklet relating to the habit-forming drug situation. It is written with a view to influencing Congress and others to take action, which I trust shall be the beginning of the solution of this problem.

The physician plays a very much more important part in this whole subject than he realizes. My plan is to put this whole matter squarely up to him where it belongs, and to have him assume all medical responsibility for prescribing and administering not only the drugs usually classed as habit-forming, but also that class of drugs known as hypnotics and pain killers as well. And in putting this problem up to the physician I propose that he shall account for all of these drugs that he prescribes or administers.

I realize keenly the influence that the medical profession can bring to bear in helping to solve this big problem, and I am more than sorry that I cannot put into the hands of every physician in this country a copy of this booklet, believing as I do, that the plan which I propose would have the support of the entire medical profession. I shall be glad to send the pamphlet to any one requesting it.

I sincerely trust that your publication will give its full support to this undertaking, viewing the matter from its big, broad side—and I ask you to remember that we have a world problem to deal with, not a local one.

Very truly yours,

CHAS. B. TOWNS.

INDUSTRIAL BULLETIN ISSUED BY THE LOCAL OPTION LEAGUE OF PHILADELPHIA FOR DISTRIBUTION THROUGHOUT THE STATE OF PENNSYLVANIA.

THIS bulletin, issued by the Local Option League of Philadelphia, is designed to emphasize two points:

First—If Legislators are interested in the cause of the workingmen of this Commonwealth, the best service that can be rendered in the Legislature will be the enactment of a county local option law, thus giving to the workingmen an opportunity to express themselves at the polls on the vital question as to whether or not licenses for the sale of intoxicating liquors ought to be granted in a given community.

Second—If members of the Legislature desire to give the fullest measure of protection to the great industries of Pennsylvania, such protection can best be afforded by the passage of a county local option law, making it possible for manufacturers to use their influence effectively in connection with the regulation of the granting of liquor licenses in their community.

STATEMENT NO. 1.

The town of Berwick, Pennsylvania, is the home of the American Car and Foundry Company, which employs 5,000 workmen. It is a "dry" town, principally because this big industrial corporation launched a movement which resulted in driving out the saloons. This was done in the interest of efficiency at the plant and for the general good of the Company and its employes. That there may be no exaggeration or misrepresentation as to the benefit derived from this action, the league quotes from the statement under oath of W. E. Jarrard, head of the Safety Department in the Berwick district of the American Car and Foundry Company, in the License Court of Columbia County, January 14, 1916. Mr. Jarrard was on the witness stand in opposition to the granting of any licenses in that community. He declared, in part, as follows:

"What the elimination of the saloon had done for the foreign workmen is proven when taking two departments, namely, the Steel

Freight Car Construction and Erection Departments, in which a conservative estimate of 85 per cent. are foreign workmen and where there is practically no machinery to safeguard. Therefore, the elimination of accidents largely depends upon this class of workmen themselves, and not upon safety devices.

"During the six months ending December 31, 1913, one of these men was injured to every nine cars built. This, you understand, includes those receiving a minor injury, meaning to report for treatment, which is liable to become infected or develop blood poisoning and cause considerable suffering.

"Comparing this with the six months following a general booze notice issued the fore part of January, 1914, which eliminated drinking on the way to and from work and that which had been sneaked into the works theretofore, during these six months, one of these men was injured to every eighteen cars built, or a decrease of 51 per cent. in accidents per car built.

"Since saloons were eliminated from the community, we take the last six months of the year 1915, and find that one man was injured to every twenty-two cars built, or a decrease of 61 per cent. in accidents per car built. It is true that we were not so busy during 1915, but yet we take October and November, 1913, and compare with October and November, 1915, and find that these departments built 312 more cars than the year mentioned previous, showing a decrease of 74 per cent. in accidents per car or an increase of 266 per cent. in cars built per accident."

W. S. Johnson, General Superintendent of the American Car and Foundry Company, was another witness under oath at this time. He testified that although he had been warned that when business picked up and the Company needed men it would not be possible to continue the opposition to liquor and obtain the required number of employes, he asserted positively that as a matter of fact the character of the men applying for work since the town has become "dry" is far higher than under conditions which previously existed. He stated that at a recent conference of 22 department heads, the matter was automatically raised, and it was general opinion that never, since the big plant started, had there been such fine help offered, and never have they had such

men knocking at their door for work. The cause was discussed and all agreed it was due to the fact that the town was "dry." In fact, he had letters from men who stated that since Berwick was a "dry" town they wanted to work there, because there were fewer accidents occurring.

There is another side of the question that has possibly been the biggest single factor in the elimination of accidents, according to Mr. Jarrard. That has been the elimination of employes who indulge in intoxicating liquors. On this proposition Mr. Jarrard said:

"One of the most dangerous influences at work against the efficiency and safety of workmen is the use of alcoholic liquors. As in the case of fatigue, I believe alcohol even when used moderately distorts the nerve cells and weakens them to such an extent that the very muscles which are most vital in the performance of the daily duties are gradually rendered incapable of ready response and the individual, bereft of self-control, is placed in a position of constant danger to himself and to others. Therefore, one of the progressive steps that this district of the company has taken to safeguard the lives of its workmen and to maintain a high standard of efficiency has been its campaign against booze. Under date of January 17, 1914, the following notice was issued from the office of the General Superintendent:

"'To All Concerned:—

"'Workmen frequenting drinking places coming to or going from their work will be replaced by non-drinking men as rapidly as possible.'

"This order has been rigidly enforced and the men have all come to realize that the A. C. & F. Co. of this district will not tolerate a drinking man. A very appreciable reduction in the percentage of accidents developed when this restriction was placed upon drink.

"In one department where over 85 per cent. are foreign workmen and where the prevention of accidents largely depends upon the human element as there is practically no machinery to safeguard, we find by considering all injuries and comparing the six months previous to the elimination of drink with six months following an increase of 100 per cent. in cars built per injury.

"Since the establishment of this department in the Berwick district of the company which includes the Berwick and Bloomsburg plants,

the men have come to realize that 'Safety First' is for their own benefit in that it lessens suffering and loss to themselves and their families. Mechanical safe-guarding and habits of care have wrought a phenomenal change in plant efficiency and economy."

STATEMENT NO. 2.

The Victor Talking Machine Company, of Camden, N. J., employs 10,000 men in its plant. It is admittedly one of the most progressive and most successful business corporations in this country. At a dinner given by the Company to the heads and assistants in the various departments, and attended by the Board of Directors, at the Manufacturers' Club, Philadelphia, January 8, 1917, Belford G. Royal, the General Superintendent and a director of the company, made this declaration:

"I desire to make another observation—perhaps some of you have noticed the absence of intoxicating liquors at this dinner. Intoxicants were omitted from the menu purposely, as an example to the men employed by the Company, and with a desire to impress upon the employes that the Company is firmly of the conviction that liquor and efficiency in business will not mix any more than will oil and water. Intoxicating liquor is the workingman's worst enemy; it robs him of his physical equipment, which is his most vital asset. It is often directly responsible for accidents that otherwise would be avoided. Non-indulgence in intoxicants means safety to the workmen; indulgence, jeopardy of one's safety. Even liquor in small quantities destroys the efficiency of the employes because it brings on a feeling of drowsiness and there is again the possibility of accident.

"The day has come when conservation of human energy must be seriously considered by large employers of labor, and by employes themselves. The European war has cost millions of human lives, and no one knows how many more millions will be sacrificed. Men are at a premium, and they will be in greater demand before this war ends. Hence it behooves us to give grave attention to this economic problem, so that industrial America shall continue to be able successfully to compete with all the world in all lines of industry."

STATEMENT NO. 3.

At a recent convention of the National Safety Council, held in the Bellevue-Stratford Hotel, Philadelphia, representing about 5,500 members employing hundreds of thousands of laborers, the Joliet Works of the Illinois Steel Company announced the following set of rules:

"TO THE EMPLOYES OF THE JOLIET WORKS, THE ILLINOIS STEEL COMPANY.

"For the promotion of safety and the welfare it is hoped that all employes will avoid the use of intoxicating liquors.

"Under the rules of the Joliet Works, any employe who uses intoxicating liquor while on duty will be discharged.

"In making promotions in any department of the plant, superintendents of departments and foremen will select for promotion those who do not use intoxicating liquors.

Approved: E. J. BUFFINGTON, *President.*" (Signed) D. P. MATHIAS, *Gen. Supt.*"

STATEMENT NO. 4.

At the sessions of the License Court in Philadelphia and throughout Pennsylvania, large industrial companies have been employing counsel to represent them in an effort to prevent the planting of saloons in close proximity to their works. In Philadelphia, for example, there have been among the remonstrants the Midvale Steel Company, and the Link Belt Company, two of the strongest business organizations in that great industrial center. At the sessions of the License Court in Delaware County in December, 1916, industrial establishments with an aggregate capitalization of $11,167,431.00 protested against the granting of liquor licenses. Among the companies which were interested in fighting the applications for licenses were the Sun Shipbuilding Company, with a total capitalization of $2,500,000; the Aberfoyle Manufacturing Company, with a capitalization of $1,518,531; the Philadelphia and West Chester Traction Company, with a capitalization of $1,148,900, and the Philadelphia and Western Railroad Company, with a capitalization of $6,000,000.

Before the newly created Excise Board of the State of New Jersey, the United States Cast Iron and Foundry Company, of Burling-

ton, N. J., appeared as a remonstrant to protest against the placing of saloons in the neighborhood of its plant. This company worked for a year in preparing its case to present to the Excise Board. It selected secretly 100 men from among the employes, one-half moderate drinkers and one-half abstainers. In the first eleven months, the drinkers lost 4,156 days, or an average wage loss to each man of $150. The abstainers, in the same time, lost on an average of one day per month. The Company says that all losses in the eleven months, including reduced output of work, etc., amounted to $100,000, all of which is attributed to the saloon influence.

STATEMENT NO. 5.

Let industrial Coatesville speak on this question. Although that thriving town was without saloons for a comparatively short period of time, statistics given by bankers, business men, superintendents and men of affairs, tell a forceful story of the change that was wrought from the standpoint of the employer and the employe. To quote from the periodical called "Dry Spots," published by the No-License organization in the county:

"Decrease in accidents at our big steel mills for the past six months, compared with same period of last year, 54 per cent.

"Decrease in application for aid, 75 per cent.

"Charles L. Huston, Vice-President of the Lukens Iron and Steel Company, says that while it was predicted that great difficulty would be experienced in securing labor in a 'dry' town, the truth is they have had an abundance of labor at all times; and while two persons have quit their employ who gave as their reason for leaving Coatesville their determination not to work in a town where they could not get drink, many have sought work at the mills here because they wanted to work in a 'dry" town, where they could save some of their money. This is particularly the case with foreign workmen, and they have the best class of workmen now in the history of the works. The decrease in absence from work on Mondays, or days following pay days, is 80 per cent.

"Charles Stott, Superintendent of the Coatesville Rolling Mill Co.'s Viaduct and Valley Mills, says he has no trouble now in securing

good men to keep all the departments of these big mills going. When the saloons were open, he says, it was enough to set a man crazy sometimes to secure help. Men would get drunk on Saturday night and be unfit for work on Monday. The closing of the saloons, he adds, is the greatest blessing that ever came to Coatesville.

"A workman in one of the mills declared that, when the saloons were open, in his particular mill, with a capacity for rolling 175 to 200 tons of plate a night, it was not unusual that 20 to 40 tons would be spoiled in the rolling, following pay days, thus reducing the earnings of every tonnage man in the mill, because of the half drunken condition of some of the men. But, he adds, 'That's all history now.'

"Harry S. Woodward, a leading real estate broker of the borough, says that the changed condition since the saloons were closed, is simply marvelous. Rents are paid promptly, and occupants of houses manifest more pride in taking care of property."

If this looks like a good case; if the evidence herein recited seems to be convincing; this League asks you, members of the Legislature, to let it go to the people as a jury. The people are capable of passing on the facts and their judgment will be correct as to the regulation of the liquor traffic within the various counties of the State. Local option simply gives to the people the opportunity of saying by their votes at the polls whether or not applications for the sale of intoxicating liquors shall be granted in their respective communities. You are not voting one inch of territory "dry" in Pennsylvania by enacting a county local option law. You are merely making it possible for your constituents to decide this question for themselves. And there can be no doubt but that they can settle it and settle it right.

LOCAL OPTION LEAGUE OF PHILADELPHIA.
1524 Chestnut Street,
Philadelphia, Pa.
January 2, 1917.

LETTER TO THE EDITOR.

Recently a little girl came to our clinic with two letters, one from her father and one from the Selectmen of the Town of Acushnet, Mass. The father's letter, which is reproduced below, is, indeed, a touching appeal even if it be somewhat irregular according to the rules

of grammar, etc. The other letter, which is also spread out for you, is a fine display of conservatism. I thought you might wish to add to your "Gay and Grave" Department, for it struck me that the last of the two would make a physician smile even if he was tired and weary. So if you wish to use either for the benefit of the brethren, go to it, but omit names.

ANON.

R. F. D. box 23
Acushnett
Mass
May 13 1916

Dear Sir

Please look in this case of my dear little girls Elsie 11 years old has her eye is very sore it is not natural it happen at the age of 2 years old after she had been sick of ammonia she felt from a high chair back on the floor and i notice that her eye whas crocked no sir please do me this favor for i am poor and cannot pay but a heart of a father for his children is some time very narrow when he sees sickness come this way no sir the Lord will repay you a thousand fold in return i remain a poor father begging you for the sake of his little girl

A.....E P.....

Selectmen, Assessors and Overseers of the Poor.
Office of
Town of Acushnet

Acushnet, Mass., May 13, 1916.

To whom it may concern

A..... E. P..... a resident of this town and of good moral character is in need of a little assistance in regard to one of his children

it is understood that the town of Acushnet is under no obligation in this case only as a reference.

F..... E. W.....
J..... O. D.....
} selectmen of Acushnet Mass.

RAVAGES OF TYPHOID FEVER.

Health experts estimate that during the last ten years Germany has saved as many men from typhoid as she has lost by death at Verdun. They point out, on the other hand, that fewer men were killed in the Civil War on both sides, than have died from typhoid in the United States during the last ten years, and that our typhoid rate is four times that of Germany and England. The economic loss inflicted on the country by this preventable disease is apparent from the fact that in 1914, 200,000 Americans had typhoid, being sick on an average for from five to seven weeks.—*The Nation's Business.*

ABSTRACT.

A Clinical Consideration of Migraine.—John A. Lichty, M. Ph., M. D. (*International Clinics*, December, 1916.) Migraine is considered by the author as the most frequent headache, occuring in 700 of his 15,000 patients sick from all causes. He believes that the so-called acidosis in children may often be a forerunner of a well established sick headache habit. The interesting relation between migraine and epilepsy deserve further study. Among the author's 15,000 patients epilepsy occurred in 7, and both migraine and epilepsy in 70. Auerbach's theory which attributes migraine to an actual disproportion between skull-capacity and volume of brain, needs further proof. In the International Clinics for December Dr. Lichty, shows that the diagnosis is easy when there are headaches which are unilateral, periodical and hereditary, but when only one of two of these symptoms are present, or when there is only a periodicity of some of the minor symptoms or possibly of the auræ, the diagnosis may be difficult. Migraine is frequently mistaken for pelvic disease, for acidosis or cylindrical vomiting in children, and organic disease, when some of the auræ are present. The psychasthenic and the gastric symptoms frequently lead to confusion in diagnosis. While the underlying causes of migraine are vague and furnish little light as to treatment, much can be done to ameliorate the symptoms by proper handling of the exciting causes that aggravate the patient's general condition and precipitate the attacks. Most thorough investigation and careful individualization are indicated. Systemic administration of the bromide salts and avoidance of undue fatigue are especially recomended.

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Editorial

THE BUSINESS MAN AND THE DOCTOR.

THE assertion that the doctor is a poor business man has been repeated so often that it has become axiomatic. No one recognizes the truth of this statement and its corollary, *i. e.*, the abler the doctor the less successful he is from the business point of view, better than the business man; nor does anyone else seem to get quite as much amusement out of reminding the doctor of his most natural weakness. The thing has been rubbed into me so often by business men that I am sick of hearing of it. I can scent it coming and try to brace myself for the attack, but become so nauseated before it is over that my well prepared smile breaks down into a sickly grin. Others have suffered similar experiences.

A large proportion of the doctors are so much in love with their work that they are satisfied to serve humanity for a bare living, and would not change their vocations for any money consideration. Every real doctor has this love for his calling. The calling is so strong to him that he can heed nothing else. This is a thing that the successful business man can not appreciate. He is so accustomed to computing things in money values. He measures success by profits reckoned in dollars and cents. The doctor, on the other hand, measures success by the number of lives he has saved and by the amount of suffering he has spared humanity. Every doctor worthy the name is far more interested in the successful outcome of a serious case than he is in the amount of remuneration he is to receive for his services. The laity, including the business man, is aware of this fact, and frequently takes advantage of it.

Though the doctor may make mistakes in the business management of his practice through lack of a business training, mistakes that may

appear ridiculous to the business man, what has he lost by it? He has lost money and he knows it. But what about the business man? Does he ever make mistakes outside of his business? Why does he make them? What does it cost him? When it comes to choosing medical services the business man probably makes more mistakes than any other class of people. The business man may know the value of merchandise but is a poor judge of values when it comes to medical service. He may know how to select wool to manufacture into cloth, but he does not know how to select medical service for his sick child. His knowledge of business affairs may enable him to make a profitable purchase of some raw material that will net him a thousand dollars in a short time, but on reaching home and finding his child sick, his poor judgment as to the value of medical services allows him to select such poor service that it may cost him the life of his child. His thousand dollars' profit multiplied by a thousand will not bring back his lost child.

The business man who needs the services of a refractionist is prone to go to the optician for his first glasses. He finds that he can not see things at close range as he formerly did, and for this reason concludes that he needs glasses to assist him. He has neither the time nor the money to spend on an exhaustive examination, so instead of consulting the oculist, he goes to the optician. The result of the visit may vary from good to very bad. In most cases it is not entirely satisfactory, and in some cases decidedly unsatisfactory; eventually, after several fruitless efforts with opticians, he finds his way to the oculist, who not infrequently finds that the case had been badly bungled, and in some few cases damage has been done by misapplied glasses or the loss of valuable time in the treatment of some pathologic condition which was allowed to pass unrecognized by the optician. Experiences of this kind are witnessed repeatedly by the oculist. The leading mistake that the business man made was that of making his own diagnosis. No patient, even though he be a physician himself, is able to make a diagnosis of his own case. Neither can any one not versed in a subject make a diagnosis. No optician, no matter how versed he may be in optics, can diagnose an eye condition without ample training. When he has this training he becomes an oculist and not an optician.

Let us look at another case. A business man because he believes

he has catarrh of the nose and throat consults a nose and throat specialist. One of his first thoughts is how much is it going to cost for the examination and treatment; accordingly he puts the question to the doctor. The doctor tells him five or ten dollars for the examination and three or five dollars for subsequent visits unless an operation is necessary, in which case there will be a special fee. The business man may hesitate on the fee and recalls a Doctor X, since dead, who treated him several years ago for one dollar per visit.

After the examination the doctor acquaints him with the conditions found and, among other things, suggests a submucous resection of the septum, for which the charge will be one hundred dollars. The business man leaves the office with the remark, "Well, I will think it over and call you up in a few days." In the meantime in talking it over with others, he finds that his friend Brown had the same operation performed by Dr. Y for twenty-five dollars. To the business man a septum operation is a septum operation, just as wool is wool, so he decides to go to Dr. Y for the operation and incidentally save himself seventy-five dollars. But somehow the results are not quite as good as he anticipated. We rhinologists know why, but the business man does not; however, the one hundred dollar specialist is condemned along with the twenty-five dollar one. Had the business man applied his common sense to the case instead of riveting his attention on the business side of it, he could have figured out readily that no man who is skillful is going to operate a case for twenty-five that others are asking one hundred dollars for in the same locality.

One of the biggest mistakes the business man makes in dealing with the subject of medical services is that he gauges it from the commodity standard from which he can not separate himself in his other than business dealings. He sees everything from the business viewpoint. Occasionally they go to the other extreme and deliberately select the surgeon who asks the largest fee. But these cases are rare. There are some surgeons, wisely or not, who attempt to influence cases their way by asking exorbitant fees in the case of wealthy patients. Such doctors are not always the most skillful, notwithstanding the fact that they may be more apt in a business way.

There is one case that I can never forget which demonstrates clearly the ignorance of the average business man in estimating the

value of medical services. The patient, Mr. B., a prosperous builder, called upon Dr. C., a rhinologist, at the suggestion of his family physician in 1907. He was operated upon for a septum deviation. The operation was performed from the right side and the price paid was twenty-five dollars. The operation was after one of the older methods, necessitating quite a number of after-treatments. The patient noted, subsequently, an improvement of breathing through the right side. Several years later he wanted his family physician to take him back to Dr. C. to have a second operation performed in order to give him better breathing on the left side. In the meantime the family physician learned of another specialist, Dr. D., who was doing excellent submucous work; so he took the patient to Dr. D., who suggested a submucous operation. The patient inquired about the cost and was told that the fee for the operation would be one hundred dollars. The patient raised a howl and said the price was exorbitant and that Dr. C. had operated his septum on the right side for twenty-five dollars, and he did not feel inclined to pay more than that for the same operation on the left side. Neither the family physician nor the specialist was in a position to explain to the patient that the first operation was a failure and that the septum had been merely pushed over from the right side to the left. The question of the fee was finally adjusted, and the patient operated with very satisfactory results. The patient to this day can not understand why Dr. D. charged more for the second operation than Dr. C. did for the first, for with his wonderful business acumen and, especially since he was a builder, reckoned that the specialist who produced the greater pain, took the longer time and drew the greater quantity of blood, should be accredited with having done the bigger job.

This case reminds me of another, where a business woman (a milliner) refused to pay a reasonable fee for a submucous operation because it gave her no pain or inconvenience. She wanted to settle the bill on the basis of three dollars a visit—four times three equals twelve dollars.

I once had a wealthy oil man to call at my office for the treatment of a nose condition. A Wassermann was necessary, and I sent him to the laboratory to have it done. At the end of the month he received a bill for ten dollars from the laboratory. When he returned to my office the following day he was considerably angered, and said that I

was robbing him; that when he paid me for his visits that he felt that blood examination should be thrown in. I had to run him out of the office for fear that if I did not, he would convince the other patients in the waiting room that I really was a robber. Among other things he told me that a doctor up in Cleveland, an expert throat man, charged him only one dollar and a half for visits and included blood and urinary examination. He eventually landed in the hands of a dollar and a half man. What did I lose by losing the patient? I lost the money that his future visits would have brought me and retained my self-respect. What did the patient lose? I can not say, but one thing is certain—he is not gaining anything by going to a dollar and a half man who includes Wassermann examinations in the fee. No amount of argument could possibly convince that man that he was not being robbed, yet he is so fixed financially that he can afford to have the very best.

There is no end of cases that could be recited by doctors of instances where the business man, because of his very business training, has blundered in the selection of medical services. Blunders that cost the business man time, money, health and even life, that could have been spared through the proper selection of medical services. The business man knows full well that you cannot buy a fifty dollar suit of clothes for ten dollars. If he would apply the same reasoning in the selection of his medical service, he would be far better in the long run.

G. W. M.

MEDICAL EDUCATION OF THE LAITY.

THE intense desire of the average individual to dabble in medical and surgical matters has made him a close student, eager to absorb, from any source, a bit of medical or surgical knowledge. During the past few years certain of the magazines have entered upon a country wide propaganda of the newer medical and surgical discoveries. Their efforts have been amply repaid, for these articles are fairly devoured by the thirst for knowledge public. While the laity are reading, many physicians are busy gathering in the shekels and fail at times to absorb the newer things. The doctor no longer exercises the position of dictator in the family. Let the doctor make a diagnosis and immediately the members of the family ply him with questions formulated from their magazine knowledge, and

woe betide the fellow who has missed the latest publication of *Harpers*.

A query by an individual in the Philadelphia *Public Ledger*, Sunday, March 11th, 1917, adequately pictures this. The individual goes on to say that in *Harper's Monthly* for February there appears a resumé of the work done at the Rockefeller Institute in New York upon Pneumonia, giving in more or less detail the types I, II, III, IV and the prognoses, bacteriological characteristics and serum therapy of each individual group. He winds up by stating that although he had been in close touch with several cases of pneumonia in this city this winter, he had not heard of the classification by types or the serum treatment or whether the account in *Harpers* was actually based on recognized scientific discoveries.

Now we know that *Harper's* article is based absolutely upon accurate scientific data, and that the wide-awake clinicians have been diagnosing their pneumonias by the agglutination test and applying serum therapy.

Perhaps this dissemination of medical knowledge is a very excellent stimulus.

J. V. F. C.

THE NEXT MEETING OF THE O., O. AND L. SOCIETY.

FOLLOWING its usual custom, the American Homœopathic Ophthalmological, Otological and Laryngological Society will hold its annual meeting at the time of the American Institute meeting, in Rochester, New York, in the week beginning June 17th, and it is expected that there will be a large attendance.

Through the courtesy of the Rochester members of the Society, one day of the meeting will be devoted to clinics and to the examination and discussion of clinical cases which will be presented by these members. Every effort is being made to secure a large amount of clinical material so that this clinical day will prove a very interesting and instructive one.

The other days of the meeting will be devoted to the reading of a number of papers upon subjects especially interesting to those engaged in eye, ear, nose and throat work. There are already many

interesting contributions and the program, which will appear shortly, will prove exceedingly attractive.

The evening sessions will be devoted to lantern demonstrations by members of the Society. A very interesting demonstration will be given by a member of the Eastman Kodak Company Research Staff.

The Hotel Rochester will be the headquarters of the Society, and all meetings will be held in this hotel, which offers most attractive rooms for the meeting. As this hotel is only a block removed from the Power's Hotel in which the Institute meetings are to be held, it will be very convenient for the members of the Institute who wish to attend the meetings of this Society.

GILBRT J. PALEN.
President.

EDITORIAL TO SYMPOSIUM

THE chronic discharging ear presents a very important chapter in otology, and upon the otologist rests the responsibility of educating the general profession and the laity to the full dangers of this much neglected disease. There are still with us many practitioners who adhere to antiquated and erroneous ideas concerning the ultimate outcome of these conditions. It is important that we make known the dangers of chronic suppurative middle ear disease through the intracranial complications. Insurance companies recognize this and will not knowingly accept a risk with a chronic running ear. This same condition bars an applicant from service in the army or navy.

We have nothing new to offer in the presentation of these papers upon the subject, but feel that our work is justified if it but reawakens in some, or tends to perpetuate in others, an active interest in a subject we feel to be of great interest and importance.

J. V. F. C.

ETIOLOGY OF CHRONIC SUPPURATIVE OTITIS MEDIA.

JOSEPH V. F. CLAY, M. D.,

Philadelphia, Pa.

THAT certain cases of suppurative otitis media are chronic in their very beginning through the general causative agency is fully appreciated by every aurist. In these instances the etiological factor being a tuberculosis or a leutic infection, it is not difficult to understand the chronicity of the condition. Cases originating as a complication of scarlet fever, measles, diphtheria or typhoid fever are so intense and the process so destructive in its inception as to render a large percentage very stubborn to any form of treatment.

In another class of cases, the original infection of the middle ear is simple, but there are local or general factors present which prevent an early resolution so that changes in the ear occur which tend to perpetuate the suppurative process. In our special study we must not permit our local investigations to narrow our visual field. The ear is simply a part of a general economy, and the organism, as a whole, must ever be reckoned with in the treatment of disease. It is not enough to make a diagnosis of chronic suppurative otitis media. We must, if possible, find the causative factor which enables us to classify and scientifically treat.

It is acknowledged by modern observers that many cases of chronic suppurative otitis media are tuberculous in character. Phillips (Annals Otology, Rhinology and Laryngology, December, 1915) makes the statement "that he has determined to his satisfaction, that on clinical evidence alone, primary tuberculosis of the soft tissues, ossicles and bony walls of the midde ear is the determining factor in a large proportion of all persistent otorrhœas, especially in young children." This observation, we believe, may be well borne out in any large aural clinic if careful histories are taken and a thorough local search made for confirmatory evidence. Laboratory workers have given us much aid in this respect by their painstaking examinations of the discharge and by studying the cytology of the same. Contrary to the time-

honored idea, it is now possible to isolate the tubercle from aural discharge (Dwyer and Cocks) after the method of Petroff.

Tuberculous suppurative otitis media occurring in adults is more likely to take on the form of a fulminating condition, although we have observed the more chronic types in cases presenting similar systemic activity.

It is not the invariable rule for tuberculous chronic suppurative otitis to have its onset in a sneaking insidious appearance of aural discharge without pain. While this is most suggestive, we find frequently an acute inflammatory storm, with pain, as in grippal infection, an acute streptococcic infection, the extension of a tonsillitis or quinsy, or the infection of the middle ear occurring as a result of measles or scarlet fever. The tissues, then, either harboring the tubercle in a latent condition, or through lack of resistance, inviting such infection, furnish satisfactory media upon which the tubercle thrives. The process is then continued as a chronic suppurative otitis media with a tubercular basis.

Lues also provides the necessary qualifications for the production of a chronic suppurative otitis media. The condition as occurring in the adult, the victim of acquired lues, carries with it some of the characteristics of acute fulminating tuberculous otitis media. The process is rapidly destructive, the drum and ossicles melt away. It is usually bilateral. If observed early the clinician will be aided by the presence of other active specific lesions. The confusing cases are usually old ones, *i. e.*, those which have been partially or poorly treated and have superimposed the activity caused by the various unidentified bacteria which are found in abundance in a chronic discharging ear. The employment of the sero-diagnostic methods will, of course, help in the differentiation. Congenital lues does not produce suppurative otitis media but rather a progressive tympanic obstructive lesion.

Infection of the middle ear with Vincent's organisms produces a chronic suppurative lesion especially in debilitated children. These cases usually begin insidiously without rise in temperature or complaint of aural pain. The first symptom of aural disturbance is the presence of discharge from the external auditory canal. Mulholland (Annals Otology, Rhinology and Laryngology, September, 1915) reports the observation on sixteen cases of infection of the middle ear by

Vincent's organisms. He states: "The history in most instances was that of a chronic running ear lasting several months or years; diseased teeth, gums and tonsils were usually present and the general physical condition of the children below par. On examination there is usually marked excoriation of the external auditory meatus and a profuse discharge of thick greenish pus having a foul and characteristic odor. The walls of the canal are covered with a dirty grayish membrane which, when removed, leaves a bleeding surface. The appearance of the drum membrane varies with the intensity of the inflammation and stage of the disease. Perforations vary in size from a pin point to complete destruction, and in the severe cases the probe demonstrated bare bone in the middle ear and attic." The same observer is of the opinion that there is an element of contagion in this infection basing same upon the fact that nine out of the sixteen cases came from one ward, five from another and two from a third.

In diabetic patients the tendency to suppuration is often manifest in the aural apparatus, and Bezold regards it, after tuberculosis and lues, as the chief etiological factor in the extension of chronic suppuration from the middle ear to the labyrinth.

Measles, scarlet fever and diphtheria have in former years yielded a crop of cases of chronic suppurative otitis media. With the modern methods of isolation and the early and adequate treatment applied at the onset to aural suppuration the number of cases of chronic suppurative otitis media must decrease. Of course, in some instances the intensity of the infection, together with the general lowered resistance of the patient during the course of the disease, permits of far-reaching destruction and a strong tendency to chronicity of aural involvement. In our municipal institutions where most of these contagious diseases are gathered, the aural apparatus is watched for invasions and early incision performed when suppuration is impending. Thus is instituted early and adequate drainage, the first step in insurance against extensive changes in the average case. Furthermore, cases presenting aural discharge are retained in the hospital where proper therapeutic attention is given until the discharge ceases. The exceptional case which continues to discharge is detained in the hospital for four months when it is discharged and the homes watched for further in-

fection. Here is another factor in the prevention of the disease, a cause of chronic suppurative otitis media.

The percentage of cases of chronic aural suppuration dating from an attack of measles, scarlet fever and diphtheria will vary in different clinics depending upon the care with which the histories are taken and the intelligence of the patients, for many of the histories are incomplete as to date of onset, and in many more the patients know little and the parents less concerning the advent of the trouble.

Reviewing the histories of eighty-seven cases of chronic suppurative otitis media recently treated in Dr. Gilbert J. Palen's clinic at Hahnemann Hospital Dispensary, one case dated the onset from the presence of a foreign body in the canal, four cases from the receipt of a head injury, two from typhoid fever, one from syphilis, thirteen from simple acute otitis media, eight from scarlet fever, and seven from measles. In the remaining fifty-one cases the onset was indefinite.

Measles is a disease showing a very striking tendency to involve the mucous membrane, especially those exposed to the air. The upper respiratory tract of which the aural mucosa is but an invagination comes in for its share of the inflammation.

The aural infection in scarlet fever is perhaps occasioned by the facility with which the streptococcus enters the aural apparatus and enjoys freedom of activity. Scarlet fever presents as its striking characteristic, lack of immunity against streptococcic invasion, and these organisms are found abundantly in tonsils and adenoid vegetations.

Schaeffer, Laryngologist to the Philadelphia Hospital for Contagious Diseases, states in his observations aural suppuration in diphtheria is uncommon as compared with scarlet fever, and that when it does occur, it is due to a mixed infection upon which the administration of antitoxin seems to have little influence.

One of the complications of typhoid fever is suppurative otitis media. This complication is usually placed at 2.5 per cent., and some of these become chronic. The bacillus typhosis has never been found in the discharge.

In our experience a great many of the cases of chronic suppurative otitis media coming for relief have had their onset in an acute simple inflammatory condition of the upper respiratory tract—a simple "cold in the head." That these aural conditions do not resolve

along with the acute nasal and naso-pharyngeal condition may be due to the intensity of the acute otitis media or to the consequent acute mastoid involvement and the protracted drainage of the products of acute suppuration from the antrum and mastoid cells which cause such changes in the tympanic mucosa as to render resolution well-nigh impossible. Again, this lack of resolution may be due to the presence of some local nasal or naso-pharyngeal abnormality which also played a large part in the production of the acute otitis. The aural apparatus depends upon the nose and naso-pharynx for a supply of properly filtered, moistened and heated air. This very important function can be performed only by a normal healthy nose with normal nasal accessory cavities, normal naso-pharynx, oro-pharynx and in the light of more recently acquired knowledge, healthy teeth.

Septal deformities, hypertrophied turbinal bodies, nasal polyps or collapse of alæ nasi interfere with the normal aeriation of the middle ear cavities and may perpetuate an aural suppuration. Chronic suppurative disease of the nasal accessory cavities, draining constantly into the post-nasal space bacteria laden secretion brings about inflammatory changes which interfere with normal tubal activity, or the discharge, draining anteriorly calls for frequent and usually too forcible use of the pocket handkerchief with resultant repeated inflations, a circumstance which we have repeatedly observed to have perpetuated an aural discharge. The presence of diseased adenoids and its influence upon aural pathology is well appreciated and requires but mere mention. Accumulations of agglomerate tissue in the fossa of Rosenmuller or the presence of adhesive bands between the lip of the Eustachian tube and the posterior pharyngeal wall will interfere with normal tubal function. The tonsil and its relation to aural conditions has been rather overworked without careful selection. That diseased tonsils, whether large or small, exert a deleterious influence upon the ear is not to be denied. However, the presence of a suppurating ear does not signify that the tonsils should be removed.

In certain cases of aural suppuration with perforation of the drum the function of the Eustachian tube is perverted, and instead of acting to drain and aeriate, it acts to re-infect the middle ear from the naso-pharynx, and this factor may perpetuate a chronic suppuration in the middle ear.

We have all seen cases in which a suppurating ear seemed to be influenced by dental pathology in the form of pyorrhœa alveolaris or a carious tooth with imprisoned products of disintegration. Palen in his article, Focal Infection, *Hahnemannian Monthly,* September, 1915, reports an interesting case illustrating the relation of dental pathology with aural apparatus.

It will be seen, therefore, by a careful painstaking consideration of all the etiological factors in a case of chronic suppurative otitis media much of value will be gained in arriving at a conclusion as to the form of treatment to be applied. It goes without saying that the thorough clinician will not stop here. The importance of knowing the general condition of the subject is of greatest importance if we would serve our patient the greatest good and successfully master the discharging ear.

2102 Chestnut St.

The Hospital and Medical Training.—Much emphasis is placed nowadays on the clinical training of the medical student, and it is obvious that such training cannot be given by a medical school which does not command the facilities of a suitable hospital. Hospitals that disinterestly lend themselves to the purposes of medical education are pursuing a wise social policy, and are serving many patients besides those in their wards.—S. S. Goldwater, M. D., *Modern Hospital,* Nov., 1916.

PATHOLOGY OF CHRONIC MIDDLE EAR SUPPURATION.

GEO. W. MACKENZIE, M. D.,
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PATHOLOGY is one of the essential branches of medicine. Without some knowledge of the pathology of disease one can have no knowledge of the disease itself. He is helpless to diagnose or treat it. The most he can hope to accomplish under the circumstances is to match the combination of symptoms and signs in a given case with those of a disease which corresponds nearest to it. Since the text-book picture of a disease is never the exact reproduction of any particular case, but rather a composite picture taken from a great many cases, there is every chance that the symptoms and signs in a given case will be insufficient to total up with those of the text-book description. For instance, let us consider briefly acute middle ear suppuration, a disease with but few symptoms and signs. As the average graduate in medicine understands it, the symptoms and signs are: (*a*) Pain in the ear lasting for several days, relieved by spontaneous rupture of the membrane which is indicated by a (*b*) discharge from the ear; (*c*) impairment of hearing; (*d*) slight fever and possibly (*e*) tinnitus and (*f*) dizziness. The picture appears to be clear enough to guide one in the diagnosis, but let us see. The intensity of the pain and its duration are unreliable guides in the diagnosis, for we find instances where the pain is quite light and lasts but a few hours, in cases where there is an atrophic scar left by a previous attack. In a few cases the pain is not relieved by discharge from the ear but continues in spite of it. In some other cases spontaneous rupture of the membrane does not occur; nevertheless, the case may run into severe complications and death; in fact, there are some cases of dangerous middle ear suppuration in which the membrane remains a pale color and shows no evidence of bulging as the average case does. Thus we might continue and tear the so-called typical picture of acute middle ear suppuration to tatters; the same holds true more or less of all the diseases of the middle ear. In otology, atypical cases are the

rule and not the exception. So much more the need of a working knowledge of the pathology.

The pathology of chronic middle ear suppuration has been shamefully neglected, especially in this country. If I were asked by a young man where he could go to get a practical course on the pathology of the ear in this country, my reply would be, "I do not know." This is regretable indeed. There are several reasons for this unpreparedness. In the first place, Americans have depended largely upon Germany and Austria to teach them this very interesting subject. As an excuse for indifference, those Americans who are best equipped to teach the subject have been too busy making a living in the practice of their specialty. It seemed to them much less of a task to send the ambitious student to Europe to acquire the knowledge than to work up the material for a course. In justice to the American it is well to point out the fact that material is much easier obtained in Europe than in this country because of the prejudice here against removing any part of the human body after death, and no one has attempted to influence the legislators toward granting the privileges necessary for acquiring the material. It was my very good fortune to be able to take courses in the minute anatomy and pathology of the ear while doing postgraduate work in Europe. After my return I was most anxious to follow it up, but was unable to do so for the reason above mentioned. The best I can do by way of a contribution to this symposium, therefore, is to rehearse what was learned from the courses given by Neumann and Ruttin, from Panse's work on the "Pathologisches Anatomie des Ohres," from what has been picked up from scattered reading and from personal clinical experiences. From personal laboratory experience I have nothing to add. The nearest approach to such is the promise of a temporal bone from a patient suffering from a primary tumor of the middle ear, presumably of carcinoma. When the time comes to claim it, there is a possibility that some member of the family will interfere with the plans. Mine is the common experience of many other otologists; namely, that we would like to do independent study but our hands are tied by a combination of unfortunate circumstances.

When we consider the pathology of chronic middle ear suppuration, we have first to consider the etiology. What are the factors that have been at work to make the condition chronic while the majority

of the cases of acute middle ear suppuration tend toward spontaneous recovery.

Without attempting to go too far into the subject of etiology, I shall review briefly some of the etiologic factors.

Acute middle ear suppuration is a more or less severe inflammation of the mucous membrane lining of the middle ear spaces produced by the extension of an infectious process from the naso-pharynx up the Eustachian tube to the middle ear. The mildest forms of infection in relatively resistant individuals produce a catarrhal process over a limited area. The more severe infections in the less resistant produce a suppurative process and cover larger areas. The predisposing factors are to be found in obstructive conditions in the nose in the nature of deviations of the septum, hyperplasias and polypi, and in the naso-pharynx, in the form of chronically enlarged adenoids.

A large majority of the cases of acute middle ear suppuration recover without treatment; a still larger majority recover with treatment and more promptly. In spite of local and general treatment carefully planned and carried out combined with rest, a minority will either develop mastoid or other complications or else go over into the chronic form with which this paper deals.

The combination of factors that operated to produce the original acute middle ear suppuration may or may not continue to play a role in the chronicity of the process. Secondary conditions may have developed subsequently to keep up the suppuration. Furthermore, the primary suppurative process in the middle ear may have healed while a discharge continues to issue through a perforation in the drum membrane, as in the case of pyorrhœa of the Eustachian tube, for which Yankauer rightly suggests an operation for the closure of the tube.

Clinically, any discharge that finds its way through a perforation in the drum membrane and which lasts over a prolonged period is referred to as a chronic middle ear suppuration. This interpretation is not strictly correct; nevertheless, in this paper every pathologic condition that can produce such a discharge will be considered.

Yankauer has during the last four or five years revived an interest in the study of the pathology of the Eustachian tube and its treatment for chronic middle ear suppuration. He has pointed out the fact that many cases of chronic discharge, apparently from the middle ear, were

due to a chronic pyorrhœa of the Eustachian tube which keeps on reinfecting the middle ear, more especially that portion which he calls the pretympanum, and that this reinfection is favored by a persistent perforation of the drum membrane. His reasoning is logical from the standpoint of physics, and is proven to be correct by clinical experience, for in the majority of cases where the Eustachian tube has been effectually and permanently blocked by any method that succeeds, the discharge ceases and in some cases the perforation heals over even where it has been moderately large.

The Eustachian tube plays an important role in the etiology and pathology of chronic middle ear suppuration. In the earlier stages narrowing of the tube may favor retention of secretion in the middle ear at a time when drainage by this route is quite essential to the healing over of the perforation in the membrane. On the other hand, a tube that is overly patulous, permits secretion from the nose to be blown into the middle ear more readily than the normal tube does, especially where there is an existing perforation as pointed out by Yankauer.

Let us take the other extreme, the mastoid cells. That there are more cases of chronic mastoiditis than are generally recognized must be conceded when we recall our experiences on opening the mastoid after the radical method for the cure of chronic middle ear suppuration. We find the mastoid sclerotic, a condition that cannot occur in the absence of a chronic inflammation, yet in the majority of cases the chronic mastoiditis has run a symptomless course. The natural and proper conclusion in the face of the evidence and in the absence of proof to the contrary is that in many instances the discharge through a perforation in the membrane, is maintained because of a chronic low grade suppuration in the mastoid cells. It is this type of case that yields to the modified radical operation as performed by Mr. Heath, of London. The Heath operation is not applicable to pyorrhœa of the tube any more than the Yankauer operation is to chronic mastoiditis. There is a limited indication for each operation in selected cases, a subject which I will not take up at this time.

Cholesteatoma is one of the big factors which tends to keep a case of middle ear suppuration chronic. A great deal has been written upon the subject of cholesteatoma. Its pathology is pretty well understood,

but unfortunately its clinical behavior is not, for there are some men to-day who still believe a chronic middle ear suppuration complicated with cholesteatoma is curable by conservative means. So far as the discharge is concerned, there is no condition that is apparently more amenable to treatment. Indeed, carefully conducted treatment, including the liberal use of alcohol, will result in the cessation of a discharge for months, and the unwary are often misled into believing that they have cured their case. But just as surely will the discharge return, sooner or later.

A cholesteatoma after it has once begun never ceases growing, so long as the matrix remains. Concerning the term matrix, there seems to be some confusion in the mind of the average otologist. To some the term is applied to the smooth highly polished bed of bone in which it sets, just as we apply the term to the mother of pearl which surrounds the pearl. To others the term matrix is applied to the granulations from which the cholesteatoma springs and which affords the hypernutrition to permit of the excessive growth of epidermis. From a biological sense, the matrix should apply to the granulations. A cholesteatoma is a rounded mass of epidermis, highly embossed on the surface, with several layers of living cells; below these living cells is a dirty gray soft mass composed of microscopic granules and cholesterin crystals (flat rhomboidal in shape), the products of degeneration of the older epidermis. I have examined quite a number of cholesteatoma and have found them sterile inside. The contents are very foul smelling; as someone has put it, the odor resembles that of socks worn for weeks. Cholesteatomas vary in size from that of a large pin head to that of a hulled walnut. The older the cholesteatoma, the larger it is. In its growth it causes a pressure atrophy or absorption of the surrounding bone, and leaves the bone, with which it is in contact, highly polished. Quite frequently the living epidermis on the surface of the cholesteatoma invades the Haversian system of the bone and leads to daughter cholesteatomas like buds attached to the main body, according to Alexander, of Vienna, which led him to advocate the removal of at least 2 mm. of the bone surrounding the cholesteatoma. Since he first advocated this procedure, surgeons generally have adopted the plan.

Although the contents of cholesteatoma are normally sterile, they

are capable of becoming infected when punctured by unclean instruments, in which event serious consequences may result in the form of labyrinthine or intra-cranial complications.

Polyps are frequently found in a middle ear that is affected with chronic suppuration. It is generally a secondary process and results from the continuous bathing of the mucous membrane in pus.

The favorable locations are to be found in the attic-antrum region and high up on the promontory. They are considerably firmer in consistency than are the nasal polyps. They vary in size and may occur singly or in clusters. The average polyp is fibroid, made up of hyperplastic connective tissue, which later has become œdematous. The covering of epithelial cells may be flat but nucleated, cuboidal or ciliated columnar. Real polyps are pale in color and do not bleed readily like granulations. (Wittmack (1) Archives f. Ohrenheilkunde 45-300) found from the examination of 55 polyps, 15 to be fibro-epithelioma, 10 granulation polyps, 16 angio-fibroma, 3 angioma, 6 fibroma, and 7 adenoma. There is some evidence of hair splitting in his classification, for the vast majority are really fibromas or hyperplastic tissue and the preponderance of certain elements has led him to these finer differentiations. The most essential feature is that of overgrowth or hyperplasia of the mucous membrane which sooner or later becomes œdematous. The location of the polyps or polypoid mucous membrane is an important clinical guide as to the source of the dripping pus which the polyps tend to conceal. The lesion beyond the polyps is the one which holds the case chronic. The removal of the polyps may rarely afford sufficient drainage to the empyema behind them to effect a cure. The concealed empyema may be in the attic, the antrum or the mastoid cells.

Granulations as clinically observed are redder than true polyps. They bleed easily and tend more to be multiple. They may be found in any part of the tympanum or its adnexia. They are composed of blood vessels and young connective tissue cells. They are associated very often with caries of the bones and especially of the ossicles. The ear discharge is prone to be gritty from the presence of lime salts. Granulations arise from nature's attempt at repair in the face of destruction. They speak for the more destructive types of suppuration, and their recurrence under treatment is a cry for operation, so

much so with the majority of us that it forms one of a group of indications for operation.

Caries and necrosis is found in many cases of chronic middle ear suppuration. Among the indications of caries, granulations have just been mentioned as well as gritty discharges. The odor is characteristic to one who has once had a smell of it. Granulations often surround a slough of bone. Aside from the granulations and characteristically gritty and offensive discharge, dead bone can be recognized with the probe by the hard feeling of bone in contact to the velvety feeling of the living mucous membrane.

The ossicles are the more frequently involved of the bony structures of the middle ear and of these the anvil the most frequent; however, no wall of the cavity is exempt from ulceration (MacEwen) and necrosis. Ulceration, although it may occur in either acute or chronic middle ear suppuration, belongs more to the former. Necrosis, on the other hand, is met with more often in the forms resulting from scarlet fever and tuberculosis in the young or from profound systemic disease in the aged. There are so many conditions and combinations of circumstances that may cause either ulceration or necrosis or both combined, that it would require a separate paper to deal with them all.

As a result of either process, vital structures may be exposed and an opportunity offered for the spread of the infection.

Facial paralysis from ulceration and necrosis of the bony canal hardly deserves special mention for the reason that from a pathologic sense, it occurs in the same manner as do complications in the labyrinth and intracranial structures. Toxic neuritis of the facial nerve is a secondary process and really has nothing to do with the pathology of the middle ear.

The pathology of chronic middle ear suppuration has little to do with the meso-tympanum, for the reason that primary meso-tympanic conditions tend toward spontaneous recovery because of favorable drainage through the tube or by way of perforation of the membrane. The pathology of chronic middle ear suppuration concerns itself with the pathologic changes located elsewhere: viz., in the tube, the epi-tympanum, the antrum or mastoid cells.

The tendency to chronicity is favored originally by the extension of suppuration to the more remote recesses; while the process of sup-

puration is maintained by reason of inadequacy of drainage and ventilation, due in part to the peculiar anatomical make-up of the middle ear spaces, in that the communicating isthmi between the remote recesses and the meso-tympanum are relatively small as compared to the space which they drain. Added to these naturally unfavorable conditions there occurs further narrowing in some cases from organized exudate left there by a previous existing acute secretory catarrh. Furthermore, secondary conditions develop in the form of polyps, cholesteatoma, necrotic bone, etc., that tend to increase the obstacles to healing.

The question of the general pathology, including resistance, has considerable to do with favoring chronicity, but little to do with the picture of physical conditions in the middle ear and their associated spaces as found in middle ear suppuration.

1831 Chestnut St.

A physician met a patient, and asked him the usual question. "Well, John, how are you to-day?"

"Gey weel, gey weel," replied John, cautiously, "if it wasna for the rheumatism in my right leg."

"Ah, well, John, be thankful it is no worse; for there is no mistake, you are getting old like the rest of us, and old age does not come alone."

"Auld age, sir," said John, "I wonder to hear you. Auld age has naething to do with it. Here's my ither leg just as auld, and it's quite sound and soople yet."

THE BACTERIOLOGY AND CYTOLOGY OF CHRONIC SUPPURATIVE OTITIS MEDIA.

JAMES GARFIELD DWYER, M. D.

THE subject of chronic otitis media is at present a very timely one, and much has been done, from the diagnostic or rather differential diagnostic standpoint, as regards the bacteriology, cytology and matrix of this condition. Much also has been done in the way of therapeutic measures, such as vaccines, etc.

In the following paper, the first part will deal with the bacteriology, cytology and matrix conditions; the second with vaccine therapy.

The subject matter in this paper is the result of eight years of close and continuous study of chronic otitis media, from all angles and under the most diverse conditions. The writer would like to emphasize the purely personal work done by Dr. W. H. Haskin and himself, and to here report that the results with vaccine therapy are thought to be due to the personal character of the work and, that as time goes on, it only serves to emphasize the fact, that a man, to administer vaccines successfully, must be more than a pure clinician; he must at the same time be either a good laboratory man or at least be as conversant with laboratory work as the students are that are being turned out by the universities in the last few years.

BACTERIOLOGY.

In our work on the bacteriology of chronic suppurative otitis, the technique employed was, with a few minor differences, the same as that used by Miss Gignoux and the writer in 1910, when employed on similar work on the tonsil. Smears of the discharge, taken in the way indicated by Dr. Haskin, were made on blood or ascetic fluid plates, after the manner of making streak plates, and were then incubated for twenty-four hours. The different colonies were then fished and stained films were made and the colony recovered on slant agar or in the case of the most fastidious organisms on the richer media, such as blood serum, ascetic agar, etc., and, if they proved to be organisms that were capable of identification morphologically, and were known

to have any pathogenic power or even regarded as remotely having this, vaccines were prepared and used even before the final identification of the organisms. Direct smears were also made and stained by aqueous stains and by Gram stains, so as to serve as a check upon the plates. All organisms were studied on the various media and identified.

In fifty-three cases we found the following organisms: staphylococcus pyogenes aureus, seventeen times; staphylococcus pyogenes albus and citreus, six; streptococcus mucosus, eight; streptococcus hemolyticus, eight; pseudo-diphtheria (Hoffman's and Xerosis), fifteen; pyocyaneus, sixteen; proteus, five; Klebs-Lœffler, one; bacillus mucosus capsulatus, three. The bacillus subtilis and some other air-organisms were repeatedly found, but were discarded. In many of the direct smears there were any number of spirochetæ found, varying from that of Vincent to the refrigens and those found in the throat. It is my opinion that the true significance of the discharges from the middle ear will not be fully appreciated until an investigation is made of the role of these so-called innocent organisms from the throat, the torulæ, spirochetæ, etc., so often found in this class of cases and always discarded. An arbitrary division of bacteria into pathogenic and non-pathogenic varieties is attended with many difficulties in the case of the ear, since potentiality for serious mischief in this organ which so many reputed saphrophytes possess renders such a classification of doubtful expediency. There are perhaps few organs which present a greater variety of bacteria than does the ear, particularly in the chronic form of disease of this organ. Thus with the above technic, organisms, ordinarily looked upon as pathogenic, could be isolated in the big majority of cases, practically 95 per cent. Some of these cases were of years' duration, and in all cases over months, so that the bacterial flora as time went on might have changed considerably, but the fact that pathogenic organisms could so be isolated encouraged us to try the vaccines in these cases. No anerobic cultures were made and no attempt was made to isolate the acid-fast organisms or by animal inoculations and agglutination experiments to differentiate the various strains of streptococci, as our primary object was to have a practical method of isolation and one that could be easily applied. No attempt was made to differentiate the bacillus butyricus or its allied groups.

It is well known that in the chronic discharges we find very frequently acid-fast organisms that resemble the tubercle bacillus, but which under rigid staining decolorizes, and it is probable that these are strains of bacilli that have been acted upon by the bacillus butyricus, an organism found very often in the ear and which is non-pathogenic in itself, but when grown in simbosis with other organisms change these latter so that they have different staining reactions, and if an organism can be changed in this respect, it is not a far step to assume that it can be changed in other more important respects, as is well known with other sets of organisms.

CYTOLOGY.

With regard to the cellular elements, we think the study of these is well worth while. Under cytology, we may divide the cells into two groups, the epithelial and the mesoblastic. Epthelial cells are meatel, tympanic, or glandular. The commonest type is, of course, the squame, which in a healthy ear is absolutely confined to the meatus, but in chronic diseases invades the antro-tympanic cavity and becomes one of the most striking features of the discharge. These squames fall into two classes—the old and the young. The old are acid-fast, have either no nucleus or the area where the nucleus should be is only a shadow. On the other hand, the young or recently formed squames have large oval or round nuclei, which readily take the stain, are not acid-fast and are easily decolorized. We, of course, have all grades in between these two extremes. This point may not seem of much importance, but this acid-fast property of old non-nucleated squames affords not only presumptive evidence of a cholesteatomatous mass involving the antro-tympanic cavity assuming, of course, that the specimen was taken from the tympanum and not from the meatus, but fragments may be mistaken for tubercle bacillus. The normal tympanic epithelium is only seen in the early acute stage of infection; such epithelium does not occur in chronic discharges, the tympanic lining having been transformed into the squamous or epidermal type.

We next consider the mesoblastic cells and these may be divided into the wandering and the fixed cells. The wandering cells are very important; they comprise the leucocytes, the lymphocytes, and the plasma cells. The leucocytes and lymphocytes are usually classed as pus cells, but inasmuch as they are unlike in function, structure, and

significance, some distinctions between them are necessary. The leucocyte of a recent or acute exudate is very sharply defined, and the nucleus stains deeply, but degenerattion soon sets in and we have well known series of changes which are indicative of the death of the cell. As the discharge becomes chronic, large mononuclear leucocytes become more numerous, in contrast with the very acute discharge, in which the polynuclear cells predominate. The lymphocyte is smaller than the leucocyte, with a slight amount of protoplasm, a large clear nuclear, and stains very deeply. The important thing is that in the acute exudate changes about one lymphocyte can be counted to twenty or thirty leucocytes, but when the discharge comes from a granulation source the lymphocytes are strikingly increased, sometimes being equal in number to the leucocytes. Thus the presence and the proportion of these cells afford a reliable evidence of the existence of granulation tissue and the nature of the pus-producing process. They possess little, if any, phagocytic power. It must be remembered, however, that the proportion of lymphocytes in infants is much higher than in adults.

The next class of cells are the fixed cells and of these the epithelioid elements are those most frequently found. These cells are derived from the lining of blood and lymph channels and also from the perivascular spaces of the arterioles. They play an important part in the granulomatous formations, especially tuberculosis, etc. Although seen sometimes in acute inflammations, their presence in large numbers is characteristic in a chronic discharge of tuberculosis.

We thus see that an examination of the cellular elements may be a great aid to diagnosis and prognosis in a chronic purulent otitis.

Not much need be said about the matrix, except that at times we can demonstrate the flat rhombic crystals of cholesterin and the fatty acids, charatceristic of old, desquamative changes in cholesteatoma.

To sum up then shortly, the conditions responsible for chronic discharge from the middle ear are so varied that pathological accuracy calls for some differentiation. As most frequently happens, granulation tissue is responsible for the pus. Evidence of this is afforded by the presence of leucocytes of all kinds, large, small mononuclear and polynuclear, normal and degenerated, but especially by lymphocytes

which are very numerous, while epithelial cells are not uncommon. Bone disease may be marked by the presence of myelocytes or osteoblasts or chemical analysis shows the presence of an increased amount of bone salts.

Cholesteatomata is indicated by the presence of closely packed squames with or without bacteria, a distinction that may at first glance appear unnecessary, but is really of great importance, especially when the cells are of antral origin, for a septic cholesteatomata in that situation affords a stronger indication for radical measures than a non-septic one—an interpretation amply supported by examination of antral contents removed at operation.

Among chronic discharge we meet with is one which deserves special attention—it is very profuse, fetid, opaque, and like cream. On examination, it is found entirely free generally from cells, either epithelial or septic leucocytic, but consists of throat organisms in an albuminous matrix—not true pus, therefore, but a polymicrobic emulsion. With such a discharge, in which there are spiral and fusiform bacteria of many varieties and no cells, the existence of an active granulation surface can without doubt be excluded. Thus here, active aural measures and measures to do away with the original infection are called for. It is the differentiation and identification of such a condition that will repay you in the knowledge gained. The throat organisms are such as spirochatæ fetida, bacillus fusiformis, leptothrix, etc. Also there are the organisms found in pyorrhœa alveolaris, in tonsillitis, etc. In acute exacerbations, the influenza bacillus, micrococcus catarrhalis, etc., are found, but we did not find them in the uncomplicated chronic condition.

Special mention should be here made of tuberculosis of the middle ear. This is a condition found more frequently than is expected. In a paper by Cocks and the writer recently published the subject is treated in extenso, and those interested are referred to that for further information.

Vaccine Treatment.

In 1909 the writer first published a paper on the treatment of chronic otitis media with vaccines. The series at that time was very small and comprised only a few cases that were included in the general series reported. Since that time, many other observers have reported

their results and it suffices to state here that in almost all the series reported, those reporting the successes were men who were either otologists and bacteriologists combined, or a trained bacteriologist and a trained otologist working in conjunction with each other. On the other hand, those reporting failures and, by reporting failures, we mean those who claim that vaccines are useless, were men without any special training in bacteriology and serology and who did not have the opportunity or did not take the opportunity of learning enough about vaccine therapy to use vaccines intelligently. This is not said in any spirit of criticism, but the writer is simply stating his personal experience.

Now, the first essential conditions necessary for using vaccines are simply two in number. The first is that it be a suitable case, and the second, that the proper technique be employed to obtain the culture. The conditions presuppose the fundamentals mentioned above.

Regarding the first condition, it must be remembered that all chronic suppurative ears are not suitable for vaccine treatment. It would be idle, for instance, to treat a case with vaccine, *per se*, in which the discharge came exclusively from the throat, and in which the ear was simply acting as a third nostril. Such a case is the one especially referred to above on cytology. Again, in the presence of cholesteatomata, it would be very unwise to depend on vaccines. Again, in the tubercular cases referred to above, there are other organisms than the tubercle bacilli always present, and it would be useless to treat with the secondary organisms, without treating the underlying fundamental condition. Again, of course, the vaccines would not take the place of any surgical measures necessary, such as in labyrinthitis, meningitis, brain abscess and other complications. The writer wishes to say, however, that in the ordinary chronic suppurative otitis case, when compared with other methods of treatment, we have in vaccine therapy an infinitely better agent than any that has hitherto been placed in our hands. It is not a cure-all, but is a thoroughly rational and scientific treatment.

From observations lasting for some years of the radical mastoid operation, the writer is not impressed in any way by the results obtained. If, as is usual, most of the patients are operated upon to stop the necrosis and discharge, the operations do not succeed, as cases are seen constantly with the discharge the same as before. After all, necro-

sis of bone in the ear is the same as that in any other part, as in the leg, arm, or any of the large bones where you can remove the diseased bone en mass. In the ear it is different. No matter how thorough the operation may be, you usually cannot do a complete, clean operation, as the distance to which you can go in any direction is limited by the vital structures met with. It is impossible to remove the necrosis macroscopically and microscopically.

The writer is not arguing against the radical mastoid operation when necessary, but it is one that he approaches with a full sense of the difficulties involved, having ever in mind the fact that the removal of a strong sclerosed wall of bone separating the suppurating cavity from the sinus or dura is not by any means a rational or safe thing to do, or one to be thought of lightly.

For the technique of taking cultures and preparing the vaccines, those interested are referred to the previous articles of the writer. Nagle reported a very successful series of cases, and Coates has published in the last few months a very excellent paper on the same subject.

During the last seven years the writer has consistently treated all of his chronic otitis cases, those that were judged suitable for such treatment, with autogenous vaccines. Haskin and Brown have reported the results with these cases. Since that report the writer has nothing to add except to emphasize the points made at that time, and to say that time has only served to confirm his conclusions there formulated.

Chronic otitis cases, carefully chosen, with cultures taken under the proper technique and treated with vaccines made from the organisms found, will usually respond very favorably to the treatment. One big point, very noticeable, but usually not emphasized enough, is the gain in the general health of the patient. The vaccine stimulates the general resistance, increases the weight and decreases the secondary anæmia, etc. This is very striking, as compared with the essentially local action of the other therapeutic agents.

In conclusion, we would like to add that we are not advocating vaccines as a cure-all. On the contrary, great care must be emphasized in the selection, as mentioned above. We are, however, neglecting to make use of an agent, that has in the hands of others and ourselves proved to be a most valuable addition to our otological therapeutics.

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TREATMENT OF CHRONIC SUPPURATIVE OTITIS MEDIA.

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THERE is perhaps no more tedious, and at times, apparently hopeless task than the treatment of chronic suppurative otitis media. The greatest care, thoroughness and often time-consuming attention is required in order to obtain results. It is important that the novice otologist be well grounded with this idea and be encouraged by small returns for large expenditures of time and energy.

Frequently the reason for poor results in handling these cases is due to the lack of co-operation on the part of the patient. They usually tire of their visits to the aurist's office where they lose time from business, or, in the case of children, loss of time from school or time lost by those attending the patient, and they cease to appear long before there is any evidence of improvement. In hospital out-patient work it is seldom that the case holds on. They drift from one institution to another without obtaining relief. We believe that little can be accomplished in this line of work in the average out-patient clinic. Because of lack of time, the average dispensary case is not given the thorough painstaking examination required and the tedious treatment which holds out chances of success. In private practice among the better class of patients, a frank explanation of the situation is productive of co-operative work and better results. That it is tiresome and apparently thankless work we heartily agree, but is there anything more gratifying than to master one of these chronic suppurative cases after a year or longer of careful attention? We could present the histories and clinical records of many cases where the time element was six months, nine months and a year of faithful treatment.

This task is up to the aurist. The patient can do but little, in fact, we have come to abandon any home local treatment on the part of the patient except in very exceptional cases. The systematic irrigation of chronic suppurative otitis media is of doubtful value as is also the use of local medicaments for they seldom reach the intended destination.

As indicated by the writer in the article on Etiology of Chronic Suppurative Otitis Media, every endeavor should be made to determine, if possible, the causative factor and whether a deviation from the general normal condition is contributing. The patient should have a very careful general examination. If there is a suspicion of syphilis a Wassermann test should be made. If tuberculosis is suspected, most careful bacteriological and cytological examination of the discharge should be made. In a certain number of cases of chronic suppurative otitis media the patient, while not specifically diseased, presents a general lack of tone. They are anæmic, have poor appetite and indigestion, suffer from periodical headaches, are generally tired, despondent and have no ambition. It is a question at times whether these symptoms are not the result of focal infection rather than a contributing factor in perpetuating the discharge. Certainly after they are once established we have formed a vicious circle and the focal symptom complex must be treated along with the local attention to the ear, and here is where our homœopathic remedies assist us. Such deep acting medicaments as aurum metallicum, arsenicum, arsenicum iodide, chininum arsenicosum, and mercurius would be the ones first brought to mind.

The aurist to do his best work must of necessity be a good rhinologist and laryngologist. It would be very short-sighted to consider the therapeutics of a case of chronic suppurative otitis media or any other aural condition if the nose and naso-pharynx were not thoroughly examined and attention directed to pathological changes found therein. The dependence of the ear upon the nose and naso-pharynx is too well appreciated to be taken up in detail here. We have all observed the remarkable influence of removal of adenoids, degenerated tissue in the fossa of Rosenmuller, straightening of an obstructing septum or correction of other nasal conditions upon a suppurating ear. Certainly it is the starting point in the treatment of the condition under consideration.

The local treatment of chronic suppurative otitis media is suggested by the existing local pathological picture. Necessarily, then, the therapeutics will vary very much, for, perhaps, no other diseased condition presents such wide variations in physical changes. Few cases come to us because of simple discharge in the absence of acute in-

flammatory manifestations, but consult us because of the occurrence of pain indicating the retention of secretion through obstructed drainage or through acute exacerbations. In cases where drainage is free and there are no acute symptoms we would expect, as in other suppurative pathology, to have the lesion clear up. We know this does not take place in chronic suppurative otitis media. Yankauer claims this is due to the repeated infection of the middle ear through the Eustachian tube whose function has become perverted through the absence of normal continuity of the membrana tympani. If this is so, then we must either heal the perforation in the drum or, failing in this, seal the tube.

It would be impossible and certainly impractical to attempt to enumerate and describe the possible pathological pictures in chronic suppurative otitis media. In a very general way we would take up a few of the more common symptom complex pictures with the therapeutic applications which have served us. As has been intimated, it is rather important to determine accurately the hearing and whether it is a case where the chances are still good for healing the drum membrane. Our prime object is to remove the patient from the dangers of a chronic suppurative middle ear disease and at the same time improve or conserve the hearing.

It is evident that a case presenting a rather small perforation in the membrana tensa with a rather copious muco-purulent discharge will not heal until free drainage is established. Such cases, if not of long duration, will heal rapidly after simple incision. Other cases of this type will require intra-tympanic or Eustachian attention in the form of astringent medication to control the hyper-secretion of mucus. It is apparent in this type of case that there are no bone changes and a permanent cessation of the discharge depends upon the closure of the perforation and protection of the middle ear from re-infection through the tube.

Some of the cases in this class are due to a catarrhal condition of the epipharynx and Eustachian tube, or to the accumulation of degenerated tissue in the fossa of Rosenmuller. Success in these cases depends upon locating the cause of the epipharyngeal condition which will be found in either defective nasal breathing, sinus drainage, or to the presence of adenoids. These conditions corrected and supplemented by astringent treatment to the Eustachian tube will be followed

by satisfactory results. The local medicaments which we have found most useful are argyrol, 25 per cent.; silver nitrate, 2 per cent., and zinc sulphate, 1 grain to the ounce. These applications are made directly to the tubal mucosa by means of Yankauer's applicators. The ear is cleansed in these cases by mopping with cotton. We do not irrigate nor have the patient irrigate, but insist upon the patient reporting at frequent intervals. Another point to which we attach considerable importance is to instruct these patients how to properly empty the nose. From observation of patients in our office we are convinced that as Heath, of London, has suggested, many of the cases of aural relaxation are due to the repeated inflations which the patient receives in the improper use of the pocket handkerchief. If it is possible to so inflate the tympanum with intact drums, how much more readily is the middle ear constantly supplied with a stream of bacteria-laden air when the restraining influence of the drum has been removed.

Another type of case is the one presenting a very wide destruction of the membrana tensa with a narrow rim of drum membrane encircling the periphery. The tympanic mucosa presents a velvet-like appearance and there is a moderate amount of muco-purulent discharge. There is no special tendency to the formation of polypi or granulations and no evidence of bone involvement. These cases can be dried up rather promptly by the use of boric acid powder. The canal is thoroughly dried of all secretion by means of cotton mops and the powder introduced into the canal with either a powder blower or through a speculum. This does not block the drainage. The moisture is taken up by the powder which acts as a drain. A certain amount of the powder is absorbed. This method in our hands, in properly selected cases, has given most pleasing results.

We have all observed that certain numbers of this type of suppurative case present a small amount of dischage, purely mucoid, which if dried up causes a marked reduction in the hearing.

With this large destruction of the drum, but with a tendency to polypoid formation and the development of granulations and scanty offensive purulent discharge, we are strongly impressed by our experience with trichlor-acetic acid. This is to be used with caution in the hands of an expert. The field is dried thoroughly with dry cotton

mops, then dehydrated with alcohol and again dried thoroughly. The trichlor-acetic acid is then applied to the areas presenting the thickening. Greatest care must be exercised in using this agent lest the walls of the canal be touched or a too great an area be cauterized. This treatment carried out systematically will control the polypoid and granulation formation. With the control of the proliferative process we then resort to the boric acid powder treatment.

The occurrence of adherent scars or drum edges—aural synechia—are conditions which sometimes prevent the healing by the formation of pockets in which secretion accumulates. Most careful local inspection is required to reveal these adhesions. It is necessary in these cases to carefully liberate the adhering edges, at times a very tedious procedure.

The presence of aural polypi presents a subject worthy of special consideration. We can arbitrarily divide polypi into two groups. (1) Those arising as a result of the irritative influence of the discharge from the middle ear cavity and usually found attached to the tympanic ring or to the posterior bony wall of the additus. (2) Those occurring as part of nature's attempt at protecting a point at which necrosis is occurring. These are found attached to the promontorium or elsewhere on the inner tympanic wall or to the roof—the tegmen.

The removal of polypi attached to the tympanic ring or to the posterior bony wall or additus and the case followed by appropriate treatment to correct the suppurative condition is productive of very pleasing results as every aurist knows. Polypi attached to the outer wall of the labyrinth present a situation calling for careful investigation of the internal ear and the possibility of the necessity for radical operative interference.

Perforations of Shrapnell's membrane present a very interesting chapter in otology. The writer presented a paper on this subject some time ago (O., O. and L. Journal, March, 1916). In these cases the discharge is usually scanty in amount, has a very foul fishy odor, dries on the walls of the external auditory canal, forming crusts. When the hearing is useful and in the absence of symptoms indicating extension these cases will do well if the crust formation is not permitted to occur and the attic kept thoroughly clean and dry. Where the perforation of Shrapnell is a part of a larger perforation involving the membrana

tensa there is usually more active suppuration, with larger amounts of discharge and the presence of granulations or polypi. These cases require very close attention for extension.

In 1910 Yankauer, of New York, published his excellent work upon the Eustachian tube, gave his views concerning the role of the tube in chronic suppurative otitis media and presented an operation and specially devised instruments for the closure of the Eustachian tube by producing an artificial atresia. He chooses the isthmus of the tube as the point of election for this because he claims it is the natural orifice of the middle ear and the termination of the middle ear cavity, and it is the narrowest part of the entire passage. In 1915 this same investigator presented the accumulated results of 735 cases of chronic suppurative otitis media treated according to his method by other operators. In 83 per cent., or 609 cases, the tube was closed after one or more curettings. In 51.5 per cent., or 379 cases, the closure of the tube cured the suppuration.

Our personal experience with this operation has been too limited to express results. The cases upon which it was tried were very unfavorable cases and a subsequent radical mastoid operation failed to stop the discharge.

Ossiculectomy no longer holds its position of high favor. It declined in favor of the radical operation in the treatment of chronic suppurative otitis media. Now it seems pretty generally agreed among men of wide experience, that the radical operation is a very last resort applicable only in a small percentage of cases. There is no doubt that in certain well defined and selected cases ossiculectomy will aid in the cure of a case.

The systemic or general therapeutic application offers the aurist the assistance to be derived through good general resistance. Homœopathically, we have much to be gained in this respect. The autogenous vaccine, which is distinctly homœopathic, and has been so declared by laboratory workers, is always to be thought of. This feature in the treatment of chronic suppurative otitis media will be taken up in another paper. Too frequently we permit the local pathology to bias our selection of the remedy. Again simple cleanliness will alter the symptom complex picture by changing the character and odor of the secretion, symptoms which are made much of in our symptomatology

for homœopathic prescribing. The remedy should be prescribed for the patient and not for the ear. This means then that any remedy from A to Z may be indicated. The remedies which we more frequently employ are:

Arsenicum in the debilitated, restless, irritable individual with cold skin. They have poor appetite and the sight of food is objectionable, but they have great thirst. The aural discharge is thin, offensive and excoriates the parts over which it passes. The canal of the ear is red, swollen, scaly.

Arsenicum iodide is thought of in the tuberculous type of individual presenting a fetid corrosive discharge much like the arsenicum.

Aurum metallicum: The patient is despondent and disgusted with life. They present glandular enlargement, old leutic conditions. The ear has a fetid discharge and there are evidences of caries.

Calcarea carbonica is especially useful in children who are very sensitive to cold air, and who have very questionable hereditary tendency to glandular enlargement. They perspire freely and are prone to be fat. Discharge from the ears is muco-purulent and irritative, and there is a tendency to polypus formation. (Calc. phos., calc. iodide, calc. sulph.)

Hydrastis is indicated in the catarrhal atonic subject relaxed type. Discharge from mucous membranes is yellowish and muco-purulent.

Mercurius: Thick, yellow, fetid discharge with a tendency to formation of boils in the external auditory canal. Worse at night in damp weather. Mercury patient is also a profuse sweater.

Silicea: Defective nutrition, rachitic children, open fontanelles, slow in developing. Tendency to suppurative processes. Fetid discharge from the ears with tendency to bone involvement.

When we are successful in completely healing the drum and stopping the discharge or in reducing the discharge to a slight mucous secretion we dismiss these patients as relieved. That they are liable to recurrences we are all fully aware. A slight cold will sometimes light the old condition so that we instruct these patients in the necessity of avoiding the occasion of cold taking, and that they must report as soon as they take cold so that appropriate treatment can be applied early. A sea water bath or a dive in fresh water may start the old process, and the patients should be so instructed. It is not enough to

plug the ear with cotton for it is our belief that a goodly percentage of cases are reawakened, not through the water getting into the aural canal, but by getting the water into the post-nasal space through the nose or mouth or forcibly blowing the nose after diving. It may be a hardship to forego a plunge into the surf or pool, but it may be a greater hardship to spend months in controlling the suppuration.

2102 Chestnut St.

SPEECH WITHOUT USE OF THE LARYNX.

In the *Journal of Physiology*, Dr. E. W. Scripture has recorded a remarkable case of speech without use of the larynx. The patient was a girl aged 17, who had undergone tracheotomy at the age of 3. Ever since she had breathed through a tracheotomy tube, and had been unable to breathe when the tube was stopped or removed. Observation with the laryngoscope showed that the top of the pharynx was closed over the larynx and no air passed through. On retching the larynx was brought up and became visible. Under no circumstances could she make the air pass through the larynx. She could speak distinctly and correctly in a faint, almost toneless voice. Such a condition seemed astonishing, because all speech sounds require breath. Without breath the person may go through all the movements of enunciation, but he will produce no sound; his speech is visible, but not audible. Careful observation revealed the mechanism. A movement of the muscles at the side and front of her neck, just under the jaw, could be seen from the outside; the movement was of a kind that might contract the pharynx. With the mouth open the tongue could be seen to be raised tightly against the rear edge of the palate and the front part of the velum. There was some slight movement on attempting to change the pitch. The mechanism was evident. The air in the pharynx was compressed; it was allowed to escape between the tongue and the velum in such a way as to produce a tone. The tone was produced by causing the surfaces of the tongue and the palate to vibrate somewhat as the vocal cords do. The change in pitch was produced by changes in the tension. In short, the lacking glottis was replaced by an imitation glottis formed by the tongue and the velum. The different vowels were produced by varying the mouth cavity.—*Jour. A. M. A.*, March 17, 1917.

VACCINE TREATMENT OF CHRONIC SUPPURATIVE OTITIS MEDIA.

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CHRONIC suppurative otitis media has long been a perplexing subject to the otologist, as, in fact, the word "chronic" in itself signifies intractability as well as prolonged negligence. We are, therefore, not only confronted by primary infection which may have long since disappeared, but by a secondary infection, often by bone necrosis, granulation tissue, polyp formation and occasionally cholesteatoma.

An important factor in prophylaxis should be the pushing of a propaganda teaching the laity that running ears are not to be looked upon lightly; that they are not caused by teething, growing, etc. The public must be taught that suppuration means necrosis either of the soft tissues or of the bone, that it is a precursor of deafness, and that the sequelæ may be mastoid disease, sinus thrombosis, labyrinthine conditions, and cerebral or cerebellar abscess.

Until recently vaccines were looked upon by the otologist as a last resort instead of an adjunct to the everyday treatment, and were not considered, in fact, until all other methods had failed. It is the contention of the writer that vaccines should be used as a preliminary measure, and thus prevent an acute suppuration from becoming chronic.

In brief, the etiological factors underlying chronic suppurative otitis media are:

1. Mechanical.
    - A. Nasal conditions.
        - Deflected septa.
        - Various forms of rhinitis, including sinus diseases.
        - Hypertrophied tonsils and adenoids.
    - B. Thermal.
        - Exposures to extreme temperatures and cold bathing.
2. Infections.
    - A. Scarlet fever.

B. Measles.
C. Whooping cough.
D. Diphtheria.
E. Pneumonia.
F. Tuberculosis.
G. Typhoid.

It is needless to say that the various mechanical and exciting factors must be removed in the course of treating cases of chronic running ears.

In 1906 it was shown by Doctors Weston and Kolmer at the Municipal Hospital in Philadelphia, in the course of experiments in some hundreds of cases of post-scarlatinal suppurative otitis media that the duration of the attack could be definitely shortened by vaccine administration.

The various forms of vaccines now in use are:

1. Commercial stock vaccine.
2. Autogenous vaccine.
3. Clinic stock vaccine, or vaccine left over from patients already cured with the Autogenous Vaccine.

1. In the Pennsylvania and Polyclinic Hospitals, Dr. Coates has treated about seventy-five cases with Commercial Stock Vaccines with about seventy per cent. cures, many ears being now dry for over three years. The high percentage of cures obtained is possibly due to the fact that he included acute, subacute and chronic cases. The disadvantage of the Stock Vaccine of the shot-gun type is that it contains many varieties of bacteria, and, although we see no contra-indications at present, it is, nevertheless, possible that they may exist, and it remains for time to show what these contra-indications may be.

However, the only excuse for anyone using commercial mixed vaccines (with the hope that the bacterial emulsion will contain the infective organisms) is either to bridge over the interval while an autogenous vaccine is being prepared, or where laboratory facilities do not exist with an experienced otologist to collect the infected material, and a competent bacteriologist to prepare the vaccine.

2. *Autogenous Vaccines.* It is advisable when one is working with autogenous vaccines for the clinician to be closely associated with the bacteriologist, and, indeed, preferable that the clinician be both in his own person.

At present the infected material for vaccine preparation is not collected as carelessly as formerly, when the patient was instructed not to cleanse the ear for a given length of time so that enough pus would collect in the external auditory canal, and a sterile swab was dipped into the infected material and this implanted upon culture media. It is now our aim to reach the infected area by wiping the ear dry first and then carefully sterilizing the external auditory canal and surrounding structures.

After all the discharge possible has been wiped out, the following steps are taken:

1. Patient's head is tilted to one side with the infected ear upward.

2. The external auditory canal is filled with 95 per cent. alcohol.

3. After waiting for fifteen minutes the position of the head is reversed so that the infected ear is turned downward allowing the alcohol to drain out. The residue evaporates.

4. When the ear is completely dry it is Polliterized and suction produced with the otoscope to draw pus from the recesses of the middle ear.

5. A platinum loop is arranged so that it will readily pass through the perforations of the tympanic membrane.

6. With this sterilized loop the granulation tissue of the middle ear is scraped and infected material transplanted upon suitable culture media.

In 1915 Dr. George M. Coates and I treated sixty-eight cases with autogenous vaccines at the Polyclinic and Pennsylvania Hospitals in Philadelphia. The infected material was collected as described above and the vaccines were prepared in the laboratory of the Polyclinic Hospital by the writer. All of these cases were of the chronic variety and all other treatment was stopped during the period of vaccine administration so as to determine as far as possible what was the therapeutic value of the vaccine treatment. Approximately fifty per cent. of dry ears were obtained by this method. There were also many cases that were markedly improved, some cases of bilateral otitis media where the ear became dry but some moisture persisted in the other, but none of these were counted.

The organisms most prevalent in our series were the different

varieties of the staphylococci, diphtheroid, B. pyocyaneus, streptococci and pneumococci.

The clinician must not confuse a vaccine with an immune serum, for an immune serum already contains the antibodies or immune products which have been developed in another organism, while the vaccine simply stimulates the organism to the production of these antibodies. The clinician also should not expect the same miracles from a vaccine that one sees when diphtheria antitoxin is administered. Vaccines when administered properly stimulate the promotion of antibodies within the organism and the improvement is proportioned to the efficiency of the vaccine and to the body response.

Vaccine therapy although more thoroughly understood than in past years, is still far from being absolutely scientific, for we have at present no available means of knowing, when preparing an autogenous vaccine for suppurative otitis media, whether or not the causative organism has been obtained. In an attempt to solve this question, we had prepared polyvalent antigens of the organisms enumerated above and, after collecting the blood from the patients afflicted with this disease, we tried complement fixation with these various antigens, but thus far we have not succeeded. Our hypothetical explanation is that either the organisms causing the suppuration do not produce free amboceptors in the blood, or our antigens were not sufficiently sensitive to give a complement fixation.

For some patients, at least, three or four vaccines were prepared before the ears became dry, but the effort was worth while when such an annoying and dangerous condition as a chronic running ear could be relieved. If it is a fact that the bacteria causing a discharging ear do not produce antibodies, although they are toxin producers, it is advisable to use vaccine as an anti-body stimulant. Once a dry ear is obtained it should remain dry, although one cannot guarantee immunity, as a recurrent suppuration may mean exhaustion of the immune products or a new infection, for in many recurrent cases different organisms have been isolated.

Method of Administration. It might be preferable to administer suspensions of live bacteria, for in one case in which a streptococcic organism was isolated, by some error the vaccine was not sterilized and a live bacterial emulsion was administered subcutaneously. Following

one injection of this the suppuration of thirty years' duration became dry, but the patient developed a severe abscess at the area of inoculation which necessitated incision and drainage.

I have often wondered whether the lesson to be learned from such an experience was that the vaccine should be administered in larger doses than previously thought. I feel that the so-called negative phase should not be dreaded as much as formerly, although it must not be pushed too far, for we have often observed in infectious diseases that when a patient runs a good temperature he usually recovers, while we fear infections accompanied by an apyretic temperature. Vaccines should be administered subcutaneously and never injected twice in the same area, for each area becomes a little laboratory where anti-bodies are formed and distributed throughout the body.

SUMMARY.

1. It is advisable for the clinician to be both the otologist and bacteriologist, for he will often be tempted to discard or add to his vaccine certain organisms found in the culture, and unless close watch is kept on what organisms have already been administered, he may discard the most desirable and retain the most undesirable.

2. Extreme caution should be used in collecting the infected material so that no saprophytes are included, as the latter often outgrow the primary causative organisms and vaccine produced from them is, of course, useless.

3. Vaccine should be administered subcutaneously, for we have tried both the oral and aural methods without any response, while in all the dry ears that were obtained, the subcutaneous method was used. It is contended by some, however, that the intravenous method of administration is superior because it produces a general reaction. We believe that the same results can be obtained by the subcutaneous method, possibly using larger dosage, and at the same time avoiding the dangers that often accompany intravenous medication.

4. Dosage. In adults the initial dose is approximately as follows:

Staphylococci Pyocyaneus Pseudo-diphtheria	250,000,000
Pneumococci	100,000,000
Streptococci	25,000,000

These doses are rapidly increased until the following signs are noted:

A. Focal
B. Local
C. General
} Reactions

A. The focal reaction is characterized by a thinning and increase of the discharge from the ear, which, thereafter, lessens and finally ceases.

B. Local reaction which occurs at the area of inoculation is characterized by redness, slight swelling, tenderness, induration, and a sensation of warmth in the part.

C. The general reaction is characterized by slight headache, malaise, chill, possibly a slight elevation of temperature or nausea.

5. Larger doses should probably be administered than previously thought, for I can recall several instances where vaccines failed, apparently due to insufficient dosage.

6. In bilateral suppuration it is advisable to take cultures from both ears for the organisms causing the discharge in each ear may be of a different variety.

7. Vaccines should be used early before the discharge becomes chronic, if possible, for then the primary provocative organisms causing the discharge are still in the majority and can, therefore, be more readily obtained and cultured.

8. Clinic stock vaccines that are left over from patients who have recovered should be utilized, for we have often found that some of these yield as good results as the autogenous vaccines, where diagnosis of the infection has been made.

9. In conclusion, I wish to say that in our clinics we adhere strongly to vaccines, for we believe that thus far vaccines are superior to any other therapeutic measure at our disposal, and, therefore, recommend their use primarily and other treatments as adjuncts.

1518 No. 6th St.

INDICATIONS FOR THE RADICAL MASTOID OPERATION IN CHRONIC SUPPURATIVE OTITIS MEDIA.

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IN deciding whether a radical operation is indicated in a given case of suppurative otitis media, the aurist is confronted by the questions: Should we operate to stop discharges or should we operate to save life?

Considering the first question, it must be conceded that there are many cases of chronic suppuration in which, from the location of the inflammation within the tympanic cavity, the character of the discharge, the history of the case, particularly with regard to the kind and persistence of previous treatment, the radical operation is not indicated, but further local treatment in the form of ossiculectomy, attic curettage, Eustachian curettage, and so forth, is indicated. An offensive discharge may be due to lack of cleanliness. In fact, we should consider more particularly when not to do a radical operation, rather than when to do one. The indications for the operation are usually plain and frequently emergent.

To quote from Professor Korner, of Rostock: "There are many cases of chronic suppurative otitis media, but few in which the radical operation is indicated."

The indications for the operation may be mentioned in the following order:

(1) Persistent recurrence of exacerbations of acute inflammation associated with, or accompanied by, mastoid tenderness and evidences of pus retention. This class of cases seems to us to be most important, and it is in them that the operation is quite imperative.

(2) Cases in which a fistula is demonstrable which leads either through the posterior bony wall of the canal or the outer cortex.

(3) Cholesteatoma evidenced by the presence of cholesterin crystals and broken down epithelium in the discharge.

(4) Polypi particularly when attached to the promontory or region of the oval window and when recurring.

(5) Facial paralysis, occurring during the course of the disease, is a positive indication for immediate operation.

(6) Evidence of labyrinthine or intracranial complications, or both. In this instance, however, more than the radical operation is required, namely, the radical plus the labyrinthine operation or the intracranial, or both.

In closing, let me quote a rule which it would be well for all aurists to consider: *"No patient should be subjected to the radical operation until his labyrinth has been carefully tested for evidences of suppurative labyrinthitis."* The importance of this rule depends upon the fact that to perform a radical mastoid operation upon a patient with suppurative labyrinthitis, without also draining the labyrinth, places his life in great danger.

4 West 93d St.

Robert Abbe, *Medical Record*, writes: I have been more impressed of late years with the number of men, in commercial life especially, who are inveterate smokers, whose vest pockets bulge with cigars, who sit in an office smoking and being smoked at, forgetful of the successive hours during which they smoke. While there is less drinking of liquor, there is more smoking. The corner saloon is being replaced by the convenient corner cigar store, a welcome social change. The effect in practice is, that we see fewer cases of cirrhosis of the liver and alcoholic gastritis, but more cases of cancer of the mouth.—*Pennsylvania Medical Journal*, March, 1917.

THE LABYRINTHINE COMPLICATIONS OF CHRONIC SUPPURATIVE OTITIS MEDIA.

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THE subject has engaged the keen interest of otologists particularly since the work of Barany in 1907 on the clinical application of functional tests of the labyrinth, but there is far from a unanimity of opinion as to the proper management of these cases. The experience of the entire profession has failed to bring about anything like a consensus of opinion, so it hardly behooves any one man, from his necessarily limited experience, to become dogmatic. There is also a group in which operation on the labyrinth is not considered, but the radical mastoid operation is, and we must determine the best time and method for doing this. As labyrinth disturbances do not always present manifest symptoms or even a history of such at the time the patient happens to come under observation, I believe that no radical mastoid operation should be undertaken without first examining the labyrinth functions, with a view to determining as exactly as may be possible its condition. These findings together with other symptoms and operative findings are then our guide as to further procedures.

An entirely satisfactory classification of labyrinth diseases has not, so far as I know, as yet been evolved. The following will perhaps serve the purposes of this paper, which is intended to handle the subject from a practical standpoint, and not go into details of tests and symptoms:

Group 1: Cases in which there is some hearing or some one of the various tests indicate a living labyrinth.

This group would include (a) circumscribed labyrinthitis with or without fistula symptom. Symptoms of this condition, besides the suppurating ear, are essentially those of heightened irritability of the labyrinth. Apparently spontaneous attacks of vertigo, nausea and ataxia occur at times, or are induced by slight causes. During the attacks there is spontaneous nystagmus, usually toward the

diseased side. Between attacks examination reveals increased reaction of the diseased ear to the caloric and turning tests. If a fistula is present and not blocked by cholesteatoma, granulations, connective tissue formation or otherwise, the fistula symptom may be elicited. The presence or absence of fistula cannot, however, be predicated upon this symptom. It may be present without any fistula being disclosed at the operation. According to Alexander it may be present from irritation of the trunk of the 8th nerve when the labyrinth is dead, and according to Urbantschitch and Ruttin when the bony labyrinth is sequestered without death of the nerve elements.

(b) Para or perilabyrinthitis. I do not know any definite clinical symptoms by which this condition can be recognized except the discovery of sequestræ of parts of the labyrinth capsule or necrotic bone from the petrossa, and facial paralysis. The discharge is foul and variable. The condition occurs more often in poorly nourished children, and as a sequel of systemic infectious diseases, and is often first diagnosed during the radical mastoid operation. (When this condition results in complete destruction of the labyrinth it would classify under group 2.)

(c) Labyrinthitis of suppurating ears. In this sub-group we class the cases which show depression of function. Responses to any or all tests may be suppressed. If any function can be shown it may be concluded that there is not a diffuse suppuration, but total loss of function does not always mean suppuration. Many cases of serous inflammation show recovery of function after total suppression. Therefore, functional tests alone do not serve to distinguish serous from suppurative inflammation. In fact, the differentiation may be impossible. There is also a secondary or induced serous labyrinthitis occurring often, after the radical mastoid operation, but sometimes in an old unhealed operation or even during the course of acute or chronic suppuration. The symptoms are the same as in acute diffuse suppuration (described below) except that some function may remain or be restored after total suppression. This differentiation may also be impossible.

Group 2: Cases in which no evidence of life in the labyrinth can be elicited.

This group includes (a) the manifest cases; those in which active symptoms of labyrinth disturbance are present at the time of examination.

(b) The latent cases; those in which no symptoms of labyrinth disturbance are present, though history of them can often be obtained.

As mentioned above, diffuse serous cases may fall under this group, as may also perilabyrinthitis with death of the labyrinth.

Diagnosis: Lues, leukemic hæmorrhages, and other uncommon labyrinth complications of suppurating ears will not be considered. The greatest difficulty is the differentiation between labyrinthine lesions and posterior fossa lesions, either meningitis or abscess as result of the suppurating ear or (occasionally) a coincidental tumor. There may also be a coexisting middle fossa lesion, and abscesses of the frontal lobe and of the opposite side of the brain have been described.

In the case of the hyper-irritable labyrinth (group 1) the spontaneous nystagmus is usually to the sick side, is rotatory, but tends to lessen under rest and quiet, and the general comfort of the patient improves; falling if present is in the direction opposite the nystagmus, and is influenced by the position of the head; *e. g.*, nystagmus to right, face straight forward, patient falls to left; face to right, patient falls forward; face to left, patient falls backward. The past pointing symptom is normally present, and in the opposite direction to the nystagmus. In a suppurative posterior fossa lesion the nystagmus is usually to the same side or to both sides, often horizontal, and may be changeable as to direction and intensity. The falling is not influenced by the position of the head; the past pointing symptom even with a live labyrinth may fail in some direction for some member of the affected side. Later, when psychic changes, asynergia, progressive emaciation, foul breath, slow cerebration, fundus changes and paralyses occur, the diagnosis is easier. There will probably always be cases in which the question of complicating posterior fossa or eighth nerve trunk lesion cannot be answered at the time. In such Ruttin recommends destroying the labyrinth so as to exclude it, exploring the posterior fossa secondarily if the symptoms persist. I am not in sympathy with this method of diagnosis, but believe the patient's best interests are conserved by persistent and careful observation, with operation at the right time and in the right way. I have seen some doubtful cases clear up, and so far as I know, none lost in this way.

Spinal puncture often gives valuable information here. I recall a case of post-operative serous labyrinthitis of severe grade, with

hysteria, which gave considerable concern. The patient made a good recovery except for total deafness, which persists after four years. The galvanic tests, which should help to distinguish eighth nerve trunk lesions from labyrinthine, have not proven practical in my hands for the reason that pain and vertigo often precede the nystagmus, making the test very disagreeable.

During the active stage of cases with total loss of function (Group 2) the first great difficulty of diagnosis is between diffuse serous and diffuse suppurative cases. In many instances it cannot be made. Total sudden loss of function, change of the Weber test from the sick to the well ear, persistent headache, especially occipital, severe vomiting and fever are all suggestive of suppurative lesion, but the fever may be lacking, and the other symptoms more gradual even in suppuration. Changes in the spinal fluid may precede the clinical phenomena of meningitis, therefore spinal puncture is of great value. The return of nystagmus to the side of a dead labyrinth after having once been abolished is quite characteristic of posterior fossa lesion. Some of the more manifest symptoms were mentioned above.

In the latent cases (Group 2, class b) there are no symptoms of labyrinth disturbance and no evidence of life can be elicited, except that after an indefinite time "compensation" takes place. This is shown by the ability to obtain, after rotation nystagmus to the diseased side nearly or quite equal to that obtained on the well side. The labyrinth may be filled with connective tissue or bony deposit. Theoretically, there should be no spontaneous nystagmus, but as a matter of fact it does occur. However, a well marked spontaneous nystagmus to the side of a dead labyrinth should be looked upon with great suspicion of intracranial trouble.

Treatment: In the management of cases involving the labyrinth the greatest confusion seems to exist. It appears as though no two otologists agree exactly. It is difficult to lay down rules to govern all contingencies, but I believe the following represents the best views at the present time:

In cases in Group 1, that is those in which there is evidence of life in the labyrinth, during the stage of active symptoms, absolute rest in bed and quiet, with such simple measures for drainage as will not disturb much, and with general treatment as indicated. After the

active symptoms subside the mastoid operation is done (the labyrinth being first retested). All meddlesome interference with the labyrinth is carefully avoided. If there is an intracranial complication present with a live labyrinth, I do not see any reason for operating the labyrinth, as the infection manifestly did not extend through that route; if the labyrinth is doubtful, with intracranial complication, it should be operated. One may be justified in destroying a live labyrinth to relieve severe persistent or recurrent vertigo if the other ear has useful hearing.

Cases in Group 2, class a, those with active labyrinth symptoms but with no response to tests, as before stated, may be either diffuse serous or diffuse suppurative. These are undoubtedly very dangerous if suppurative. There are two opposed methods of treatment: 1. Absolute rest if the case is uncomplicated; 2. immediate radical and labyrinth operation, Neumann's being the operation of choice. The advocates of the immediate operation believe that suppuration, if present, is prevented thereby from spreading to the cranial contents; that if the case is merely serous, the consequent destruction of hearing that might return should not be weighed against the patient's life. In doing this they assume, first: that the operation itself is practically without danger; second, that they will prevent the spread of active suppuration if present. In regard to the first assumption, reports of cases in which the operated labyrinth contained neither pus nor granulations, that is, serous labyrinthine cases, followed by intracranial complications, show that the operation, per se, is not without danger. Moreover the removal of the bony wall between the radical operation wound, prone as it is to recurrent inflammation, and the cranial contents, presents a more remote, but none the less real danger. The high mortality in cases of diffuse suppuration operated during the height of the symptoms does not indicate great success in limiting the spread of suppurative processes at this stage. The operative findings in many recovered cases reported as manifest diffuse suppuration show only "clear liquor." Nor do we as yet know the ultimate history of many of these cases which made operative recoveries. On the other hand, many operative recoveries of latent cases are reported, in which the operative findings distinctly showed a destructive process.

I am in favor of the absolute rest treatment, as recommended by

Alexander and as practiced at the Illinois Eye and Ear Infirmary, unless symptoms of intracranial involvement arise, or unless there is known to be a bony defect in the labyrinth paralabyrinthitis with sequestrum, or fistula, especially in the region of the stapes). I do not lay much stress on statistics. However, Alexander states that of his cases with intracranial complications, including cerebellar abscess, he lost 20 per cent. Ruttin reports from the Urbantschitch clinic fifty-six labyrinth operated cases, all kinds with dead labyrinth (and a few with a live labyrinth), with seventeen deaths, about 30 per cent. mortality. Apparently more were lost by not waiting for intracranial complications.

Then there are the cases only moderately active, in between, as it were, the manifest and the latent. I believe they are also best handled by the rest treatment until they are latent, and then treated as advised for latent cases. If compelled by symptoms other than those of the labyrinth itself, which would necessitate the mastoid operation while the labyrinth symptoms were still active, I should be inclined to operate the labyrinth at the same time; certainly so if actual invasion of the labyrinth were found at the operation.

If after a radical mastoid operation on a case of Group 1 (live labyrinth) symptoms of labyrinthitis with total loss of function should supervene, I should use the expectant treatment as above, unless intracranial symptoms showed or unless at the primary operation there was evidence of invasion of the bony wall of the labyrinth. Most of such post-operative labyrinthides are serous.

If at the radical operation the oval window is accidentally opened the treatment of the resulting disturbance may be the same as recommended under manifest diffuse labyrinthitis.

In cases in Group 2, class b, that is the latent cases, there is very good reason to believe that nature has built her protecting wall, whether plastic, exudate, connective tissue or bony formation, and the longer the time since there have been active symptoms the more likely is this protection. Ruttin recommends no operation on the labyrinth if compensation has taken place. I should recommend no labyrinth operation unless before the radical mastoid there are symptoms of intracranial complications, one of the most important of these being viable organisms in the spinal fluid (Pierce), or unless at the operation evidence of invasion of the labyrinth is found. If there have been no

labyrinth symptoms for some time, and the invasion consists merely of a fistula of the external canal or other lesion that has healed, Pierce does not operate the dead labyrinth. In these latent cases, unless there is an intracranial complication, or a sequestrum of a large part of the labyrinth, I believe the Hinsberg operation to be the one of choice.

An important fact to keep in mind in the general consideration of all these cases is that our only hope with or without operation, lies in nature's walling off the infected area with a plastic exudate at the internal auditory meatus and the aquæducts, vestibuli and canaliculus cochleæ. We should give this time to form if it will, and we should aim to establish drainage as well as we can without meddling with nature's defense.

110 North Wabash Avenue.

In New York the duties of an oculist in city service consist of the supervision or responsibility for the diagnosis and treatment of disease, of physical abnormalities and other pathological conditions of the eyes, in hospitals, clinics, or other institutions. Twenty hours of service each week is generally required by the department. The position carries a salary of from $1,020 to $1,380 per annum, and presents unusual opportunities for research and invaluable experience. During the year 1916, there were 239,974 children examined in the public schools by the Medical Inspectors, of which number 23,422 were found to have defective vision. Of the latter 15,139 were treated by the oculists of the department.—*The Ophthalmic Record*, March, 1917.

THE END RESULTS OF THE RADICAL MASTOID OPERATION AS A CURE IN CHRONIC SUPPURATIVE OTITIS MEDIA.

GILBERT J. PALEN, M. D., AND JOSEPH V. F. CLAY, M. D.

HOPING to gain considerable information concerning the end results of the radical mastoid operation we wrote to sixty-six prominent specialists of the country requesting them to furnish us with statistics from their records upon the following points: Number of cases operated, cessation of discharge within three months, six months, and one year, persistent discharge, influence of operation upon hearing whether uninfluenced, improved or made worse, and whether skin grafting was used. We received answers from twenty-one, and are indebted to these for their courteous replies to our communications. Many of those who replied were unable to furnish statistics as they kept only incomplete records of their cases or their records being alphabetically arranged they were unable to pick out the operated cases without considerable trouble.

We quote the following from communications:

Dr. Sohier Bryant considers the radical mastoid operation the last resort in aural surgery, and should not be performed until all means have proved unavailing.

Dr. Otis Stickney reports upon five cases operated without skin graft. Cessation of discharge in three months occurred in 60 per cent. Twenty per cent. presented persistent mucoid discharge. The hearing was uninfluenced in forty per cent., improved in ten per cent., and made worse in twenty per cent.

Dr. R. I. Lloyd reports upon twelve cases. Concerning the hearing, the state was not known in four, made worse by operation in two, and uninfluenced in six. The discharge ceased within three months in eight. Recurrence of discharge occurred in two, recurrent discharge in one. One case has not been seen since operation. No cases of persistent discharge.

Dr. Harold Hays does not do the full radical operation. He believes he gets better results from a modified technique. His object

is to clean out all diseased tissue, close off the Eustachian tube, and not to interfere with the natural healing process. He believes the hearing depends a great deal upon not disturbing the stapes and keeping down the granulations on the internal wall. He further states that much of the success in curing otorrhœa depends upon the judgment of the individual case. He does not mention skin grafting.

Dr. Geo. L. Richards has not used skin grafting with success. The discharge ceases within six months, rarely within three. In a faw instances intermittent discharge occurred which he believes due to infection from the Eustachian tube and naso-pharynx. In cases of cholesteatoma he does not think it possible to remove all the matrix from which the cholesteatoma comes. A histological study from cholesteatomatous cases shows that in many such cases it would be impossible to remove all the cholesteatomatous matrix without considerable danger. In his experience the hearing is improved in twenty-five per cent.; in a few cases it is made worse. He does not believe that the hearing should be materially influenced by the radical operation. Thinks the greatest error has been failure to sufficiently cut down the facial ridge largely on account of fear which we all have of a facial paralysis.

Dr. E. B. Dench (quoted from Transactions of the International Otological Congress, Bordeaux, 1904): Because of the grave intracranial complications known to occur, Dench believes all cases of purulent chronic otitis media should be treated by the radical operation. In a report of 98 cases he reports 71 cases the suppuration absolutely cured. In 16 cases slight suppuration after operation; five cases were uninfluenced, four cases not known. There were two deaths not attributable to the operation. In only two cases was the condition made worse. Skin grafting was used in 63 cases by the method of Tiersch. In 43 cases grafts were introduced at the time of the operation: in 20, subsequent to the operation. He believes that the application of the graft at the moment of operation diminishes the period of convalescence. States that the mortality from this operation is practically nil.

Dr. A. Babbitt is not doing the radical operation in any but exceptional cases.

Dr. Seymour Oppenheimer reports upon 113 cases. Six showed

cessation within three months with skin grafting, five without grafting. He cannot say whether the hearing was favorably or unfavorably influenced by skin grafting. Twenty-two cases showed cessation of discharge within six months with skin grafting; thirty cases without skin grafting. Of the fifty-seven cases that were grafted, primary grafts were used in twenty and seconary grafts in thirty-seven. Possibly twenty per cent. of these cases showed improvement in hearing. As regards the hearing he believes the question of operator and technique are factors to be considered. Doctor Oppenheimer takes up the question of hearing in his discussion of Dr. C. Blake's paper on "Preservation of Hearing in Chronic Suppurative Otitis Media" at the American Medical Association meeting, June, 1907.

Twenty-eight cases showed cessation of discharge within one year with grafting, eighteen without grafting. Four cases showed persistent discharge, one with graft, three without.

Thinks that statistics depend upon proper selection of cases and that formerly many cases were operated which should have been left alone.

Dr. Frank Allport has experimented with all kinds of skin grafts, and has finally gone back to a non-grafting operation. Occasionally after two or three months uses skin grafting. He has nothing to say against grafting but gets excellent results without it. His cases are healed in about two months, some even sooner, some a little longer, but two months is about the average time. He pays a great deal of attention to cleaning out the Eustachian tube, and to this he attributes a large part of his success as also to his method of using the electric burr. He advocates a large bony opening free of overhanging edges and a thorough removal of the outer posterior wall of the meatus so that the lower portion of the bony cavity is about on the same level. He uses an L shaped incision in the posterior meatal flap. As to the hearing, in the majority of cases this has improved; in a few cases it has been unaffected and a few others made worse.

Dr. Joseph Beck states that the cessation of discharge depends largely on the underlying pathological condition of the temporal bone, syphilis or tuberculosis. The greatest stumbling block from this standpoint is the cholesteatoma and discharge. In simple necrosis of the mastoid with osteo-fibrosis the results of the mastoid operation are

rapid and complete. The formation of adhesive bands in the upper posterior part of the cavity may continue the discharge. Epidermization in some cases is hastened by skin grafting. Closure of the Eustachian tube has been a disappointment to him until he closed the Eustachian orifice at the pharyngeal end according to the method described by him at the American Academy in New York, by drawing the palate forward as in the adenoid operation. The end results as to hearing depend largely upon the amount of hearing that was present before the operation. He thinks in the earlier operations much less of the hearing was due to conversion of a latent labyrinthitis into a serous diffuse or even a suppurative labyrinthitis. Since increased knowledge of labyrinthine conditions, more care is exercised in removing pathological structures in the region of the labyrinth. He sums up by saying, "The radical mastoid operation does not destroy the hearing, but in our experience does not improve it especially after epidermization has taken place."

Dr. S. MacCuen Smith (*Laryngoscope*, June, 1915) states he has only operated on those cases that have utterly failed to respond to non-operative treatment. He believes the end results as regards the hearing are likely to be much better when operation is performed reasonably early. Suppuration subsides in a large percentage of cases. Where discharge continues it arises from the tympanic cavity involvement, this being due to the Eustachian tube becoming patulous. The duration of the otorrhœas ranged from one year to forty-seven years. In 15 per cent. it had continued for ten years, in 34 per cent. from 10 to 20 years, in 51 per cent. over 20 years. The length of time of the after-treatment was about three months, this being reduced in private practice, even in the absence of skin grafting. As far as he could determine in the out-patient service, complete cessation of the discharge occurred in about 80 per cent. of cases, and this percentage can be increased to 95 in private work. The skin grafting lessens time of repair. The degree of hearing depends upon the condition of the tympanic wall, more particularly whether the round or oval windows have been disturbed during the operation; in other words, if the functional activity of the internal ear remains the same as before the operation, the hearing should be uninfluenced. As regards the hearing in 32 per cent. of operated cases the hearing was better; in forty-nine per cent. it

remained the same. Of the remaining 19 per cent., in 11 per cent. the hearing decreased after operation, according to actual records, while in the balance, or 8 per cent., it decreased according to the statement of the patient, no record existing of hearing prior to operation. Where the hearing decreased the impairment was gradual and may have been caused by the pathological changes arising from the otorrhœa. He feels justified in stating that the operation does not cause impairment of hearing in most instances. Where hearing is lessened it is due to the accumulation of granulation tissue covering the tympanic wall becoming organized.

After reading the various communications and after a thorough study of the literature concerning the radical mastoid operation, one cannot help but be impressed with the fact, that it is not any especial method used in operating which brings about results but rather the employment of a thorough technique followed by most careful after-attention. The technique, including closure of the Eustachian tube, the after-care, laying special stress upon the proper filling in of the bony wound without pocket formation or bridging granulations. While one operator secures good results with skin grafting, another secures equally good results without it, both as regards the time of cessation of discharge and the influence upon the hearing.

We are also impressed with the fact that the end results of properly treated cases are excellent unless there is some such underlying condition as tuberculosis or syphilis.

One notices in recent literature a marked tendency to more carefully determine the cases suitable for operation. Statistics based upon the literature of the radical mastoid operation would point markedly to lack of success of the operation because, as Dr. Oppenheimer has stated, in former years many cases were operated which to-day would not be. Were it possible to secure accurate statistics of cases which have been operated since the era of more careful selection of cases, we would find that the result of the radical mastoid operation to be excellent.

From our investigations we are unable to find any definite reason given why the hearing should be improved or lessened. As regards the effect upon hearing much of the accumulated data is unreliable. In many instances the statements of patients as to whether the hearing

was better or worse have been relied upon and no accurate tests made. In other cases, while there have been very accurate tests made just prior to and subsequent to the operation, no record has been made of accurate testing over an extended period prior to the operation, during the course of the chronic otorrhœa. Those who have made it a rule to systematically test the hearing during the course of a chronic otorrhœa know that there is in the majority of cases a progressive diminution of hearing. Is it then not likely that in those cases in which diminution of hearing, subsequent to the radical operation, has been noted that this diminution is due to the continuation of the pathological process which had existed for a long time prior to the operation? This question it would seem can not be settled until there have been recorded a number of cases in which very accurate tests have been made for some time prior to and subsequent to the operation. Such a series of tests would then show whether the diminishing hearing progressed at the same rate subsequent to the operation as prior. Another factor to be considered in this relation is the technique used in the operation as we believe very often the hearing is diminished because of improper technique or after-care.

As always occurs when any new operative procedure is exploited there followed, subsequent to the exploitation of the radical mastoid operation, an era of indiscriminate operating with a consequent dropping off, to a large extent, of the then prevailing methods of local treatment. During recent years, however, we find the pendulum swinging toward a central position, the average otologist realizing the value of some of the older methods of treatment combined with a knowledge of the necessity of carefully selecting cases for radical operative work, and so we find again, coming into the literature, articles upon the non-operative treatment of chronic otorrhœa.

We have never been radical as regards the treatment of suppurative otitis media from the operative standpoint, for we have, after a number of years of experience, found that the majority of cases can be cured by careful painstaking and thorough local attention combined with the general treatment of our patient. We lay great stress upon the general treatment, believing that the improvement of the general condition of our patient is of prime importance in securing a cure of the local condition by increasing the resistance.

From a combined experience, extending over a period of thirty years, our deductions of the end results of the radical mastoid operation as a cure for chronic suppurative otitis media are, therefore, drawn from a comparatively small number of cases. This, of course, excludes a large number of cases in which the radical operation was performed because of deeper complications. We would state our deductions as follows:

(1) The first essential is the proper selection of the case as outlined later on.

(2) We believe skin grafting has no especial advantage in the general run of cases.

(3) The cessation of discharge depends not upon any given method, but rather upon a thorough eradication of the diseased tissue with bony cavity resulting which is as wide as possible, a careful lowering of the outer portion of the posterior canal wall, through closure of the Eustachian tube, and a thorough after-care. In the after-care there should be interference with the healing process only when there is a tendency to pocket formation or bridging bands. Frequent manipulation should be avoided. In deciding upon the success of the radical mastoid operation we must not be guided entirely as to whether there is complete cessation of the discharge. We must determine whether the discharge existing after the operation is of the same character or is it a mucoid discharge from faulty closure of the Eustachian tube, the condition from which the former discharge originated having been eradicated, the main object of the operation accomplished.

(4) In the majority of cases the operative procedure has no deleterious influence upon the hearing, and in a goodly percentage of cases there will be some improvement. Where the hearing lessens following the operation we believe this to be due to meddlesome disturbance of granulations or other tissue which nature has thrown out as a protective over the outer labyrinthine wall, or this lessening of hearing may be due, as above stated, simply to a continuation of a pathological process which preceded the operation.

Owing to the subject of this article, in the consideration of the selection of the case we exclude those in which there is an already existing deeper condition, as it is self-evident such a case demands the

radical operation for the warding off of serious immediate trouble rather than for the cure of the suppurative middle ear condition.

First we secure a thorough history of the case, including a family history as well as personal history, past and present, with the idea of discovery of a possible clue to the cause. We consider subjective examination of the case of great importance and do not rely alone upon the symptoms as given by the patient, but inquire thoroughly as to all existing subjective symptoms, noting any symptom thus gained, although the patient may attribute it to some other cause. We have frequently found symptoms so gained of great value in our judgment of the case. For instance, general symptoms of drowsiness, stupidity, lack of concentration, dull headache, etc., while probably toxic may be due to toxæmia produced by the suppurative condition. The patient may attribute this to some other cause, such as an intestinal disturbance. It is possible, however, that the ear may be the focus of infection. Subjective symptoms are often also a marked guide in the recognition of beginning serious intracranial complications and frequently influence us in our advice as to the radical operation.

The objective examination of our case is of great importance and presupposes a thorough knowledge of the anatomy of the external auditory canal, of the middle ear cavity, Eustachian tube, nose and nasopharynx, recognition of minute pathological changes and their significance and skill in instrumental method of diagnosis.

The position of the perforation, as well outlined by many authors, is of value as to the condition present as well as to its virulency.

Of primary importance in the selection of the case is the character of the discharge. The experienced otologist will eliminate some cases immediately, as not of the dangerous type, from the character of the discharge. The virulent types are mucopurulent, purulent, buillon-like, bluish-black and cholesteatomatous discharge. Again, the occurrence of the discharge is of value, whether intermittent, associated with recurrent pain as indicative of obstruction. Direction from which the discharge appears is a marked guide in the selection of the operative case. The microscopical examination is of value in determining the type of bacteria as is also the presence of cholestrin crystals. In a small percentage of cases in which our local treatment has extended over a period of weeks—this period varying with the individual case—

if the discharge still continues, we would advise a radical mastoid operation. We would advise this, especially in those cases in which the discharge, as gained from our experience, is of a dangerous type, or as coming from an area where it is liable to spread to deeper structures, in a patient in which symptoms of general toxæmia have not responded to general treatment. Under no circumstances would we operate a case for cessation of discharge the nature of which did not indicate, in our judgment, a serious pathological process.

SUMMARY.

To summarize:

(1) The radical mastoid operation in suitable cases, when properly performed with adequate after-treatment, will clear up a suppurative middle ear condition in a very large percentage of cases.

(2) Skin grafting as a part of the technique is not an essential, the results being just as good without it.

(3) Cessation of the discharge occurs in the average case in about four months.

(4) A properly performed operation is not a cause of lessened hearing, but may increase hearing by stopping the underlying process which would ultimately lessen hearing.

2102 Chestnut St.

Cannot Be Sued for Slander.—In a recent decision of the Supreme Court a ruling has been made that a physician cannot be sued for slander when he divulges confidential professional information in court, if the testimony is relevant, pertinent and admissible.

FURTHER REPORT ON A CASE OF BILATERAL CEREBELLAR ABSCESS WITH RECOVERY.

BURTON HASELTINE, M. D.,

Chicago, Ill.

AT the meeting of the American Homœopathic Ophthalmological, Otological and Laryngological Society in Chicago, June, 30th, 1915, the writer presented a patient who had recently recovered from a cerebellar abscess involving both hemispheres. The case was discussed at length by a number of surgeons and neurologists, and a complete report, together with discussions, was published in the JOURNAL OF OPHTHALMOLOGY, OTOLOGY AND LARYNGOLOGY, for August, 1915.

The case is reported again at this time for two reasons: First, it still remains the only recorded instance where a patient with bilateral cerebellar abscess has recovered and the opportunity for subsequent observation is, therefore, unique. Second, completeness of function recovery is astonishing in view of the extent of cerebellar damage and length of time to which the tissues were exposed to infection.

For a proper understanding of the condition a brief review of the history is essential. The patient was a youth of eighteen with no previous history of important illness nor ear trouble of any kind. On November 23rd, 1914, he contracted what was called a severe "cold in the head" and rapidly developed a profuse muco-purulent nasal discharge. Within a few days he had severe pain in the right ear followed by spontaneous rupture of the drumhead with free drainage of pus. This was allowed to go untreated until December 15th, 1914, when the patient had an attack of dizziness with vomiting, and showed unsteadiness in walking. The physician who was called at that time found a normal pulse and temperature, with only a small amount of discharge from the ear. There was constipation and occasional vomiting. Rest and general treatment was prescribed. On December 25th, 1914, the patient noticed some difficulty in moving the right arm and leg. This improved and then reappeared several times during the following two weeks. On January 13th, 1915, the patient was able to walk without

assistance, and all symptoms seemed ameliorated. On January 23rd, 1915, there was a marked increase in all symptoms with slight aphasia, diplopia, dilated pupil, and a slight convulsion. It was on this date that the writer was called by Dr. R. C. McMillan, of Monmouth, who was in charge of the case.

Examination at that time showed a patient conscious but slow to respond, mentally clear; pulse 54 and soft; temperature 97°; eye balance normal, pupils equally dilated and rigid; vision unimpaired; lateral nystagmus on looking to either side and vertical on looking upward, slight bilateral choked disc; normal middle ear and normal hearing either side, and no evidence of mastoid infection. There was marked loss of muscular co-ordination of entire right side with no disturbance of sensory function. A diagnosis of right-sided cerebellar abscess was made, and it was advised that the patient be brought to Chicago. This was done on January 25th, and he reached Chicago in apparently better condition than when first seen. Careful observations of temperature, blood, cerebro-spinal fluid, etc., were made and a complete neurological study of the case was made by Dr. Julius Grinker, of Chicago. On February 1st a marked rotary nystagmus appeared with diminution of hearing in the right ear. On this date a very complete mastoid operation was made on the right side with exposure of the dura, which was normal, over the cerebellum in Trautman's triangle, and over the petrous bone as far as the internal auditory meatus.

All symptoms were much ameliorated following the operation until the evening of the seventh day, when there was recurrence of all except the rotary nystagmus. On the ninth day following the mastoid operation the cerebellum was uncovered in the right posterior fossa, and a very large abscess released. This was drained in the usual way, and the patient made an uneventful convalescence for six weeks, when he suddenly showed a recurrence of symptoms with marked evidence of sepsis. The abscess cavity was then re-explored, and by X-ray pictures, taken with a large probe in position, it was found to extend through the falx, far over into the left cerebellar hemisphere.

The problem of draining this left-sided abscess through the right side was met by the insertion of long silver tubes which were shortened as the cavity became smaller. Another two months were spent in

convalescence after which all dressings were discontinued and the patient discharged. His condition at that time as well as the probable outcome can be inferred from the following remarks of Dr. Grinker in discussing the case:

"Dr. Haseltine did what every otologist should do, namely, he explored the dura mater because cerebellar abscesses may originate from an external abscess in the proximity of the mastoid. Dr. Haseltine uncovered it, saw it was clean—there being no inflammation, no pachymeningitis—then he probed a little here and there and was certain that he had not omitted a depot of pus, capable of spoiling all his labors. He need not feel that he was rather slow; to have proceeded faster would have been hazardous. Nobody can feel certain that he is doing radical work if he omits all the interesting territory between a suppurating ear and what appears to be a cerebellar abscess. Having ascertained that there was nothing left in the intervening area it was time to enter the suspicious cerebellum. Which part of the cerebellum? Statistics inform us that cerebellar abscesses occur mostly at the lower and external part of the cerebellar hemisphere because of the contiguity to the infected area. In our case, however, the abscess was not external, but approached the median line and went clear across affecting the opposite hemisphere as well.

"I believe this is a record-breaking case from the point of view of recovery of an abscess so extensive; an abscess that had its location in two hemispheres, and was treated and drained through one opening, causing as little mutilation of the cerebellum as in this case. No doubt some of you have seen the patient walk down the aisle, with cane in hand and appearing somewhat unsteady, and thought that he presented a case far from cured. The patient is fortunate to have so little trouble remaining. No doubt in time the opposite side will compensate for the lost tissue. But if we bear in mind that the abscess has destroyed cerebellar tissue and that nerve tissue once destroyed is rarely restored, we can understand his present disabilities. Parts of the normal cerebellum will have to do the work for those who have suffered from the disease. I think the outcome of the case is most fortunate; I know of no similar recovery in an identical case. I must repeat, that from the neurologic point of view the diagnosis of cerebellar abscess is extremely difficult, even in a case with such classical

signs as this boy had—nystagmus, leucocytosis, slow pulse and extreme apathy."

Dr. Grinker examined the patient again during the summer of 1916 and reported as follows:

"The patient appears normal in every respect; answers questions rationally and looks the picture of health. Reflexes, superficial and deep, are present and of normal intensity. Co-ordination still shows impairment, though not to the same extent as in the previous examination. However, the patient is able to get about with little difficulty and but slight cerebellar staggering. Nystagmus is present but there is no diplopia. The optic nerves have a normal appearance, not a trace of neuritis is discoverable, and ocular palsies cannot be made out. A sensory examination reveals normal findings.

"Conclusion: There are no cranial disturbances beyond the cerebellar involvement, in the form of staggering and nystagmus, the direct result of destruction of cerebellar tissue from extensive suppuration and subsequent scar-formation."

During the two years that have intervened since his illness the patient has been seen at irregular intervals, and on two occasions careful examinations have been made. He was seen by Dr. Isaac Jones, of Philadelphia, in the summer of 1915, and a diagnosis of bilateral cerebellar lesion was independently made by Dr. Jones with his original system of past pointing tests. It was an unusual opportunity to prove the value of Dr. Jones' investigations.

Dr. Jones' conclusions from ear test are given below.

"Summary of findings: Tests suggest a lesion of both the right and left cerebellar hemispheres—more marked on the right, in the region of the middle cerebellar peduncle. The stimulation of the horizontal canal fibres produced a large and correct past pointing. This shows that the inferior cerebellar peduncle of both sides is intact. The right vertical canal fibres, however, are interfered with, as shown by a poor nystagmus on douching the right ear with the head upright; poor nystagmus and incorrect past pointing of the left arm, suggesting that the lesion is in the region of the middle cerebellar peduncle.

The left vertical canals also give a poor past pointing of the right arm, and absent past pointing of the left, also suggesting the middle cerebellar peduncle.

The absence of inward pointing of both arms after douching suggests the biventral lobe region of the right and the left."

There has been a steady improvement in cerebellar function until recovery now appears to be almost complete.

The slight loss of right-sided co-ordination is well shown by the altered character of the hand writing, and we have been fortunate enough to secure specimens of this, both before the illness and after recovery. These are herewith reproduced in photogravure. Figure

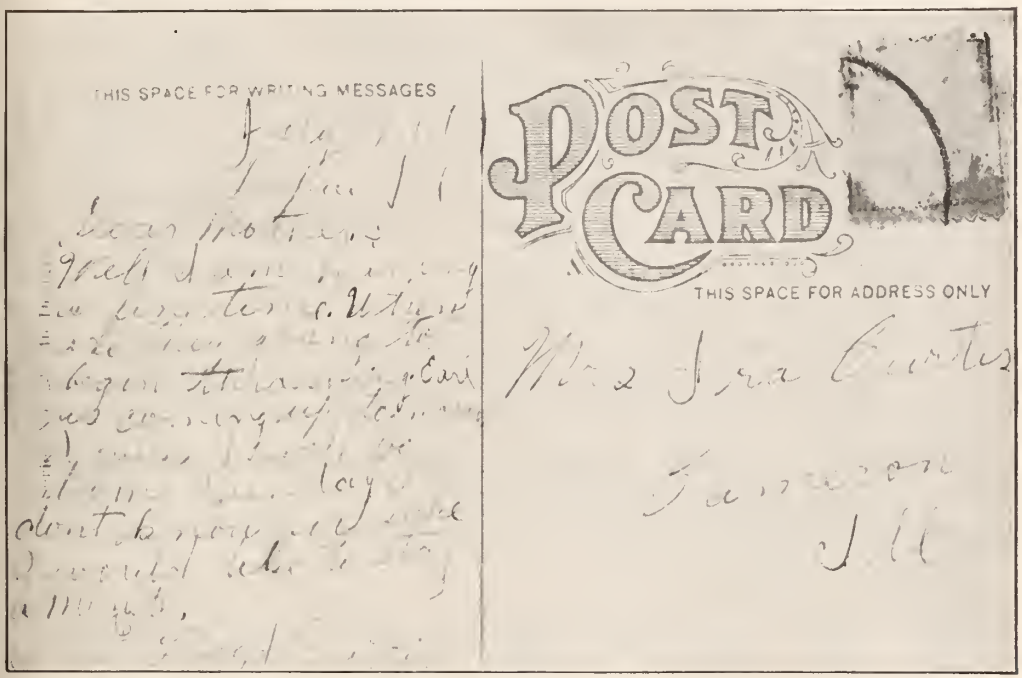

Figure 1.

1 is about one year before the attack, and figure 2 about one year afterward. The young man's present condition is best described by quoting a letter from his father written on December 18th, 1916, as follows:

"Lloyd is surely enjoying the best of health, has not been sick a day since we came home, except a slight cold a year ago this winter. He plowed corn all last summer, and wanted to pick corn this fall, but I did not let him pick a great deal. In fact, he can do anything there is to do. Has helped shingle, is breaking a colt to ride, and is an expert at driving the automobile. They say he is hard to beat playing pool. Of course, he is not as steady as he once was. We were out

Cameron. Ill,
Jan, 4, 1916.

Mr Burton Haseltine:
Seeing it has been quite a while since I have written you I thought I would drop you a few lines and let you know how I am feeling and I want you to understand that I've not forgotten you. I suppose you know we have an Auto and I'm some Chauffer believe me. But the roads are so bad now we cant run it. Its feels like today we could sow Oats next week not wheat ones you understand what I mean. Well I guess I had better quit for this time. Tell Dr. Sowers and all the Nurses hello for me.

I remain
your friend
Lloyd Curtis.

FIGURE 2.

sorting hogs the other day, and it is surprising how he can run and get around. I have had strangers that had been with him tell me afterwards that they did not notice anything wrong with him. He certainly has a good appetite and weighs 140 pounds, the most he ever did weigh. He is going to have his picture taken and he will send you one."

No great lessons are to be learned from the history of a single patient, but it is stimulating to know that in handling these tremendously difficult cases we may hope not only to save life but to see the individual restored to normal activities.

122 S. Michigan Ave.

Does Man Live After Death?—The query raised by the London *Lancet's* review of a recent book by Sir Oliver Lodge, not long ago, President of the British Scientific Association. Sir Oliver says "Yes" to the question. The *Lancet* politely intimates "No." No one can prove it? Nothing can be proved to a man who does not want to believe, and nothing can budge a man's faith if it be inrooted in him. If a man believes that disease is caused by small animals, no reasoning will change his faith. If others believe it is a visitation of God, or the effect of violated law, or is caused by devils, or by any other means, you nor no one else will change the belief. Scientific gentlemen laugh at faith even while they are as much in its grip as is the most superstitious peasant. A whole faculty of scientists could not change the belief of some that it is unwise to have 13 at a table, and per contra, a thousand remarkable cures by Homœopathy will not change an allopath set in his belief that Homœopathy is a delusion.—*Homœopathic Recorder*, March, 1917.

A CASE OF TEMPORAL LOBE ABSCESS FIVE YEARS SUBSEQUENT TO OPERATION.

GILBERT J. PALEN, M. D.,

Philadelphia, Pa.

IT is always interesting to trace the effect of operative work after a period of years has elapsed, and for this reason the following case, which has not been previously recorded, is reported:

G. W. H. C., age 24, medical student. February 3rd, 1910. Two weeks prior to this he had an attack of acute otitis media. He complained of aural discharge and buzzing sounds in the left ear. As a result of treatment there were periods of diminution of the discharge until June 6th, 1910, when the patient was seized with pain behind the left ear following cessation of discharge. This was associated with headache, rise in temperature, loss of appetite and interference with sleep. There was a thin bloody discharge from the left ear, tenderness over the tip of the mastoid and just below the antrum, slight rigidity of the sterno-mastoid muscle, considerable local temperature, the entire canal boggy; temperature, 98°; pulse, 76.

On January 7th the condition remained practically the same, and the patient was advised to go into the hospital.

On January 8th there was swelling below the tip, under the sterno-mastoid muscle; the tenderness had increased and the character of the discharge had changed to a purulent one. Mastoid operation was advised.

A simple mastoid operation was performed the same day. The patient left the hospital at the end of the sixteenth day, the wound granulating in the usual manner except in the region of the antrum, which became sluggish, requiring the use of a curette, and finally healed solidly after five weeks. The patient at this time complained of a sensitive area in the scalp just above and behind the mastoid emissary; about five-eighths of an inch in diameter. This was exquisitely tender to touch. This symptom finally disappeared. The patient was not again regularly under our care until March, 1912.

The following history of his condition in the interval is given by himself:

"In the fall of 1911, after freedom from discharge and other symptoms, became irritable, fault finding, usual mental acuity was blunted, could not find the word to use when needed. Later became quarrelsome. Finally the wound in the region of the antrum became boggy and it was necessary to incise and drain. Wound would attempt to close and drain through the external canal with considerable pain. During this time lost 26 pounds in weight. Was dull and apathetic at times, with irritability and tendency to become quarrelsome at intervals. On February 24th, 1912, was taken with a distinct chill and rise of temperature to 103°. This was associated with sore throat, headache of the left supra-orbital type. Went to bed and began vomiting, this being projectile in character, and the pain in the left supra-orbital region following supra-orbital and supra-trochlear nerves. Was extremely restless, though drowsy, and would vomit on slightest movement. The condition subsided somewhat and insisted upon getting about, although complained of head being in a whirl and a sense of insecurity while walking. For four days, from March 1st to March 4th, 1912, was about, complaining of loss of appetite, chilliness and difficulty in walking. There was at this time no vomiting. On March 5th arose from bed and was able to dress and descend stairs unaided. Was then taken with a severe chill, managed to go to another room and recline upon a sofa and, after advising whom should be called in, lapsed into unconsciousness."

We found the patient in a comatose condition, pulse 40, respiration 12. On account of his urgent condition no further examination was made, but patient hurried in ambulance to the hospital and operated at 3:30 P. M. At this time the temperature was 100 2/5°, pulse 44, respirations 22. The respirations were irregular as was also the pulse. Frequent projectile vomiting. The patient could be aroused but lapsed rapidly into unconsciousness. The pupils were equal in size.

The old mastoid wound was reopened and a small opening was found in the roof of the antrum covered with granulations and pus. A radical mastoid operation was now done, and the entire roof of the middle ear cavity found necrotic, the outer cranial plate removed above the auricle and the dura incised. Pus found readily with a

grooved director in the region directly above the antrum. There was a profuse flow of thin greenish foul smelling pus.

March 12th, 7 A. M., drowsy, double vision increased when looking to the left. Left abducens is sluggish. Pupils O. K., react normally. Fundus O. K. Temperature practically normal all day, pulse fluctuated between 68 and 72.

March 14th, dull frontal headache, very drowsy and difficulty in arousing; irrational at times; temperature and pulse as on previous day.

March 16th, has some delusions, diplopia less marked.

March 19th, diplopia has disappeared.

Condition remained unchanged until 24th when patient had frontal headache and appeared very drowsy.

March 26th, 6:30 A. M., vomiting, very drowsy, difficulty in arousing patient.

March 28th, patient much brighter. Patient on back rest.

Improvement from now on was rapid and patient was disharged from the hospital April 11th, 1912.

A cigarette drain was used in this case, being renewed every day. The abscess cavity carefully mopped out at each dressing. Drowsiness lessened after each dressing as also the general mental symptoms. The patient is now in perfect mental and physical condition, weighing 165 pounds, and is an active and successful practitioner.

2102 Chestnut St.

A CASE OF OTITIC SEROUS MENINGITIS OPERATION. RECOVERY.

Gilbert J. Palen, M. D.,
Philadelphia, Pa.

THE following case of serous meningitis is reported after a period of three years.

R. K., age 12 years. This patient came under our care during a severe epidemic of mastoiditis, which occurred in February, 1914, and was mentioned in "A Recent Series of Mastoid Cases." O., O. and L. Journal, February, 1915.

The patient developed, on February 25, 1914, severe pain in the left ear without temperature. The following morning the temperature was 100.2° axillary. He presented a red face, some tenderness at the tip of the mastoid and discomfort upon mastication. In the afternoon of the same day the temperature rose to 102°, pulse 120. The blood count taken at this time showed: Leucocytes, 18,600; red cells, 4,550,000; polynuclears, 89 per cent.; mononuclears, 9 per cent.; basophiles, 2 per cent.

The patient was brought into the hospital the evening of this same day, at which time we found exquisite tenderness over the mastoid tip and antrum, with beginning œdema just below the mastoid tip. The temperature was still 102°, the pulse 112, and respiration 28. The external auditory canal was studded with hæmorrhagic vesicles, these punctured gave a view of the drum, which was injected and bulging. Under chloroform anæsthesia the drum was incised and this was followed by profuse flow of serum and mucus. The next day, February 26, the temperature at 7 A. M. was 100.2°, pulse 100, and respiration 28; the ear was draining freely. There was still soreness at the tip and the patient complained of abdominal distress, frontal headache and sensitiveness to light.

On the 27th there was a marked remission in the pain, but still some tenderness over the mastoid tip and antrum; the temperature was 100.2°. The ear still discharged freely. Examination of the urine showed: Sp. Grav. 1024, trace of albumen and some pus.

On February 28, Dr. Sappington reported that culture of the aural discharge revealed a luxuriant growth of streptococci.

On March 1 we did a simple mastoid exenteration. The mastoid contained considerable pus and granulations; there was an exposure of the dura above, but the inner plate over the sinus was intact. The patient ran a perfectly normal course from the day of operation until March 10, when the temperature began to rise gradually until the next day it reached 102.1°, pulse 112, and respiration 26. At this time he was markedly drowsy, and complained of severe headache with superorbital pain on the left side when in an erect position, was markedly nauseated and vomited. The wound was redressed and considerable pus was found coming from the post-auricular wound, also from the external canal.

On March 14, maximum temperature 102.4°, pulse 112. Patient was still nauseated, vomited once and was restless; there was less discharge from the wound.

On March 15, maximum temperature 101°, pulse 80. During the afternoon the patient was drowsy, nervous and restless; pupils were dilated, and he complained of tingling and numbness through the right hand. There was a positive Kernig, indefinite Balniski, and knee-jerks present. The conjunctiva was suffused, the eye grounds presented simply a questionable fullness of the veins.

On the 16th, vomited three times during the day; temperature was septic in character and patient seemed depressed and restless. At 2 o'clock, in the afternoon of this same day, the patient was anæsthetized and the wound reopened.

Necrosis was found at the root of the zygoma. The dural exposure of the former operation appeared unchanged. A radical mastoid operation was performed and the squama removed above and behind the auricle exposing a liberal area of the temporal lobe. There was an area of about one-half inch in the temporal region in which the vessels were dilated and the dura appeared thickened. There was no extra dural accumulation. The dura was incised, this was followed by an abnormal quantity of clear fluid. The brain substance appeared œdematous. The brain was explored in all directions but nothing found.

On the 17th, maximum temperature 103.1°, pulse 108. Patient crying, screaming and partly delirious.

On the 18th, considerable pus was found in the scalp wound. Maximum temperature 101.3°, pulse 112; patient vomited once in the morning and at times very drowsy and irrational. Blood count showed a leukyocytosis of 25,600 with a polynuclear percentage of 90.

On the 19th, maximum temperature 102° axillary, pulse 96, respirations 26; patient is aphasic and at times irrational; screams and cries and refuses diet.

On the 21st, maximum temperature 102° axillary, pulse 96; screams and cries whenever disturbed.

On the 22d, mental condition seems better, less hyperæsthesia. From this time on the mental condition gradually improved and temperature came down to normal, but the pulse remained rather high, ranging from 96 to 100. He was discharged from the hospital May 17, having been in the hospital in all 63 days.

The interesting neurological signs in this case are the motor aphasia and motor disturbances with a lack of any visual disturbances or change in the fundus. To-day the patient is in perfect physical condition and his standing in school excellent.

2102 Chestnut St.

NOT TO BE CAUGHT.

A witty young doctor, being called to attend a very pretty lady, and finding little the matter with her, humorously suggested marriage as the only cure.

"You are single, are you not?" she asked.

"Yes, madam; but doctors only prescribe remedies; they do not take them," was the reply.—*Manistee News*, Michigan.

RADICAL MASTOID WITH CHOLESTEATOMA AND FACIAL PARALYSIS.

DeWayne Hallett, M. D.,

New York.

IN amplification of Dr. Clay's symposium the following case history may be of sufficient interest for presentation:

Miss H. Van S., aged 25 years, a teacher in a suburban public school, had had a purulent otitis since childhood and came for my attention in 1911.

There was a foul odor, scanty discharge, a few granulations, nearly complete absence of drum membrane and a sagging superior wall. She could not remember ever having had any pain. A bent probe or curette brought detritus and cholesteatomous material from the attic. She was reluctant to submit to operation and ineffectual treatment was given for two months till slight swelling over the antrum was present together with a little pain. Vestibular turning tests were not made. Hearing was nearly nil, vertigo and nystagmus absent, and the fork well heard.

Upon laying back the periosteum it became evident that we had a large cholesteatoma since, by pressure absorption of bone, it was then in sight over an area a half inch in diameter. Bony overhang was removed, and the mass of cholesteatoma saved weighed 120 grains. Its pressure had exposed the dura in two places, as well as the sinus, and we had a huge smooth surface bony cavity with round prolongations into former mastoid cells filled with buds of this mass.

Naturally the space was devoid of the usual landmarks, but in the region of the facial canal there was necrotic bone. Proceeding with care to cut down all ridges and leave raw bony surfaces, the cavity was dressed and left open in the confident belief that no damage had been inflicted upon the facial nerve or other internal ear structure. However, upon recovering from the anæsthesia, a facial paralysis was present.

Later the external wound was closed and the patient returned

home on the fourteenth day, coming for subsequent office dressings. In eight weeks the cavity was dry and covered with epithelium.

At the end of three months a small area of granulations high up, posteriorly, required attention and a bud of cholesteatoma was discovered, curetted and healed.

Three years later (April, 1915) two other small buds yielded to treatment, since which the cavity has remained dry, and without sinking of the external wound surface. The cavity is so large that with a relatively large opening of the external canal it is impossible to inspect its upper and posterior part.

Much attention was given to the subject of what should be done about the paralysis, including some consultations and consideration of the propriety of a nerve graft, with a negative conclusion. Galvanism was applied. Toward the end of the third year this facial nerve began to show a vitality which has gradually increased.

At present the patient can smile, open her mouth wide, wrinkle the nose and cheek, and by an effort close the eye. She cannot raise the brow and lacks complete control of the lower eyelid.

274 West 86th Street.

A full page advertisement of the *Public Ledger* appeared in the *London Times* late in January. It is understood that this is the beginning of a campaign to exploit the former publication and the City of Philadelphia in the metropolis of Europe.—*Phila. Chamber of Com. Jour.*, Feb., 1917.

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Otology and Laryngology

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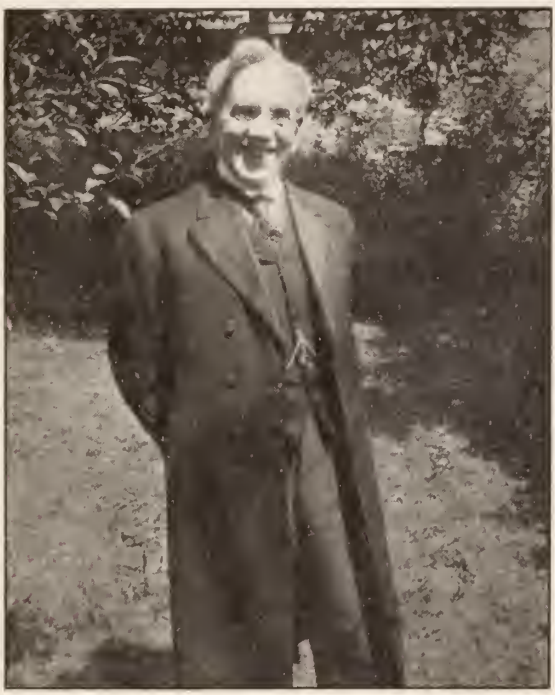
Editorial

JOHN LITTLE MOFFAT, B. S., M. D., O. ET A. CHIR.



DR. JOHN LITTLE MOFFAT died on Sunday, February 18, 1917, at Ithaca, N. Y., in his sixty-sixth year. He was born in Brooklyn, N. Y., the son of the late Dr. Reuben Curtis Moffat and Elizabeth Virginia (Barclay) Moffat. Dr. Moffat received his preliminary education in the public schools of Brooklyn, after which he attended the Cornell University, where he received the degree of B. S. in 1873. He received his degree of M. D. from the New York Homœopathic College in 1877, having led his class, for which he

received a prize. He afterwards attended the New York Ophthalmic College, where he received the degree of O. et A. Chir. in 1881. Dr. Moffat devoted his practice to eye, ear, nose and throat diseases. He was actively engaged in the practice of his specialty for thirty-five years in the city of Brooklyn, when a few years ago, because of failing health, he reluctantly gave it up and retired to Ithaca, N. Y., with his family. At the same time he retired as editor of the Journal of Ophthalmology, Otology and Laryngology. He continued, however, to manifest a deep interest in the Journal, and contributed liberally in the form of editorials and abstracts. He was editor of the Journal of O., O. and L., 1901-1904; editor of the *Homœopathic Journal*, 1905-1910; editor of the Journal of O., O. and L., 1911-1914.

Dr. Moffat was a member of A. I. H. (a senior); Am. Hom. O., O. and L. Soc. (vice-president, 1905, 1908), Amer. Med. Editors' Assoc., N. Y. State and Kings County Hom. Med. Socs. (senior and ex-president in each), N. Y. Co. Hom. Med. Soc. (honorary), Alumni Assoc. of N. Y. Hom. Med. Coll. and Hosp. (ex-president in each), and associated Alumni of Cornell University. He was Consulting Ophthalmic Surgeon of Cumberland St. Hospital of Brooklyn. While living in Brooklyn he held membership in the following clubs: Hamilton, Crescent, Athletic, Atlantic Yacht Club, Alcyone Boat Club, University (of Brooklyn) and Union League of Brooklyn.

Dr. Moffat's activities were confined mainly to his profession (including a goodly share to the Journal) and his church, in both of which he was prominent, holding many offices which he never sought.

As secretary of his State Soc. for thirteen years he edited and published the transactions and Annual State Directory of Homœopathic Physicians. He served his County Society as presidennt for three terms and as secretary for four years. He was at one time president of the Cornell University Assn. of Long Island, and at another time was New York State Medical Examiner.

We was contributor to the Amer. Encyclopedia of Ophthalmology and author of "Homœopathic Therapeutics in Ophthalmology."

In the words of Dr. A. B. Norton, of New York, who had known him well for many years, "He was a very scholarly, able man, a hard student, an enthusiastic homœopath and a good prescriber."

The editor knew Dr. Moffat as a diligent worker and fearless

debater, a man who loved justice and lived his religion (Swedenborgian), of which there is none simpler and purer. May his reward be that which is due him, who has lived a pure life and rendered active service.

A TRIP TO PHILADELPHIA.

THERE was a gathering of the eastern members of the O., O. and L. Society at Philadelphia, on the fourth of February; or rather such as were wise enough to arrange the trip. President Palen acted as chairman of the Committee of Arrangements, and was entirely successful in his efforts. The headquarters were located at the Hotel Walton, and while a few came the night before, by far the largest number arrived on the early morning trains. After breakfast all journeyed to the Hahnemann Hospital where Dr. W. W. Speakman held the first clinical session. His first case was one of dislocated lens retaining sufficient transparency to make it almost invisible when the operator reached for it with his loop. The vitreous was fluid and some escaped at the completion of the incision. Relieving all pressure of the speculum with one hand, he was most successful with very little manipuation in obtaining the lens. He then injected normal saline into the interior of the eye. He next showed a young lady upon whom he had performed the same operation at the Clinical Congress in October, 1916. The vision of the eye had been lost prior to the operation, but to all appearances the eye was perfectly normal. It was indeed a wonderful result. The next patient had been operated upon a few days before for entropion, and the dressing was removed and revealed a most satisfactory result. He operated upon the other eye, removing the classic V and then performed a preliminary iridectomy.

The audience then adjourned to the Hotel Walton where we were the guests of the local members, and the manager did his best to demonstrate his friendship for several members. After lunch, we returned to the hospital, and Dr. Palen and his assistant, Dr. Clay, showed some very interesting cases and demonstrated the Barany turning tests.

The first case had had a fracture of the skull near the right parietal eminence. Until lately, he had had considerable vertigo and double images, which condition had been diagnosed by Dr. Palen as Paralysis

of the Left Superior Oblique. Examination of the ear showed complete deafness of the left with a falling out of higher tone perception on the right. Weber test referred to the right ear. With the patient standing, there was spontaneous tendency to fall to the right. Under stimulation there was a marked falling off of all vestibular reactions. The next case was that of a young lady who had been operated for mastoiditis by Dr. Palen. Afterwards she had suffered severe pain and had been operated several times for adhesions between the cerebellum and dura. Functional examination showed a marked shortening for all forks by the right ear. She hears a whispered voice at six inches, with the left ear, no forks by air conduction and shortened bone conduction. Weber referred to right ear. Whisper heard by left ear not at all and low voice only at contact. Examination of vestibular apparatus shows spontaneous past pointing to the left with the left hand. Stimulation of the horizontal canals shows a marked irritation of the left side with subnormal reactions on the right. Stimulation of the vertical canals, by douching, confirms results obtained by turning. There is, however, an inability to make the left hand past point to the right; in other words, the left forward pointing center seems to be non-reactive; this is the side which has been operated.

Case three was a young man originally operated by Dr. Palen for sphenoiditis for relief of blurred vision. The result had been all that was desired. Recently his vision had again become blurred and Dr. Palen had diagnosed his case as a bi-nasal color hemianopsia, due to a lesion at the chiasm. The ear tests showed cochlea to be perfect; horizontal canals respond normally, vertical canals non-reactive and no spontaneous symptoms.

Case four was an elderly lady who had gradually suffered loss of first one and then another branch of the third nerve and now the entire third, two parts of the fifth and the fourth and sixth are involved with atrophy of the optic nerve. Dr. Palen diagnosed the case as one of gross lesion at the base of the skull in the middle fossa where all of these structures are close together.

Dr. J. Louis Metzger presented the case of a boy aged 9½, who, for one year and a half, had shown albuminuric retinitis in a marked form, but health otherwise good. (This patient died one month later with symptoms of edema of the brain.)

Dr. McKenna presented a case of a young woman with a floating mass, single, floating like a balloon in the vitreous some distance anterior to the disc and looking not unlike the illustration of cysticercus. There was in addition, atrophy of the optic nerve and several patches of choroiditis and a number of very fine vitreous opacities.

After discussing these cases, the men adjourned to the hotel once more where Dr. Mackenzie presented a paper, entitled "Pathology of Chr. Supp. Otitis Med." Dr Palen read a paper, entitled "End Results of the Radical Mastoid Operation," and Dr. Clay gave us "The Etiology of Chr. Supp. Otit. Media."

These papers brought a lively discussion in which every one said something and some two.

A telegram came at this point announcing that Dean Myers, of Ann Arbor, had not yet given up hope of arriving, although his train had had a bad attack of "motor palsy."

Dr. Myers arrived after all was over, and we were indeed sorry that he should have missed the meeting after all the journey. Present at this occasion were the local contingent, President Palen, Editor Mackenzie and his brother, Arthur Mackenzie, Drs. Speakman, Gowens, Alexander, Clay, McKenna, Metzger, and others who escaped our memory. The out of town brigade mustered Drs. Hallett, Ritchie, McKnight, Hetrick, McDowell, Foster and Shepard, from Manhattan; Lloyd, of Brooklyn; Business Manager McCleary, of Cincinnati; Moon, of Pittsburgh; Stickney, of Atlantic City; Strauhn, of Matawan; Rumsey, of Baltimore, completed the entourage.

These occasional gatherings result in better acquainance, diffusion of modern ideas and the bringing to the fore of our younger men.

R. I. L.

TEAMWORK IN THE PRACTICE OF MEDICINE.

ON another page will be found a brief account of the plan of work which is being carried on at the Evans Memorial Hospital, an adjunct of the Massachusetts Homœopathic Hospital of Boston. The methods adopted will illustrate the growing tendency toward more universal team work in the care and treatment of the sick.

The younger generation of physicians is realizing that the practi-

tioner who poses as one possessing absolute knowledge of all the ills of mankind, and whose dictum is expected to be accepted without question, is either a fool, a charlatan, or so egotistical that he has lost his sense of the limitations of the human mind.

The co-operation of the specialist with one master mind, the frequent consultations, or staff meetings, the summing up of the facts elicited, can not but bring about results far superior to the older methods, when the patient was at the mercy of one practitioner, and must abide by this one decision.

Better methods must be adopted for the examination and treatment of the sick who cannot go to an institution from lack of time or inclination; not necessarily because of lack of means, but who are just as deserving of careful medical treatment as the institutional patient.

The neurasthenic, perhaps, with no so-called organic disease, but suffering from varied symptoms, who consults one physician after another; undergoes repeated examinations and operations, only to be disappointed and discouraged, or made worse by these varying ordeals, finally becomes a therapeutic nihilist, a Christian Scientist and perhaps a hopeless invalid.

How can institutional methods be brought about in these cases? The answer to this question would seem to be that the general practitioner must be trained to be the master mind; like the head of a hospital staff, and to him should go reports and opinions for the final summing up. The layman must be urged to put his faith in the opinion of the physician who follows this course; abide by his decision, and pay him an adequate fee for his time and thought.

We, as specialists, are much to blame for the unfortunate position in which the general practitioner thinks he finds himself, and we must consider more carefully the fact that our specialty is but one of many quite as important; that it is only by conference and co-operation, and by urging the patient to trust in a central authority, that we can hope to obtain the best results.

This leads us to think of the necessity for the adoption of higher ideals in the treatment of the sick, both in institutions and without. These ideals are exemplified by Hahnemann in the highest degree. It was Hahnemann who first uttered the dictum that disturbed vital force is the primary cause of disease, and that disturbed force mani-

fests itself by symptoms; that is, abnormal alterations in the sensations and actions of the symptoms. Specialists can help to interpret these symptoms, but it is only by the study of the individual by the master mind that the cause of the disturbed vital power can be obtained.

Dr. Haseltine, in his terse, emphatic way, in the Feb., '17, O., O. and L. JOURNAL, under the unfortunate title of "The Focal Infection Fad," has written upon the need of a clearer mental concept in diagnosis; he further writes: "The modern diagnostician is really an assembling plant, but an assembling plant with a brain, and a genius for valuation."

We repeat that the title of Dr. Haseltine's editorial is unfortunate, although we can hardly quarrel with the substance, if we read between the lines. There can be no question but that more careful search for focal infection points, and their relation to a large variety of diseases, remote from the place of infection, is a distinct advance in medical science.

In a recent paper on focal infection we took occasion to go over the literature quite extensively, and in addition to the evidence presented in the symposium in the February number of the O., O. and L. JOURNAL, found the reports in the official bulletin of the National Dental Association and the reports in the journal of the Allied Dental Societies to be most interesting and convincing. In the work of the "Mouth Infection Research Corps" of the National Dental Association the mouths of hundreds of cases in different hospitals were examined; the work extending over several years, and in conjunction with the diagnosticians connected with these hospitals very convincing results were obtained, and the great importance of this very careful work was indisputably manifested.

It is interesting to know of the increasing interest and activity in the study of syphilis, and the measures proposed toward controlling the disease. An attempt is being made in England to make the disease notifiable, although the British Medical Association opposes it, on the ground that sufferers from the disease would have the mortification of publicity, without proper isolation and adequate treatment. It is argued that isolation and treatment should first be instituted at the public expense, and after this law had become well established, and its practicability demonstrated, that notification be adopted. This seems

common sense. Why place an added burden upon the syphilitic until adequate measures have been adopted for lightening it? The plan suggested by Dr. Bush in this issue is worthy of consideration.

G. B. R.

TONSILS.

IN the last number of the *Journal of the American Institute of Homœopathy* is an article by Dr. Copeland, under the above heading. In this article he deplores, and rightly we think, the present day existence of the over-zealous operator: the craze for operations on the ovaries, appendices, eye muscles, tonsils, etc.

Dr. Copeland suggests a possible added function of the tonsils, namely, an aid to the muscular, fibrous and cartilaginous development of the throat, and he also thinks that the tonsil may have some function in connection with the voice. He advocates universal pathological study of the tonsils, and careful discriminative selection of cases for tonsil operation. The discussion following this paper was interesting, but brought out no new facts. There was general agreement with the points made by Dr. Copeland, while Dr. Crump, of New York, spoke of the tonsils as an aid in the phenomena of phagocytosis. We believe the latter function, or, as it is sometimes called, the hæmopoetic theory, is the one generally accepted by physiologists, because this alone is substantiated by histologic study.

Flemming has shown that the mitotic division of certain cells in the center of the follicles of the lymph nodes results in the small lymphocyte. Many of these find their way into the crypts, where they help to form the cheesy masses we often find there, while others are lost in the oral cavity, and still others enter the general circulation, performing their function of phagocytosis. We know that there are many other sources of lymphocytes. Dr. Crump has spoken of the appendix as one of these. We might add Peyer's patches are composed of lymph nodules, and that nodules are found in various portions of the cæcum, in the Malpighian corpuscles of the spleen, the lymphatic glands, and under the epithelium of mucous membranes in various places, and in the thymus gland.

According to Wright the normal tonsil is not visible on gross inspection, and he adds, "the visible tonsil is a clinical entity." Dr.

Copeland's conjectures regarding the part played by the tonsils in muscular, fibrous and cartilaginous development of the throat, and in the production of vocal sound we do not believe to be important. In fact, we doubt if the accepted hæmopoetic function, so far as the tonsils are concerned, is very important to the human economy.

The small mass of lymphoid nodes hidden behind the faucial pillars is so very small compared with other lymph centers that it could hardly be missed. Our experience would lead us to believe that there are many hundreds of throat specialists in the country who are discriminating operators, and who watch end results carefully, and whose voices would be raised loudly against removing this organ if harm to the patient was the result.

We are inclined to believe that wherever harm does result from tonsil operations it is due, not to the loss of lymphoid tissue, but to the injury of the surrounding structures by unskillful surgery.

Some years ago in conjunction with Dr. Griffith, then one of the pathologists connected with the Boston University School of Medicine, we studied about a hundred tonsils removed at the Homœopathic Hospital during our term of service. These studies demonstrated that but few if any healthy normal tonsils were removed. Pus cavities, calcareous deposits, areas of necrosis, fibrous hypertrophies, causing almost entire obliteration of the lymph nodes, were common.

Careful discrimination in the selection of cases is necessary, this goes without saying, but quite as important is a better surgical technique among a large number of those who do throat surgery.

Whether we use finger enucleation, the Sluder or La Force operation, dissection and snare, or what not, it is not the precise method that is important, but the development of the skill of the operator. The restriction of the work to competent men is, therefore, to our minds the whole answer to all these questions.

Since writing the above we have seen a paper by Drs. Kenyon and Kradwell, of Chicago, on "A Study of the Physicomechanical Function of the Faucial Tonsil," presented to the Chicago Laryngological and Otological Society. These studies would seem to support Dr. Copeland's surmise. The summary and conclusions are as follows:

"1. The tonsil serves as an absolutely necessary factor in providing a channel for the action of the palatoglossus muscle.

"2. The function of the tonsil with reference to the palatopharyngeus is to afford support and protection of great importance to its normality of action.

"3. Tonsillectomy serves to destroy not merely a possible lymphatic function of the tonsil, but also to either disturb or destroy an important physicomechanic function, one which is capable of being clearly understood.

"4. More or less impairment of action of the depressor palatal muscles must occur in practically all cases following tonsillectomy, regardless of the delicacy of operative technique of the particular form of operative procedure adopted, but delicacy of procedure and method of operation are not, of course, to be considered unimportant.

"5. To consider the present operation of tonsillectomy as a final settlement of the operative approach to the tonsil is premature and erroneous. The whole tonsil question requires further anatomic, pathologic and operative study, in order, if possible, to readjust the operative approach to the organ to the new knowledge which is accumulating."

We still feel, however, that the importance of this function is overestimated.

G. B. R.

REQUIREMENTS FOR MEMBERSHIP IN THE O., O. AND L. SOCIETY.

FOR the benefit of those who are thinking of joining the O., O. and L. Society, the requirements, according to the By-Laws, are as follows:

Article V, Section 1. Any reputable physician may be elected to membership in this Society who shall have fulfilled one of the following requirements or other qualifications judged by the Board of Censors to be an equivalent:

(a) Not less than one year of service subsequent to graduation as an interne in a reputable hospital or infirmary devoted to treatment of diseases of the eye, ear, nose or throat.

(b) Not less than six months of post-graduate study in these specialties in a reputable teaching institution.

(c) Not less than one year of association in private practice with

a reputable practitioner of these specialties. The candidate shall have the endorsement of two reputable physicians from the locality in which he resides.

(d) Not less than three years of independent practice in one or more of these specialties, and the submission of a report of fifty consecutive medical or surgical cases, which shall include histories, treatment and final results. These reports are to be subject to the approval of the Board of Censors.

(e) Evidence of original investigation of a worthy character upon a subject related to these specialties. The material is to be presented in a form suitable for publication by the Society in its transactions.

(f) In addition to one of the above, each candidate shall be required to submit a paper on some subject relating to his specialty to the Board of Censors and, if accepted by the board, shall be read before the Society by the candidate at the next meeting.

THE NEXT MEETING OF THE O. O., AND L. SOCIETY.

THE members of the O., O. and L. Society will be pleased to know that a very excellent meeting is promised for Rochester in the week beginning June 17th. The titles of a number of papers are in hand and there are still others to come in. The Rochester members of the Society are going to give us a clinical day, filling the time with operative and clinical cases which will be thoroughly discussed. The program will be printed and will shortly be in the hands of the members. We feel sure every member will make a special effort to be present at the meeting and thereby add to its success.

The following are some of the papers which will be read:

"Perforating Gunshot Wounds of the Eye"....Dr. Wm. A. Campbell.

"Some Experience Concerning the Use of Thiosinamine,"

Dr. J. I. Dowling.

"Some More About Cataracts, Personal Experiences,"

Dr. C. G. Fellows.

"Extration of the Lens in the Capsule".....Dr. G. DeW. Hallett.

"Senile Changes in an Eyeball".....Dr. F. O. Nagle.

"A Contribution to the Study of Sympathetic Inflammation,"
Dr. R. Copeland.
"Bishop-Harmon Muscle Operation and Result," "Thesis,"
Dr. C. E. Williams.
"The Stereoscopic Treatment of 300 Consecutive Cases of Exophoria,"
Dr. D W. Wells.
"Picric Acid and Its Uses in Ophthalmology,".....Dr. W. M. Muncy.
"Treatment of Incipient Cataract".....Dr. W. D. Blackburn.
"Perimetry and Campimetry With Lantern Slides,"...Dr. R. I. Lloyd.
"The Pathological Condition of Any Eye Twenty Years After Multiple Punctured Wounds Through the Cornea,"
Dr. H. L. Gowens.
"Why I Prefer the Corneo-Scleral Trephine in Glaucoma,"
Dr. A. B. Norton.
"A Few Cases of Cataract Treatment With Apis Melv.,"
Dr. W. Hultenschmidt.
"A Cure of Glaucoma by an Accident".....Dr. A. A. Eichenberry.
"An Unusual Case of Refraction".....Dr. G. N. Seidlitz.
'Committee Report ⅛, to Experiment With Apis in Cataract,"
Dr. C. B. Helfrich.
"Some Observations of Tonsil Surgery" (thesis),....Dr. McDermott.
"The Use of Cautery in Nasal Surgery"..... ..Dr. A. A. Eichenberry.
"A Case of Brain Tumor," .....Dr. E. S. Munson.
"Pulmonary Œdema".....Dr. T. L. Shearer.
"Bloodless Tonsillectomy With the LaForce Hemostat Tonsillectome,"
Dr. Everett Jones.
"Laryngeal and Nasal Infections, Their Treatment and Mistreatment,"
Dr. C. A. Harkness.
"Teeth as a Causal Factor in Aural and Ocular Conditions,"
Dr. H. S. Weaver.
Symposium (title to be announced later).
Drs. Geo. W. Mackenzie, Palen, Clay and Alexander.
"Iritis" .....Dr. LeRoy Thompson.
"A Series of Atrophic Rhinitis Cases, Illustrating the Therapeutic Results of Ozena Vaccines" .....Dr. W. D. Rowland.
Symposium—"The Relationship of Obscure Head Infections to Gen-

eral Health," Drs. Haseltine, Waterman, Myers, LaForge and others.

"A Case of Sinus Thrombosis" .....Dr. W. H. Phillips.
"Thesis." "Barany Tests" .....Dr. H. L. Babcock.
"Multiple Sclerosis. Case" .....Dr. E. L. Hetrick.
"A Clinical Report on a Few Simple Cases" .....Dr. S. B. Moon.
"Some Special Phases of School Hygiene".....Dr. F. C. Sage.
"Faulty Pronunciation of Medical Terms".....Dr. G. W. McDowell.

Mr. Prentice Reeves, of the Research Laboratory, Eastman Kodak Co., will speak on:

"The Effect of Various Physical Stimuli on the Pupillary Area and Retinal Sensibility."

The speaker will describe his apparatus and treat such phases of the subject as: Threshold sensibilities, contract sensibility and glare sensibility for various brightness levels. Effects of varying time of exposure and varying time of stimulus. Time of adaptation. Pupillary diameter at various brightness levels for binocular and monocular vision. Rate of pupillary change. Application of data to practical problems. The speaker will have a series of lantern slides to illustrate some of the results of the research.

A number of cases will be reported by the members.

From the above it can be seen that already the program contains much of interest and much will be added to this before the meeting, so that the members will feel well repaid for attending. *A full day of clinics and clinical cases.*

The headquarters of the Society will be at Hotel Rochester, which is within one block of the Hotel Powers, where the meetngs of the American Institute of Homœopathy will be held.

The management of the Hotel Rochester promises us every courtesy, and have quoted the following rates:

	Single.	Double.
Rooms with running water	$1.50	$2.50 per day.
" " shower bath	2.00	3.00 " "
" " tub bath	2.50	3.50 " "
. .....	3.00	4.00 " "

It is advisable to secure reservation as soon as possible by writing to the manager of the Hotel Rochester.

GILBERT J. PALEN,
President.

AMERICAN MEDICAL EDITORS' ASSOCIATION.

JUNE 4TH-5TH, 1917.

THE annual meeting of the American Medical Editors' Association will be held at the McAlpin Hotel, New York City, on June 4th and 5th under the presidency of Dr. G .M. Piersol, editor of the *American Journal of Medical Sciences*.

A most interesting and instructive program is now being prepared, and it is contemplated that the forthcoming session will be the largest ever held in the history of the Association.

The 48th anniversary of this Society will be celebrated by a banquet on the evening of June 5th, at the McAlpin Hotel.

NATIONAL BOARD OF MEDICAL EXAMINERS.

THE second examination to be given by the National Board of Medical Examiners will be held in Washington, D. C., June 13, 1917. The examination will last about one week.

The following States will recognize the certificate of the National Board: Colorado, Delaware, Idaho, Iowa, Kentucky, Maryland, North Carolina, New Hampshire, North Dakota and Pennsylvania. Favorable legislation is now pending in twelve of the remaining States.

A successful applicant may enter the Reserve Corps of either the Army or Navy without further professional examination, if their examination papers are satisfactory to a Board of Examiners of these services.

The certificate of the National Board will be accepted as qualification for admittance into the Graduate School of the University of Minnesota, including the Mayo Foundation.

Application blanks and further information may be obtained from the Secretary, Dr. J. S. Rodman, 2106 Walnut Street, Philadelphia.

REPORT FROM THE EVANS MEMORIAL FOR CLINICAL RESEARCH AND PREVENTIVE MEDICINE, MASSACHUSETTS HOMŒOPATHIC HOSPITAL, BOSTON.

Director, FRANK C. RICHARDSON, M. D.

Dept. of Immunology, SANFORD B. HOOKER, M. D.

THE EVANS Memorial was founded through the generosity of Mrs. Robert Dawson Evans, of Boston, as a memorial to her husband, and is supported by a generous endowment given by her. It occupies a four-story brick structure, built on modern approved lines, in the block occupied also by the Massachusetts Homœopathic Hospital and the Boston University School of Medicine. The Evans Memorial, though in many respects a distinct institution, is nevertheless an integral part of the Massachusetts Homœopathic Hospital. We co-operate to the best of our ability with the general staff of the hospital, and they in their turn are most prompt and considerate in assisting us by their consultations and valuable advice.

Under the terms of the deed of gift, one of the two floors devoted to wards is set apart for patients admitted for research and study. The other floor is to be reserved for patients suffering from nervous disorders, this department representing the Neurological Service. The well-equipped laboratories on the fourth floor are intended for research work, which may, or may not, be conducted on the patients in the wards below. The advantage of having, in the same building, under carefully standardized conditions, the patients who are being studied by the laboratory staff, rather than having to depend on an out-patient clinic, can hardly be over-estimated. We have Departments of Pathology, Bacteriology, Serology, Chemistry and Pharmacology, all of which are directed by men well trained in their special fields. Several articles have already appeared from the pen of various members of the Research Staff, and others may soon be expected. Of especial interest to homœopaths may be mentioned the work by Hooker on "The Relation of Drugs to Immunity," and that by Wesselhœft on quinine and malaria. This literary work is facilitated by a small but well-chosen and growing research library in charge of a trained librarian.

Each year a series of about twenty-five Free Public Health Talks

on subjects relating to hygiene is given in the auditorium on the first floor. Many of these talks are given by members of the staff of the Evans and Massachusetts Homœopathic Hospital; in addition, the willingness of many outside physicians to address audiences under our auspices is gratifying and encouraging. The continued good attendance bespeaks general interest. One of the essentials of a successful system of preventive medicine is the education of the laity; we feel that we are doing our part in this very important field of modern medicine.

The educational program of the Evans embodies another subject, namely, enabling worthy students to do post-graduate work in other institutions. Since the European War began, these men have been obliged to confine their attention to America. The large number of clinics and laboratories in this country where advanced work is being done, however, enables us to broaden the horizon of these qualified men and to make of them better laboratory workers and clinicians.

We have reserved speaking until the last of the line in which we feel that we are of most service to our fellow-practitioners. It frequently happens that a physician has a patient who fails to respond to home treatment, or even becomes worse, and whose case remains a puzzle to the doctor. Such patients we are glad to receive here for observation and diagnosis. A careful history is obtained, the patient is examined thoroughly, the services of various ones of the specialists on the hospital staff are requisitioned, and the various laboratory tests are performed. The reaction of the patient to such therapeutic measures as may suggest themselves is observed. The Evans staff holds a conference on the case, and when a conclusion as to diagnosis and course of treatment has been reached, a letter embodying the results of our investigations is sent to the patient's family physician, with recommendations as to the desirable line of treatment. In this way the physician benefits from the facilities readily at hand here which are denied in the home treatment of patients. He has definite evidence on which to base his treatment, and receives his share of the credit when the patient recovers. Since our formal opening five years ago we have helped many physicians to a clearer understanding of their obscure cases, and it is our sincere hope that with the progress of time we may become of service to an ever-widening circle of our colleagues.

At present the entire staff is engaged in a study of asthma, and the plans that have been outlined will probably require several years of collaborative investigation.

A preliminary review of the literature on asthma and of the meagre experimental investigations that have so far been conducted affords considerable evidence in favor of assuming that the disease is, at base, allergic in nature. Accordingly the first points for attack have been selected with this assumption in mind, and the method of approach will be through study in animals of induced hypersusceptibility to animal, vegetable and bacterial proteins. The objects of these preliminary studies will be to establish the element of specificity of various protein reactions in the living body and to obtain a set of stable, reliable and standardized protein preparations to be used for detecting specific sensitization in humans.

Studies upon the hæmacytology and pathologic anatomy during acute anaphylactic reactions and during chronic protein poisoning upon various methods of desensitization and upon the antianaphylactic properties of certain drugs will also be made during these preliminary investigations.

Bacteriologic studies of the sputa and nasal secretions of outpatient asthmatics will be begun before patients are admitted to the Evans for intensive investigation.

These bacteriologic studies will aim to determine the presence or absence of any specific causative micro-organism and to determine, if possible, the relative parts played by the various bacteria, that are commonly found in the upper respiratory tract, in the ætiology of asthma. They will involve many biochemical tests useful in strain differentiation, such as the elective localization of various strains, their fermentative characterstics, immunological reactions, etc., as well as the serolopic and skin reactions of patients to their own and other strains of micro-organisms.

When these orienting experiments become well advanced, asthmatic patients will be admitted to the Evans. The laboratory researches will then be accompanied by, and correlated with, thorough clinical observation. Historical, ætiologic, classificatory, dietetic, metabolic and the various laboratory studies will be directed, in the main, toward

the valuation of old, and possibly the development of new, therapeutic measures.

The investigations will focus on bronchial asthma but for purposes of control "asthmatics" will be studied together with a number of cases of hay fever, food and drug idiosyncrasy, urticaria, etc., which, because of their allergic nature, may be expected to yield data bearing on the major problem.

DR. HOOKER,
DR. OVERHOLSER.

In the March issue of the JOURNAL, opposite page 149, there appears a photograph of Dr. Gilbert J. Palen. Through an oversight there failed to appear a line stating that he is the President of the O., O. and L. Soc. We trust that everybody will show up at the Meeting at Rochester and shake hands with the President.

PRELIMINARY OBSERVATIONS ON THE VALUE OF CLOTH WINDOW SCREENS IN SCHOOL ROOMS.

J. Holbrook Shaw, M. D.,

Plymouth, Mass.

IT is pretty generally conceded that in spite of the attention that is being paid to heating and ventilating, our modern school rooms are a long way from ideal in respect to fresh air. Whether this is due to the fact that the carefully worked out theories of the ventilating experts will not give equally good results under all conditions or to the misuse of apparatus which, if properly managed, would never fail us, is a question which does not concern us here. The result is the same whatever the cause, namely, air which, when we come into it from outside, is resented by a certain number of our peripheral nerve endings, particularly those having to do with the special olfactory sense.

For a great while I listened meekly to the warning of the heating expert and withheld my hand from seeking the relief which lay outside ready to pour in in a reviving flood through the open windows. I talked with the room teachers and listened to the old, old story about the failure of the apparatus to respond to the most painstaking adjustments. I sought out the janitor and found him facing real problems in heating his building with equipment which was theoretically ideal, and then, convinced that the situation was hopeless, I cut the 'Gordian knot' and opened the windows. This brought relief, but only temporary and partial relief, as windows cannot be kept open constantly without discomfort and danger to the occupants of the rooms.

At this point I became acquainted with the method of screening windows with cloth advocated by Dr. John B. Todd, of Syracuse,[1] and it is with the theoretical and practical value of these screens that this paper is concerned.

In order to learn something about the cloth screen method of introducing fresh air into school rooms, three rooms in a building heated by indirect steam were selected which were for all practical purposes

identical, containing 9,729 cubic feet of air and 120 square feet of window space. For convenience in referring to them these rooms will be called Room A, Room B and Room C, respectively. Room A has sixty square feet of its window space covered with unbleached cotton cloth through which fresh air from the outside filters into the room.

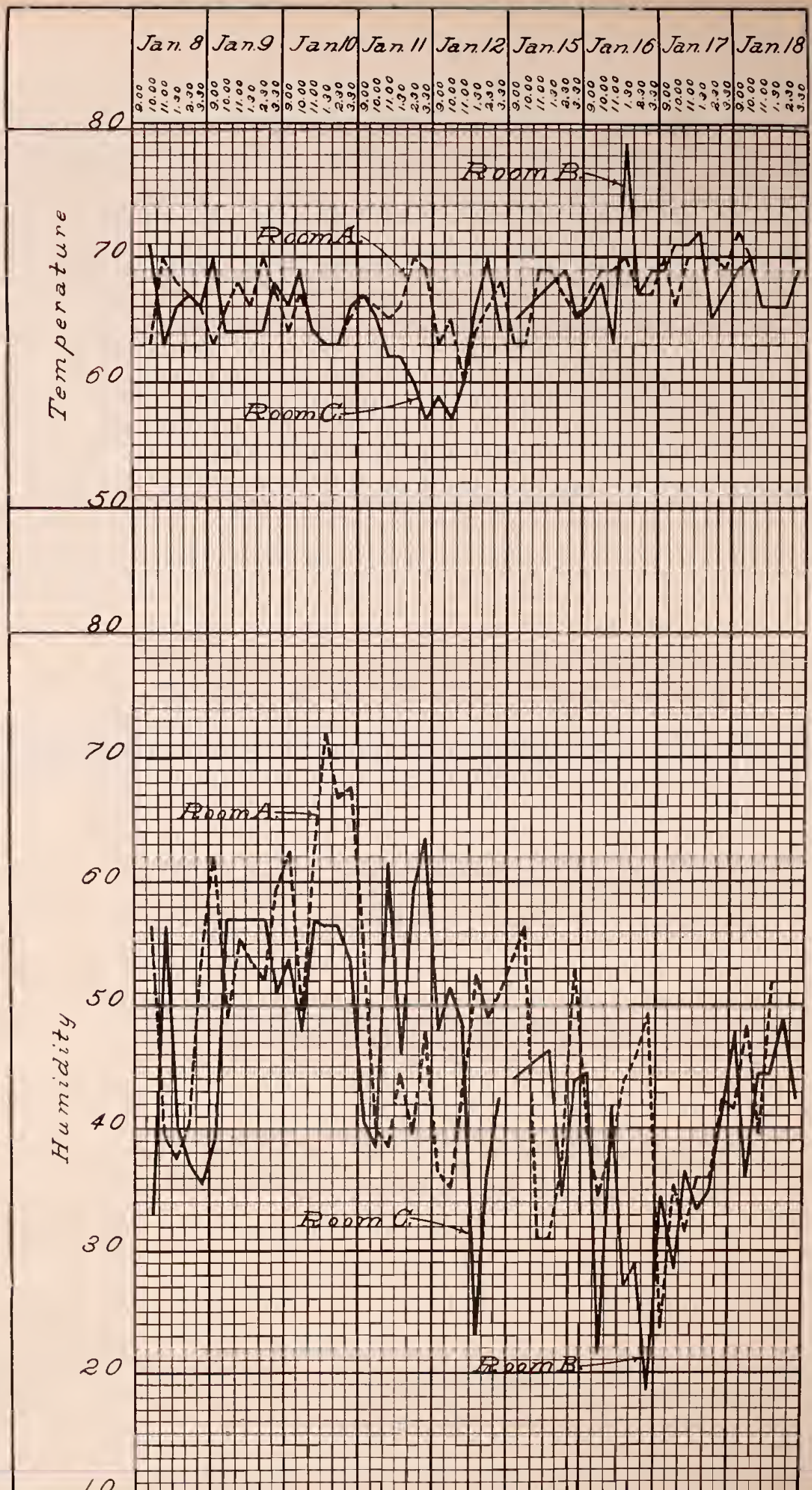
The screens have been in use in Room A since May, 1916, and the universal opinion among pupils, teachers, principal and janitor is that they are desirable. Indeed there is a good deal of enthusiasm about them so that they could not be given up without protest. Not long ago the teacher of Room B asked me if I would have just one screen put in her room if she could not have the whole room equipped. I speak of this as it indicates the strongly favorable impression which they have created, not in the first month or two of use, but since they have become a familiar feature of the building. The screens had not been long in place when I discovered a curious fact. Stepping from Room B, say, at a temperature of 65 degrees, into Room A, the room equipped with cloth window screens, at precisely the same temperature, 65 degrees, the screened room gave the impression of being decidedly warmer. This impression was not at all a vague one, and was noted repeatedly not only by the writer but by others. At the time I attributed it to increased humidity in the room, but this was before any tests had been made.

On more than one occasion I have entered the room and found pupils and teacher absorbed in the work of the hour quite unconscious of temperatures sometimes as low as 57° F. Such temperatures are never encouraged, and when found more heat was promptly admitted, but the experience is quite unique, as anyone who has noted school room temperatures will grant. The reverse condition is the rule, a harassed teacher trying to prod her somnolent pupils up to their tasks at temperatures approximating 80° F.

Finding the screens so satisfactory in use from general observation I wished to learn more about them, their effect on humidity, temperature, etc.

Increased moisture in the air is one of the strong points made by advocates of this method of ventilation.

In order to learn whether the air in Room A actually contained a greater amount of moisture than other rooms under observation, and


Jan. 8
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9.00
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2.30
3.30
80
70
60
50
Temperature
Room B.
Room A.
Room C.
80
70
60
50
40
30
20
10
Humidity
Room A.
Room C.
Room B.

if so, how much, two hygrometers were obtained. These instruments operating on the evaporation principle were made by Huddleston, of Boston, and are thoroughly reliable. They were placed as nearly as possible in identical positions in the rooms under observation, supplied with new wicks and filled with distilled water which was renewed daily. Moreover, the instruments were changed daily, one replacing the other, in order to eliminate the possibility of error on account of any possible slight discrepancy between the readings of the two instruments. Room doors were kept closed during the test.

The result is shown in the accompanying chart. The upper portion gives temperature only, the lower portion humidity. Both Room B and Room C are compared with Room A in order to make sure that the differences are not due to local conditions.

The number and extent of the variations in humidity strike one at once in looking at the chart, but what causes these variations is not evident. No relation can be established between them and the room temperatures, neither do they seem to depend upon changes in the out-door temperature. For instance, the average humidity in Room A on January 11th with the thermometer outside at 30° was 44.2; on January 12th with the outside temperature 3° the humidity was practically the same, 44.6.

If we accept Freudenthal[2] as authority, the percentage of moisture in artificially heated rooms should never drop below 40°. Therefore, the chart shows that an unsatisfactory condition of the air in all the rooms tested existed at times. Moreover, it is not evident that the screened room represented by the dotted line has any very great advantage over the other rooms in this respect. In a general way the humidity in the screened room seems to follow the other rooms, but sometimes drops very decidedly below them. Later tests have made an even poorer showing for the screened room.

That air at less than 40° relative humidity is harmful to the mucous membranes I am taking for granted. Theoretically, it seems likely. A large amount of moisture, estimated at one litre in twenty-four hours is secreted by the nasal membranes.[3] During the same time at least 10,000 litres of air is warmed, filtered by the action of the vibrissæ and moistened in its passage through the nose.

Goodale[4] has shown conclusively by means of ingeniously con-

structed apparatus that the nasal membrane moistens the inspired air nearly to a point of saturation, and that it does this regardless of the amount of moisture in the air when it is inspired. If, then, the amount of moisture in the air is reduced, the nasal mucous membrane is taxed correspondingly. It can undoubtedly go on for a long time meeting any extraordinary demand, but if continued long enough there must come a time when the moisture on the surface is taken away so rapidly that it cannot be brought up from the deeper tissues fast enough to supply the demand, and the nasal mucous membranes become "dry like a well in summer." Intumescence results followed by nasal obstruction. This process may be repeated many times and normal conditions be restored, but if the irritation is kept up, eventually complete readjustment fails to take place even under hygienic conditions, mouth-breathing becomes habitual and post-nasal catarrh develops.

If, as seems probable, then, prolonged breathing of dry, artificially heated air may affect the nasal mucous membranes unfavorably, encouraging mouth-breathing and its attendant evils, means must be found to moisten the air when necessary, for instance, by opening a steam jet in the mixing room as is sometimes done. It may be that the potent ultra-violet ray, said to be excluded by window glass, is the essential element in the success of the window screen, though it is hard to see how delicate plants are able to thrive in the glass-covered hothouses if this is true. Then the theory has been very seriously advanced[5] that the evils of indoor life are due to dust and microorganisms, and if this theory is true further experiment may show that in cloth screened rooms these are reduced to a minimum, but whatever the source of the apparent benefits following the use of fresh air screens ,it does not seem fair on this showing to attribute them to an increased amount of moisture in the air of rooms thus screened.

From an economic standpoint our cloth window screens seem to be an unqualified success.

The following table shows the out-door temperature at 9 A. M. for five consecutive days, also the average temperature of Room A and Room C for each day, and the amount of heat units used by each room. The method of estimating the use of heat was as follows: A marker was placed upon the chain controlling the heat valve and a

graduated scale from 0 to 20 placed vertically beside it, so that when the valve was entirely closed the marker on the chain indicated 0, and when the valve was wide open the marker indicated 20. Thus the figures from 1 to 20 may be considered as representing so many heat units, and as the source of heat is the same for both Room A and Room C, records showing the position of the marker on the scale taken at regular and corresponding intervals in each room should show the relative number of heat units being used in each room. Room doors were kept closed during all tests.

Table showing average daily temperature and relative amount of heat used in Rooms A and C. for five consecutive days.

Date	Out-door Temperature	Room A		Room C	
		Ave. Temp.	Heat Used	Ave. Temp.	Heat Used
29	22°	66°	3	68.3°	6
30	40°	70°	0	69.1°	3
31	34°	66.1°	5	68.8°	12
1	38°	68.5°	2	65.5°	25
2	17°	66°	26	68.8°	39

Reference to the above table shows that by actual test more heat was used in the unscreened room each day, the difference in the number of units used in the two rooms ranging from 3 to 23.

The average temperature of Room A for the entire week was 67.3° and of Room C 68.1°, so that very nearly the same temperature was maintained in each, but while Room A consumed but 36 heat units in the entire week of the test, Room C consumed 85 during the same period, thus confirming the claims made by the advocates of cloth screens, that they lessen heat consumption and reduce coal bills.

A later test covering eleven consecutive school days confirms the above result. The total number of heat units used in Room A during the eleven days was 180. The total number of heat units used in Room C in the same time was 332. The average temperature maintained in Room A during this time was 67°, in Room C 69.4°.

There are so many factors at work outside the school affecting the

attendance that it is perhaps not safe to depend too much upon this as evidence for or against the healthfulness of any particular scheme of ventilation, but it is interesting to note that in the present instance the evidence is favorable to the use of cloth screens.

The average of the percentage of attendance of Rooms A, B and C for December, 1915, before the screens were introduced was 96.75, and the percentage of Room A 97.05. In December, 1916, the average of the percentages of attendance of the three rooms was only 94.23, while the percentage of attendance of Room A not only did not fall with the general average but was actually slightly higher than the previous year, being 97.1.

Of two similar rooms in another building, one furnished with cloth window screens showed a percentage of attendance of 96.6 during January, 1917, while the unscreened room showed a percentage of 87.3. This cloth screened room had the highest percentage of attendance of any of the eighteen rooms in the district.

From observations and tests the following conclusions seem reasonable:

1. That lower temperatures can be maintained in rooms equipped with cloth window screens with comfort.

2. That pupils and teachers find rooms equipped with cloth window screens more comfortable than rooms not so screened and prefer them.

3. That it is not evident that air in rooms equipped with cloth window screens contains a higher percentage of moisture than others, and it is, therefore, necessary to provide some artificial means for moistening the air in such rooms.

4. That the use of cloth window screens effects a remarkable saving in the consumption of heat.

5. That the evidence obtained from attendance records of rooms with cloth window screens compared with others is strongly corroborative of the theory that such screens are an efficient means of improving the health of school children.

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43 Court Street.

Vaccinatiun Against Typhoid Does Not Affect the Eyes.—Some cases of herpes of the cornea, oculomotor paralysis and retinal lesions, developing after vaccination against typhoid, have caused concern for fear the vaccination might be responsible for them. But closer analysis of the cases has always proved them to be merely casual coincidences, so that Ginestous reiterates that, outside of ocular lesions which are in themselves the manifestations or complication of some constitutional disease, there are no contraindications on the part of the eye to antityphoid vaccination.—*Journal Amer. Med. Assn.*, April, 1917.

CONSERVATION OF THE SCHOOL CHILDREN'S VISION.

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WHILE each day introduces new and wider fields of endeavor into our daily toil, and each new effort means the working of strange and greater hardships on the human eye, still we jog along at an indifferent pace with our conservation of vision movements. With the advent of recent working laws and industrial insurances, we see much time and energy devoted to safety first and other movements wherein the environment, the working, and all other conditions are thoroughly investigated, nevertheless, we stand idly by while the all-important eye continues to be the most used and yet the most neglected and abused organ of the human complex.

It is a far cry from the farm and the trades of yesteryear to the school, shop, or office of to-day where the most trying and exacting tasks are imposed upon the visual apparatus through the long working hours; not to mention the strain and abuses they suffer in the off hours in pursuit of pleasure or enlightenment, whether it be striving to connect the dancing jumble lines of the book or newspaper on the rushing trains or jerky cars that hurries us to and fro, or seeking entertainment in the "Movies," where for hours the eyes are glued to the dazzling screen following the flickering antics of the actors through the silent drama; then, too, there are other untold ordeals to which the eyes are subjected in the course of our waking hours. Yet we hear people lamenting about the weakness of this generation's eyes because of the commonness of eye-glasses. However, we are safe in asserting that many of these lamentors are in need of glasses themselves, but for the silly ignorant prejudices refuse to acknowledge their want when, in fact, the application of a proper refraction would render them more comfortable and much more efficient. And efficiency is the thing to-day. What to-morrow will bring is only a matter of conjecture, but we have reason to feel the urgent need of a broad-cast

education on the conservation of vision and to get the best results we must date our conservation from the cradle.

When we are brought face to face with the fact that there are only ten or twelve out of every hundred born with eyes that are normal, or nearly normal, and that these figures are borne out by repeated examinations of large numbers of children, both in this country and abroad, then it would only seem all the more reasonable to institute a search for these eighty-eight or ninety defective youngsters as early as possible in effort to limit or correct the condition at a time when it is most likely to respond to treatment. And no time seems better fitted than the approach of school age. Before admission to school each child should be subjected to a complete physical examination, and all its abnormalities entered on a permanent record that would follow the child through its school life, showing any changes that might take place. Until this measure is adopted we should at least deny school to all children who present gross lesions pending some attempt to rectify the child's short-comings. And in this category should be classed children with red or inflmed lids or eyeballs, squints and any suspicious mannerisms suggestive of faulty vision. This means tics, blepharaspasms, nystagmus, etc.

Children arriving at the working age to-day, are required to come up to certain standard physical test before receiving the necessary papers to obtain employment. Many are denied papers and a common cause for refusal is poor vision. This together with the fact that employers are gradually coming about to the point of demanding physical fitness of all their new employees, not only for efficiency's sake but as a protection against personal and property loss which makes good sight all the more imperative.

There are many men at the present time employed in responsible positions affiicted with poor sight, a few being aware of their failing, but the majority in total ignorance of its existence. If, perchance, these men were to lose their positions, they would encounter all sorts of difficulty finding suitable employment elsewhere. And as time goes on it may become a problem for the State to solve the fate of these unfortunates. Which all goes to prove that the proper time to unearth physical imperfections is by examinations in early childhood rather than delay the discovery and allow it to develop until some time

late in life, at a time when such a handicap would render it extremely difficult for the victim to adjust himself to a new order of things, should the occasion arise.

In the examination of 3,500 school children with defective vision, 298 of these presented squint, 95 corneal opacities, 17 partial optic atrophy, 8 nystagmus, 13 cataracts, 1 aphakia, 1 dislocated lens, 1 vitreous opacities, 1 aniridia, 1 buphopthalmus; making in all a total of 439 children with serious defects interfering with vision. To this total we may add a group of 92 children with suspected progressive myopia, each of these myopes requiring a correction of — 5.00 and over, and all presenting visual disturbances; bringing the total up to 531 children who must be considered apart from all others in that they are not blind and yet it is physically impossible for them to keep pace with the normal sighted children. The only solution as to the disposition of children so afflicted seems to lay in special classes where these partially sighted youngsters might be grouped according to their amount of vision and trained in some useful arts or industry, the pursuit of which to represent the least amount of tax on their frail eyes. For what does it profit them to acquire a brilliant education only to become practically blind in young or middle life.

It costs the City of Philadelphia forty dollars to teach each child a school year, and it costs ten times that amount to school a blind child for the same period. We have no statistics of these partially sighted children, but they are in most instances far in the rear of their normal grade, and each year of backwardness in each child means a loss of forty dollars to the city.

Squints, as a class, come before the specialist very late. It has not been impressed upon the minds of many physicians, much less the laity, that the earlier all squints have their refractive errors corrected the more brilliant the results (barring, of course, those caused by fundus or other gross lesions), and the less likelihood of amblyopia of disuse intervening. It would be a good practice to set the age at not later than four years, because at this age full correction is borne without a murmur, and in the writer's experience these little patients prove themselves very tractable and seem to derive much comfort from their glasses. The closer we allow squints to get to twelve years of age the more probable we are dealing with an amblyopic eye, and a

rebellious patient with very little hope of co-operation so necessary to assure binocular vision.

The average age of the 298 squinting children on receiving their first correction was eight years and four months. The reason for this lateness in school children under daily medical inspection is explained in that inspectors never make routine examinations of children below the third grade, and since children in these grades are unable to read, it remains for the teacher to discover and report their wants. There are still many physicians who insist the child must wait until it as been taught the alphabet before the correct glass can be found.

Of the 95 corneal opacities about ten of these presented scars typical of the ravages of purulent ophthalmia; five exhibited the marks of interstitial keratitis and the others appeared as the results of corneal ulcers caused apparently by disturbances of nutrition in the early life of the child or as a complication of the exanthemata. Some gave the history of "a sore eye" or a "cold in the eye," which was treated as such, when in reality there was a lot of corneal substance with a resultant scar. About 75 per cent. of the opacities were binocular, and the amount of reduction in vision, even the tiniest central blemish, produced, in most cases, was indeed amazing. Corneal opacities present a field worthy of experiment and research. As it stands to-day, when we see a corneal scar that interferes with the sight of the patient our knowledge of the wide gap that lies between normal cornea and the tangled mass of corneal scar leads us to declare that damage irreparably done. In the hands of the writer, however, experience with dionin and massage with yellow oxide of mercury has proven so convincing as to prompt him to declare every case of opacity worthy of trial. The treatment must be instituted systematically and extend over long periods of time, months and years if necessary, the age of the patient and the age of the scar have a deciding influence, but always bearing in mind that the scar will not be entirely removed, nevertheless in all of the author's cases there was a noticeable change in the size and density of the scar, and in many an increase of vision.

A study of the 92 myopic children mentioned above proved very interesting and brings out a number of important points. Of this number 57 of them were examined for the first time. Their average age was ten years and two months. Their average myopia was

— 8.00 (represents a total of sphere and cylinder). The highest myopia was — 20.00 diopters in a child of twelve years. These children were reported to the medical inspectors, nurses, and teachers in charge of them with the instructions to limit all eye work to the minimum amount and absolutely no night work. The same instructions were told to the child and the danger of increasing myopia impressed on them. But in rare instances are there any evidences of co-operation for there are many objections raised on all sides. The teachers complain of these pupils as inattentive and serve as a distraction to the other pupils when carrying out this regime. The parents for the most part are unintelligent and insist upon their children being pushed to the limit. So it seems the only thing left to do is await the institution of special classes grouped according to vision and trained orally. These children are all instructed to return at the end of a year for re-examination.

The other 35 children of this myopic group were re-examined. Their average age was 11 years. Their average myopia was — 8.12, and the highest myopia was — 21.00 in a child 8 years old. The average yearly increase in their refraction was — 1.00, where only spheres were worn and where a cylinder was also worn it averaged an increase of — 0.50, too. Very rapid increases were common and especially noted in children of a studious nature. A girl aged eleven, in March, 1914, showed a full correction by retinoscopic findings to be: O. D., + 0.25 sph. ⊂ + 0.25 cyl. ax. 90; O. S., normal. When examined, November, 1916, required — 5.00 spheres O. U. A boy aged twelve, in March, 1912, progressed from — 2.00 sph. O. U. to — 9.00 sph. O. U. in April, 1915. A girl aged eight at first refraction required O. D., — 1.00 sph. ⊂ — 0.50 cyl. ax. 180; O. S. — 1.50 sph. ⊂ — 0.50 cyl. ax. 70; and fourteen months later increased to O. D., — 4.00 sph. ⊂ — 0.75 cyl. ax. 165; O. S., — 3.50 sph. ⊂ — 2.00 cyl. ax. 165. Most of these myopes showed a myopic conus of varying degree and choroidal changes typical of myopia, but posterior staphylomata was absent even in the myopia of highest degrees showing that staphylomata is a result of years of stretching coming later in life when the tunics of the eye are less elastic. The average vision was 20/40.

CONCLUSIONS.

Complete physical examination should be urged upon all children

before admission to school. At least all gross defects should be remedied as far as possible at this time.

All squints should be glasses not later than four years of age and constant supervision maintained to establish binocular vision.

So-called "sore eyes" and "colds in the eyes" have wrecked the vision in many children's eyes. Exanthemata are responsible for many corneal opacities.

All corneal opacities should be treated, and in many instances will be benefited.

Partially sighted children, whether due to corneal opacities or high degrees of myopia, should be trained in classes grouped according to their amount of vision and with the minimum amount of tax on their visual apparatus.

A METRICAL MADRIGAL

"There was an old doctor a-long ago.
Who hired a fellow to shovel snow,
But instead of a shovel he gave him a hoe,
For he was a hoe-me-a-path, you know."

—*Medical Pickwick*, April, 1917.

THE PATHOLOGY OF ACUTE INFECTIONS OF THE RESPIRATORY TRACT WITH REFERENCE TO THE VALUE OF VACCINES IN CORRECTING SAME.

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THAT laboratory investigations together with interpretations of pathological conditions peculiar to the air passages are of utmost importance to the medical profession is shown by the fact that each succeeding year seems to bring a constantly increasing number of infections which have their origin in the respiratory tract. Many of these infections assume the proportions of small epidemics, while during the past year, the eastern part of the United States experienced one of the worst epidemics known to this country. For a time, at least, it threatened, to a very serious extent, the entire population. It is generally conceded that anterior poliomyelitis is transmitted largely through the agency of the respiratory tract.

In reviewing briefly the physiology, together with the blood and lymph supply of the nose, throat and ear, one can readily understand why these organs are most often, and, in fact, constantly exposed to infection. The complex mucous membrane of the nose serves, not only to filter the air, thus endeavoring to exclude all bacteria, but also to equalize and maintain a standard temperature and moisture before the air leaves the nasal cavities to pass on down into the lungs. Having performed its function properly this warm moist membrane lining, the cavities through which the air passes, offers the best culture medium which the human organism is able to provide for the multiplication of bacteria that are pathogenic to man. The extreme vascularity of the nasal mucous membrane is also an important factor contributing to the ease with which infection takes place. The accessory cavities with their ramifications and communications are undoubtedly largely responsible for the greatest majority of pathological processes due to bacterial origin.

Whenever the normal physiological function of the respiratory

mucous membrane is impaired, however slightly, pathological processes are at once established by the invading swarms of micro-organisms which are constantly present, and ever ready to get in their deadly work. This is repeatedly demonstrated and manifests itself in various forms of infections, such as acute coryza, influenza, common cold in head, to the more serious forms, resulting in diffuse nasal suppurations and extensions to neighboring parts with abscess formation in face, mouth, eyes, throat, middle ear, intracranial and even septicæmia or pyæmia.

Aside from the derangement of function caused by various irritants in the form of noxious gases and vapors, bacterial infection is the direct cause of practically all nasal suppurations. It is undoubtedly the prime etiological factor in the so-called common cold, influenza, or la grippe, and, in fact, all acute coryzas. A discussion of the pathology of these infections with their sequelæ will be the object of this brief paper.

Purulent secretion from the nose has a variable composition. It may manifest itself chiefly as a watery, glassy mucus, or mixed with flakes of pus, or as a thick yellowish or creamy purulent discharge. Any of the above stages are usually preceded by a catarrhal swelling of the mucous membranes, causing retention of secretion in the accessory cavities, which, together with a more or less virulent infection associated therewith, usually results in acute empyemata. In addition to primary nasal infections, acute empyemata are also liable to occur as complications of certain general infections, particularly the acute infectious diseases of children.

From a bacteriological standpoint, the three micro-organisms most frequently found in primary nasal infections are the streptococcus, pneumococcus, and bacillus of influenza. My personal opinion is that the streptococcus in its various groups and forms causes more primary infections of the respiratory tract than all other organisms combined. In fact, I believe that many so-called clinical cases of influenza or la grippe are, in reality, of streptococcus origin.

It seems to be the consensus of opinion among laboratory workers throughout the country that of the innumerable strains and varieties of streptococci, many, as yet, remain unidentified. To my mind, this family of bacteria is the most far-reaching and virulent, in fact, de-

cidedly pathogenic to man in manifold disguises. We find the streptococcus invading human tissues in every part of the body, as well as the entire respiratory tract with its accessory cavities and sinuses. The virulence of this organism varies in different processes, localities and individuals.

Undoubtedly, many will raise the question as to whether the bacillus of diphtheria does not head the list of infections of the nose and throat. Aside from the small percentage of cases of diphtheria in which intubation is necessary, or those cases which are toxic enough to produce paralysis, I believe we are constantly and increasingly dealing with the remote effects of streptococcus infection far more serious than of any other known bacterium, except specific venereal infection.

Owing to the fact that nasal secretions possess certain bactericidal properties, probably more pathological processes originate in the throat than in the nose. Particularly is this frequently demonstrated in children with enlarged adenoids and tonsils, with the resultant mouth breathing. Such constant exposure to unfiltered air during the beginning of winter weather invariably marks the onset of acute infections in children, while in adults the most common manifestation is in the form of acute tonsillitis, otitis, and empyemata of the nasal cavities. Cultures grown from such infections show streptococci in by far the greatest majority of cases. Although in general morphological appearance the various forms of streptococci are very similar, there seem, from laboratory investigations, to be many varieties of streptococci isolated from these nose and throat infections. Although classed as possessing intracellular toxin, there seems to be ample proof that some varieties possess a filterable toxin, and I myself have been able to demonstrate antigenic properties of streptococcic filtrate obtained from virulent throat cultures. When a streptococcus infection of the nose and throat is virulent and toxic enough to form well defined membranes, which, without the aid of the microscope, are indistinguishable from true diphtheritic membranes, surely we are dealing with extremely potent and dangerous organisms. For four years it was my duty to examine many hundreds of nose and throat cultures annually, particularly from school children, and at least seventy-five per cent. of suspected diphtheria cases proved to be acute streptococcic infections. One severe local epidemic of septic sore throat was traced to an

infected milk supply which the photomicrograph reproduced in figure 1, from the author's negative, clearly demonstrates to have been a typical type of streptococcus particularly pathogenic to man.

Again, early cultures from the discharge following paracentesis in acute otitis media, as well as in many cases of acute mastoiditis, frequently reveal streptococci. These infections are usually direct extensions through the Eustachian tube from the respiratory tract.

Fig. 1.

The bacillus of influenza is found in early cultures from cases of la grippe, but rarely, even in severe manifestations of this common epidemic, are we able to demonstrate pure cultures of this bacillus on first incubations, while almost invariably these cultures show a preponderance of streptococci. This is equally true of stained smears prepared direct from the nasal discharges of patients suffering from la grippe.

Some few years ago a slight epidemic of septic sore throat appeared in and around Boston. Several internes at the Massachusetts Homœopathic Hospital suffered from severe types of this particular infection. The bacterial invasion extended from the tonsils, anterior

and posterior pillars, out into the cervical glands, with deep abscess formation. Cultures from several of these abscesses revealed pure growths of the micrococcus catarrhalis. Figure three represents a culture obtained from a typical abscess of this epidemic.

In obtaining cultures for diagnosis from the nose and throat, some difficulty is often experienced in determining the predominating bacterium which is responsible for a given infection. The vestibule of the nose always contains many varieties of micro-organisms which have been extracted from the inspired air. Unless care is exercised to

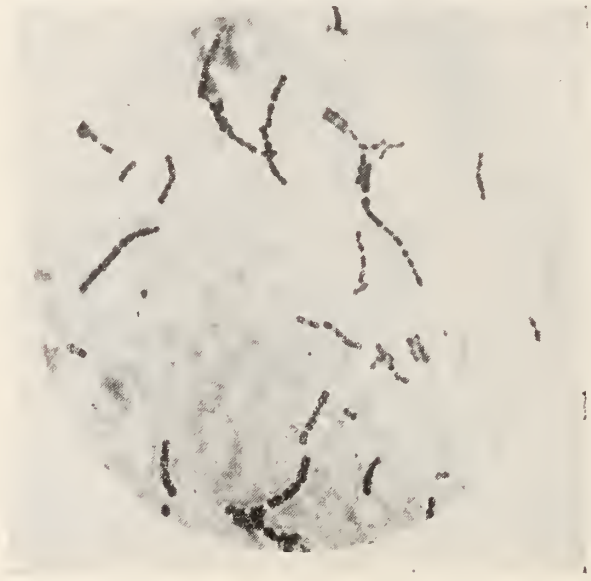

Fig. 2.

Figure 2 represents a pure culture grown from pus shown in Fig. 1.

cleanse the vestibule prior to taking the culture from the deeper structures of the nose, a mixed growth of uncertain and doubtful diagnostic value will result from nasal cultures. In case of throat cultures, much more satisfactory results follow routine cultures when the swabs are made directly against the tonsils and in their crypts. Many infections are known to extend upward from the throat through the agency of the adenoids, thus gaining access to the nasal cavities. Again, empyemata not infrequently follow direct extension of infection from teeth, especially empyema of the antrum. Many of the acute infections of the nose and throat resolve themselves into chronic

affections, resulting in discharging sinuses, infiltration of cells, and empyemata which are extremely stubborn. I recall the case of a letter carrier who had periodic explosions of pus from the frontal sinus and ethmoidal cells, covering a period of several years. Repeated cultures demonstrated a chronic streptococcus infection. Other common and most disturbing sequelæ are the chronic streptococcus carriers, particularly when the infection lies dormant in the tonsillar crypts.

Following attacks of acute tonsillitis, not infrequently we find the tonsils remain slightly enlarged, congested and more or less inflamed. Almost invariably streptococci still linger, and these are the cases

Fig. 3.

where rheumatism together with other evidences of streptococcus absorption are bound to manifest themselves later on. This is too frequently demonstrated in adults where removal of diseased tonsils is not apt to be resorted to. Acute coryza, influenza, and tonsillitis are also decidedly contagious, as well as infectious, consequently local epidemics are prevalent.

Having already expressed my belief in the toxicity of streptococci found in the respiratory tract, I wish to refer briefly to the use of vaccines as a therapeutic agent in establishing immunity against these

organisms infecting the nose and throat. In simple uncomplicated cases of acute coryza the pathological changes are usually self-limited, and the introduction of vaccines does not, as a rule, seem indicated. When the process is more severe, and when the infection extends to the accessory cavities, an autogenous vaccine may prove to be decidedly beneficial in raising the patient's resistance against the micro-organism responsible for the infection. The preparation of the autogenous vaccine to be employed should be undertaken with due regard to the kind of organism entering into its composition, its virulence, and apparent toxicity. When the streptococcus is the infective agent, especially prepared culture media will yield a much more potent vaccine than the ordinary routine agar or blood serum slants.

In cases where periodic attacks of tonsillitis are followed by various systemic disturbances, an autogenous vaccine to my mind, is not only indicated, but almost imperative, in lieu of operative procedure, when operation is either refused or contra-indicated. If immunity can be established, or even the patient's resistance raised against chronic streptococcus infection of the tonsils, much systemic absorption may be averted which later is destined to crop out in the form of rheumatism, endocarditis, glandular and even bone involvements.

Of course, the same holds true of other micro-organisms invading the air passages, but, excluding the chronic diphtheria bacillus carrier, none seem as treacherous as the streptococcus group. In acute cases of tonsillitis, where an early culture shows largely streptococci or pneumococci from the first incubation, an autogenous vaccine will frequently benefit the patient and quickly dissolve a streptococcus membrane from the tonsils. The patient will also be relieved of pain, soreness and malaise much more quickly than with other routine measures alone. This proves to me that many strains of streptococci are decidedly toxic.

In submitting cultures from cases of acute coryza and tonsillitis when vaccines are desired, separate culture tubes should be used for the nose and throat, and tubes should be plainly marked.

In acute influenza or la grippe, the results obtained from the use of vaccines seem to be questionable. This may be owing to the fact that it is almost impossible to obtain pure cultures of the bacillus of influenza without repeated subcultures, which decreases their antigenic or antibody-forming properties.

As regards the stock vaccines, the polyvalent, and mixed vaccines, much difference of opinion still exists. Practically all commercial laboratories and many individual workers claim that they all possess certain definite value. When dealing with a local infectious epidemic of the nose and throat of streptococcic origin, I do not believe that we possess any scientific evidence to lead us to expect that a polyvalent stock preparation of streptococcus vaccine will immunize a patient against a definite form of the streptococcus group. Certainly, I cannot subscribe to the therapeutic value of any such stock preparation prepared at some commercial laboratory many hundred miles from the locality of the epidemic. The same holds true of the so-called mixed vaccine. I do believe that an autogenous vaccine, properly prepared and administered as regards amount used and interval of dosage, will materially immunize against the infecting agent.

The question of dosage is a very important factor when dealing with a virulent streptococcic toxin. The smallest amount that can be used to bring about the desired result is, to my mind, the most satisfactory method of procedure. The use of even an autogenous vaccine should, by no means, supersede any or all recognized routine therapeutic measures to check the process as quickly as possible. Free drainage of pus is the prime factor, as in all forms of infection where pus is pent up. Vaccines will not open and drain pus pockets.

In many cases of chronic suppuration of the accessory cavities where routine measures fail to check the process, an autogenous vaccine will often stimulate sufficient reaction to entirely clean up the infection of long standing. A case well illustrating this point I have already referred to in this paper. An autogenous streptococcus vaccine prepared from a profuse discharge from the frontal sinuses, which followed periods of severe headaches just prior to an explosion of pus, completely cured a condition of ten years' duration.

The value of mixed stock vaccines as prophylactic immunizing agents for common colds is extremely doubtful. An autogenous preparation will frequently immunize against repeated attacks of acute tonsillitis.

In conclusion, the points which are of interest to the pathologist and clinician alike are:

1. Infections of the respiratory tract are of utmost importance, both from a local and systemic point of view.

2. The various forms of streptococcus infections are responsible for many local epidemics.

3. These infections are constantly extending to more remote parts of the body.

4. Many strains of streptococci are decidedly toxic.

5. Autogenous vaccines possess definite therapeutic and immunizing value in nose and throat infections.

535 Beacon Street.

The famous physician and the eminent clergyman were deep in a discussion which threatened to become acrimonious. "Do you see," said the minister sarcastically, "you medical men know so much about the uncertainties of this world that I should think you would want to live." "Oh, I don't know," responded the physician caustically. "You clergymen tell us so much about the uncertainties of the next world that we don't want to die."—*Ladies Home Journal.*

SYPHILIS AND A SUGGESTION FOR ITS CONTROL.

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AMONG the many great problems of to-day with which we, as a profession, are confronted, is one that should merit our most careful consideration, namely, syphilis. It is a subject towards which there has been considerable apathy, and this apathy may have been due to the fact that until in recent years there were no means of coming to a definite, in most cases positive, diagnosis. To-day, not only is it possible to accurately diagnose most cases showing positive or questionable signs, but to discover it in cases that exhibit no evidence at all in history or symptoms.

This being the case it seems that we are not doing all possible to assist in controlling this world-wide scourge which lurks about our doors, and which becomes less appalling only because of its prevalence.

My excuse in writing this paper is to endeavor to awaken those who are not already alert, and suggest more vigorous concentrated action.

Syphilis is one of the very impressive diseases encountered in our everyday out-patient work, and that it is becoming more prevalent can hardly be denied. It will certainly continue to increase if present conditions remain. The profession must, therefore, equip and fortify themselves against this particular evil which threatens our entire civilization.

Much good has already been accomplished by the workers in our laboratories for the perfection of methods in diagnosis, and with the present tests, namely, the Wassermann, Luetin, Gold Colloidal and others, that are being developed, we have ample means at our command for a more accurate diagnosis and control of these cases, while under treatment. Treatment is satisfactory if persisted in, and cases can be cured, or at least rendered harmless, as the above tests will prove.

Of these tests the first two hold equally important places, as they

are both specific from a diagnostic viewpoint. Of the Wassermann test much has been said and written, but the Luetin is somewhat newer, much simpler, and does not require laboratory technique. Luetin is an extract of the killed culture of several strains of Treponema pallidium, the causative agent of syphilis. From McFarland's book on Pathogenic Bacteria Protozoa, page 798, we quote the following: "Luetin was tested by Noguchi and his colleagues upon four hundred cases—one hundred and forty-six were controls, one hundred and seventy-seven syphilitics and seventy-seven para-syphilitics. In the controls there was erythema with no pain or itching; in syphilitics at the end of four hours there was induration of from five to ten m. m., surrounded by a zone of redness and telangiectasis which slowly increased for three to four days and became dark bluish-red, and usually disappeared in about a week. Sometimes papules underwent vesiculation. In certain cases described as torpid the erythema cleared away and a negative result was supposed to have resulted, when suddenly the spots lighted up again and progressed to a vesiculation and pustulation. In three cases there were constitutional symptoms, malaise, loss of appetite and diarrhœa. Noguchi found that the reaction is specific, that it is most striking, and most constantly present in tertiary, latent tertiary and congenital syphilis. It, therefore, forms a valuable adjunct to diagnosis, seeing that it is most evident in precisely those cases in which the Wassermann reaction is most apt to fail. Dosage 0.07 cc. is the amount of Luetin injected for one dose, properly diluted, and injected into, but not under, the skin.

The Gold Colloidal Test has to do entirely with the examination of the cerebro-spinal fluid, and is only of value in specific lesions of central origin. Dr. Helmuth Ulrich, one of the Evans Memorial Department of the Massachusetts Homœopathic Hospital, gives in the *New England Medical Gazette* of April, 1916, the following description: "The technical details of the preparation of the reagent are too intricate to warrant presentation here. Roughly, the test is performed by adding spinal fluid in progressively increasing dilutions to ten test tubes, each of which contains five cc. of the gold solution. The mixture is allowed to stand for twenty-four hours, and then the changes in color in the various tubes are noted. A control tube without spinal fluid must retain its original color, and is used for comparison with

the other tubes. The color changes are plotted as a curve, in which no change equals zero and complete decolorization equals five.

"The advantages of the large colloidal gold reaction over other and simpler globulin tests lie in the possibility of differentiating by its use between certain types of meningeal irritation and inflammation. That is to say, some diseases cause a gold sol. reaction that is pretty constantly different from that produced by other affections.

"The difference lies in the production of color changes in different groups of tubes of the series of ten tubes. For instance, general paresis will cause precipitation of gold colloid and a consequent change of color in the first five tubes, that is, those containing most spinal fluid; whereas, tuberculous meningitis affects chiefly the higher dilutions.

"In general, there are three fairly distinct types or zones of reaction: first, the paretic type, showing a strong reaction in the first four or five tubes, and gradually diminishing ones to zero as the dilution of spinal fluid increases; second, the so-called leutic zone, found in tabes and interstitial cerebro-spinal syphilis, usually not as strong as the preceding, and most marked in the third, fourth and fifth tubes; third, the non-syphilitic type, given by tuberculous and acute meningitis, with color changes especially marked in, perhaps, the sixth and seventh tubes.

"Thus it is seen that the colloidal gold reaction for globulin may be of utmost importance in differential diagnosis, not so much between syphilis and non-specific infections, but especially between incipient general paresis and interstitial cerebro-spinal syphilis presenting mental symptoms." Further information can be obtained from the following:

COLLOIDAL GOLD.

The Colloidal Test in Psychiatric Cases, Report of 126 cases of Spinal Fluids.

..... Potter.

Alienist and Neuro., 1915, XXXVI, 306.

.....

Diagnostic Value of Lange's gold sol. tests. (Based on 500 exam. of Spinal Fluid.)

..... Soloman, Koefod & Wells.

Bost. Med. and Surg. Jour., 1915, CLXXIII, 956.

Technical Improvement in Lange's Colloidal Gold Test, Formaldehyde vapor method, and report of three clinical cases.

..... Hulbert.

Jour. Mich. Med. Soc., 1916, XV, 30.

.....

A Further Study of Diagnostic Value of the Colloidal Gold Reaction, together with a Method for the Preparation of the Reagent.

..... Miller & Brush.

Johns Hopkins Hospital, Bull., 1915, XXVI, 391.

.....

Value of the Colloidal Gold Test in the Diagnosis and Prognosis of Syphilis of the Central Nervous System. Value of Microscopical Diagnosis by Dark Field Illumination.

..... Fordyce.

New York Med. Jour., 1916, CIII, 907.

.....

Lange's Colloidal Gold Reaction.

..... Williams & Burdick.

Colorado Med. Jour., 1916, XIII, 122.

.....

Health departments are trying to make syphilis a reportable disease, and in Massachusetts and other States examination of the blood in any suspected cases is made free of charge.

Syphilis should be given more publicity, and the medical profession, as a whole, made to feel their great responsibility in educating the laity, and thereby protecting them against contamination, and by greater concerted activity search out as far as possible all syphilitic cases, place them under the proper treatment, and thus in a great measure help to control one of the greatest of all human menaces.

That some definite plan of action should be carried out no doubt we all agree, and one that seems to me far-reaching would be a careful, systematic blood and other tests when necessary, of everyone coming to our clinics for treatment.

If all the out-patient departments, hospitals, dispensaries and public institutions, such as prisons, asylums, emigrant stations, et cetera, in the country would carry out some definite routine, and place suspected cases under proper treatment, great results would be obtained.

Personal work, persistence and vigilance will add much toward the solution of this mighty problem.

We have inaugurated at our Monday and Thursday out-patient nose and throat clinic of the Massachusetts Homœopathic Hospital a plan to take blood for examination from every patient coming to the clinic for treatment over fifteen years of age who shows any signs of congenital or acquired syphilis. After the reports of these cases come back we refer the positive cases to the proper clinic for treatment and instruction. Thus we are able to single out and control all cases coming under our observation to a very great degree. Tests already show that a large number of so-called catarrhs, atrophies, accessory sinus cases, and chronic coughs are syphilitic in origin, and yield satisfactorily to anti-syphilitic measures. We regret, however, that as yet we have insufficient data to make a general report of our progress and results obtained from these examinations, but hope to do so in the near future.

202 Huntingdon Avenue.

Antibody Content on Cerebrospinal Fluid.—From a consideration of experimental results Taylor concludes that weight of evidence goes to prove that bacterial antibodies do not pass over, at least in any quantity, into the cerebrospinal fluid, and that therefore little benefit can be expected to result from the subcutaneous administration of vaccines in cerebrospinal meningitis.—*Jour. Amer. Med. Assn.*, April 28, 1917.

AN INTERESTING CASE.

George B. Rice, M. D.,
Boston, Mass.

On February 23, 1916, through the courtesy of Dr. DeWitt G. Wilcox, Miss F., age 28, consulted me for difficulty in swallowing, and in breathing, and almost complete aphonia. Her history was as follows:

Hoarseness about nine years. Larynx examined by a laryngologist when the hoarseness began, and diagnosis was made of tumor at the posterior portion of the larynx. There was also found a circumscribed mass of dilated veins on the right lateral wall of the pharynx, and similar masses on the right shoulder and arm. The supposition was that the laryngeal tumor was of the same character, and that operative interference was inadvisable.

For a number of years Miss F. suffered no inconvenience except from hoarseness, but about a year ago she noticed a little increase in this, and at times difficulty in swallowing and in breathing. She then consulted several laryngologists. The advice given was to wait until operative interference became imperative, as the growth was probably a mass of varicose veins, and removal might cause uncontrollable hæmorrhage.

Two weeks previous to Miss F.'s visit to my office her respiration became impeded, and for two days, swallowing almost impossible. A prominent laryngologist, in an adjoining city, had advised tracheotomy, but gave a discouraging prognosis.

The writer's examination was as follows:

Patient well nourished, but with a distressed facial expression, and labored, noisy respiration. Examination of the pharynx showed a mass of veins on the posterior, lateral pharyngeal wall. The larynx was nearly filled with a dark red growth of unknown attachment. On the shoulder and left arm were masses of veins, circumscribed, elevated and freely movable.

Immediate tracheotomy was advised, further operative procedures to be decided later. On the next day, at the Reid Hospital,

tracheotomy was performed under local anæsthesia. The patient made a quick recovery from this operation, and the next day the tumor was less red and smaller, and the patient could swallow liquid food fairly well.

The question of the removal of the growth was then discussed. Thyrotomy, attempted removal by the direct method, and injections of alcohol or guaiacol into the growth were considered. It was finally decided to try alcohol injections. Two weeks after the tracheotomy operation ten minims of alcohol were injected into the tumor. The reaction following this injection was slight, although the difficulty in swallowing was materially increased. Three more injections were given at two or three day intervals. The last injection was followed by marked swelling of the growth, with complete aphonia and much dysphagia. Fearing that the recurrent laryngeal nerve had inadvertently been injected no more were given for two weeks. At the end of this time the voice had returned, the growth was much smaller than at any time previously, and swallowing not difficult.

Injections were now tried of a solution of Guaiacol, 80; Creosote, 10; Carbolic Acid, 5; Almond Oil, 5. Three minims were given for the first injection, and, five days later, five minims. The injections were repeated at five day intervals. There was but little reaction from these, and the tumor grew steadily smaller. Two months later the tracheotomy tube was permanently removed, and the injections made at longer periods. The tumor was now white and nodulated, and was reduced about half its former size.

Two months after removing the tracheotomy tube a piece of the growth was expectorated. This was sent to a pathologist, who reported it to be a fibrous polyp. The rest of the growth was easily removed with a cold wire snare, by the direct method, using a Glogau instrument, and finally a Brüning tube. At the present writing there is no evidence of recurrence.

The growth originated from the posterior portion of the aryteno-epiglottic fold, on the left side. Just posterior to this attachment can now be seen a mass of veins similar to those on the right posterior pharyngeal wall above mentioned.

293 Commonwealth Avenure.

THE EAR TESTS OF BARANY.*

HAROLD L. BABCOCK, M. D.,

Boston, Mass.

IT is my intention this evening to bring before you some facts regarding recently developed methods of examination of a hitherto little understood mechanism—the vestibular apparatus. Every special sense consists of three distinct elemental portions: (1) An "end organ" for receiving external stimuli; (2) a brain centre for interpreting those stimuli, and (3) nerve paths connecting the two. We have, therefore, a true special sense in the vestibular apparatus—the static or kinetic (Randall) sense; the semi-circular canals, utricle, and saccule being the end organ; the vestibular portion of the VIII cranial nerve, the nerve pathway, and the cortical area as postulated by Mills, situated in the posterior portion of the temporal lobes.

The function of this special sense is concerned with the maintenance of equilibrium, disturbed function being manifested as vertigo. The Barany tests are methods of studying the reactions of separate portions of the vestibular end organ.

The principle underlying them all is this: Movement of the endolymph in the semicircular canals in a given direction stimulates the sensitive hair cells in these canals, and produces definite phenomena. These phenomena are: 1. A twitching of the eyes or nystagmus, of a certain type; 2. vertigo; 3. so-called "past pointing;" 4. falling reactions. In a person to be examined this endolymph is artificially set in motion, either by turning the subject in a smoothly revolving chair, or by douching the ear with cold or hot water. The reactions following are carefully observed. With a knowledge of what these reactions should be in the normal, and knowing, furthermore, that in a normal individual they are remarkably uniform and constantly present, it is possible to recognize that any deviation from the normal, or a complete absence of some or all of the reactions, is significant of a disturbance either in the labyrinth or somewhere along

*Read before the Alethean Club of Boston, Feb. 9, 1917.

the vestibular tracts. For instance, if a person is turned toward the right, with the head in the upright position, with the eyes closed, his first sensation is that of turning toward the right. This is due to the lagging behind of the endolymph in the horizontal semicircular canals. As the turning is continued the endolymph catches up to the movement of the body, and the subject no longer feels that he is turning, although actually he *is* turning. On stopping the chair the endolymph continues to move and the person has the sensation of turning in the opposite direction, namely, to the left, although as a matter of fact he is sitting absolutely quiet in the chair. This induced vertigo, or what is called experimental vertigo, is obviously produced by setting in motion the endolymph in the labyrinth.

In brief, as regards the pointing reactions, the normal person is always aware of the location of his hand or finger in space when his eyes are closed, and he is able with it to find an object previously located by him, as, for example, the finger of the examiner held in front of him. With the ear stimulated, either by cold or hot water or air, or by turning in a smoothly revolving chair, he is no longer able to find the finger, but points past it in a definite direction, either to one side or the other, above or below, depending upon the exact stimulation employed. These "past pointing" reactions are absolute in the normal; their modification marks the abnormal and challenges us to find the explanation and locate the fault.

The falling reactions in a sense are exaggerated past pointing.

Nystagmus, at least the slow component, is distinctly a reflex phenomena, the connection between the vestibular and eye muscle tracts taking place through the posterior longitudinal bundle.

To the otologist these tests are invaluable as a means of determining the condition of the vestibular portion of the internal ear, for by combining these tests with a cochlea examination, we can say with certainty whether a lesion is destructive or irritative from toxæmia, vaso-motor disturbances, etc.

To the neurologist and the brain surgeon, the results of examination by Barany methods may have a still greater value in that by a detailed study of the reactions produced by stimulating the various portions of the static labyrinth separately, it is often possible to locate the position of a lesion producing a block in one or more of the

vestibular pathways. This intracranial localization is made possible by reason of the fact that the tracts from the horizontal and vertical canals have been shown to be separate (the latter extending well up into the pons, while the former not ascending above the medulla); and that the tracts for nystagmus and for vertigo are also distinct, the former being confined to the brain stem, while the latter, after completing a circuit through the cerebellum, passes on to the cortical areas in the temporal lobes.

This work was developed by Robert Barany, a brilliant young otologist of the Vienna school, who, in 1914, was awarded the Nobel Prize for research in medicine. At the beginning of the European War Barany enlisted in the Austrian army, and the work was taken up by a small group of otologists in the Medical School of the University of Pennsylvania. Using Barany's methods, supplemented by the work of the Spanish anatomist, Cajal, and the results of autopsy findings, this group of investigators has been able to bring the methods of examination to a point of efficiency where they are of great practical value in furnishing facts of importance in diagnostic symptomatology, from which it is possible to say with more positiveness that an intracranial tumor, abscess, or other lesion is situated in the fourth ventricle, cerebellum, pons, bedulla, cerebello- pontile angle, or is labyrinthine.

535 Beacon St.

A VERY LONG STYLOID PROCESS, WITH THROAT SYMPTOMS. OPERATION.

GEO. J. ALEXANDER, M. D.,

Philadelphia, Pa.

TO find an unusually long styloid process in the cadaver is a common occurrence, but when one is found in the living body causing symptoms, the picture is at once transformed from one of the most common to that of a rare specimen.

This conclusion is arrived at particularly when one searches the literature for similar occurrences of such a condition, or consults eminent anatomists and surgeons, to receive the reply that they have little or no knowledge of the subject.

It has been my good fortune to come in contact with this unusual condition through the courtesy of Dr. Wm. McKenzie, who called upon me for consultation.

While there have probably been other occasions where this condition has been encountered, they are by no means numerous, for the only reference to it that I have been able to find is the report of a case of abnormally long styloid process, causing throat symptoms: and operation, by W. S. Syme, M. D., F. R. S. E., page 303 of the *Journal of Laryngology, Rhinology and Otology,* London.

The styloid process is a part of the hyoid bar of the second visceral arch of the embryo, and consists of two parts, the first joins the petrous at or about birth. The second, which represents all but the base, is an ossification of the stylo-hyoid ligament and does not join the first part till puberty or later. It is thick at its base and tapers to a sharp point; it extends downward, forward, and inward, and is continued as the stylo-hyoid ligament to the lesser horn of the hyoid.

Three muscles, the stylo-glossus, stylo-hyoid and stylo-pharyngus diverge from it to the tongue, the hyoid bone, and the pharynx. On consulting Prof. G. A. Piersol, he said that while the process varies greatly in length, in his experience the strictest symmetry of the two processes obtains, and while excessive length may exist on one side, it

must be exceedingly rare and a condition which he has never seen. But they are, however, irregular in outline and frequently contain circular enlargements that are suggestive of ossified callous, and that they have a certain amount of curve inward, two prominent features of the specimen shown in "Plate 1" of this case.

Any abnormality of the styloid process then, causing symptoms, must be from one of two sources, namely, developmental or fracture form; hence in any given case, as in the one under discussion, the first

Plate 1.

Showing the abnormally long and malformed styloid process before operation.

question that arises is, to which group does it belong? For the answer to this question and to enable us to come to a reasonably definite conclusion, we must depend upon three things; for instance, (a) the history of the case which I feel is rather unreliable as will be seen in this instance. (b) The Roentgen ray, and (c) good judgment on the part of the surgeon.

When called upon to see this patient, it was for a condition quite different from the one just discussed, the condition of most interest was that of an acute suppurative otitis media on the right side; there were, however, two distinct groups of symptoms, a number of which were quite similar—those attending the ear, or primary condition, and those

associated with an abnormal condition in the right side of the neck and throat in the region of the tonsil, as the following history will substantiate:

October 19, 1916, female, Mrs. J. P. S., age approximately 50 years. Two weeks prior she had an acute rhinitis which lasted one week; at the end of this time, or one week ago, there developed great pain in the right ear, followed on the third day by a free discharge of pus and blood, with relief of the pain.

On the fifth day the discharge diminished with increase of pain; there has been defective hearing ever since the acute ear condition started, which, in all, was one month ago. Previous to this the hearing was normal.

At present she also complains of pain under the ear which, she says, comes from the throat and at times radiates upward, involving the entire temporal region.

The second day after cessation of discharge there was tenderness over the mastoid which corresponded to the time of cessation of discharge from the ear. She also says she is never without a sore feeling in the right tonsil fossa. Other symtoms attended the ear condition, and the otoscopic picture was typical. There were no special symptoms of mastoid involvement. Tenderness under the tip of the mastoid was elicited by palpation.

Examination of the throat showed a round, pale, hard body, the size of a small cranberry, over which was a comparatively thin layer of tough glistening tissue, in the center of which was a white area; under this could be felt a still more dense bone-like sharply pointed body, which was stationary and could not be moved; it projected through the bed of the tonsil and seemed to push the tough inner capsule of the tonsil ahead of it, thus forming the round protuberance seen in the center of the tonsil stump, the protruding body being painful to gentle pressure.

The cause of this protuberance in the tonsil fossa is shown most beautifully by the radiograph "Plate 1" to be an abnormally long styloid process extending down behind the ramus of the mandible to just above the angle, with a long sweeping curve medianward through the bed of the right tonsil.

History associated exclusively with the throat condition. Patient

has had severe attacks of tonsillitis and quinsy for many years, but since a fall six years ago, striking the back of her head, the right tonsil has been in a constantly painful condition, and a feeling as if there were something there that must be swallowed.

Two years after the fall, or four years ago, she had her tonsils removed by tonsillectomy; while the left fossa was clean, at that time the operator encountered a hard process in the right tonsil, which he did not attempt to remove then or at any subsequent time, though the patient was willing that he should, together with a portion of the tonsil that had also been left in he fossa.

Since the operation all symptoms have been exaggerated, probably because of the tissues being drawn more tightly over the point of the process, due to contraction of the scar tissue.

These are: a feeling as if a foreign body were in the throat, causing a constant desire to swallow, a constant burning, stinging pain, as if the membranes were drawn over a sharp point, a dry feeling on the right side, causing a choking sensation, which, in turn, causes coughing, pain in the neck, which extends up under the ear or radiates over the entire temporal region, and she is never without a sore feeling in the right tonsil fossa that is increased on swallowing.

Most of the above symptoms are identical with those of Syme's case, who, in addition, had periodical impairment of hearing.

In endeavoring to differentiate between a developmental elongation of the process, or that of a deformity with lengthening as the result of a fracture, in this case, one is dealing with a near impossibility, because the history referring to a fracture does not correspond with the radiographic findings, there being only one point that is at all indicative of fracture, *i. e.*, the node just below the base of the process, which may be normal though it suggests an ossified callous; this could have added little or no length to the process; again, the deformity would almost surely have been more or less angular in shape instead of the long gradual sweeping curve inward, indicated in the Roentgenograph "Plate 1," which is located far beneath the thickened nodule which is relatively close to the base of the process.

Considering the possibility of a fracture, for instance, I am not inclined to place much importance to the history of a fall, striking, as

she says, the back of her head: even though she claims the symptoms date from that time, the latter may have been co-incident.

A fracture of the shaft of the process under such circumstances would have to be the result of a sudden pull on the three muscles attached thereto, the possibility of which seems to me to be entirely remote, as the process in this case is a stout one, the muscles are small and all the muscles, normally, extend downward, forward and inward as a continuation of the general direction of the process itself, especially the stylo-hyoid, the one most likely to offend on such an occasion because of its attachment to the hyoid bone.

Plate 2.

Showing the stump of the right styloid process after operation. Photos have been reduced one-third their size.

The clinical findings at such a late day are valueless as an aid to diagnosis.

After all, the history being unreliable, the clinical findings without value and the Roentgen ray not productive of any definite information suggestive of fracture, a positive diagnosis of the deformity as to fracture is practically impossible. All things being equal, and while its presence is infrequent, a developmental elongation of the styloid process causing symptoms is not as rare as a fracture of the process with the same results.

A glance at the Roentgenograph "Plate 3" shows distinctly that the expected is a reality. The left styloid process is rather thick, regular in outline, and while it is comparatively long, it is shorter than the one removed, the stump of which shows plainly on "Plate 2" and on the opposite side, on "Plate 3," and its preoperative form on "Plate 1;" note, too, on "Plate 3" that the direction of the unoperated styloid process is normal, and that it is straight, with only the slightest tendency to curve inward toward the median line.

For correction of the deformity and elimination of the symptoms, a portion of the process was removed in the following manner:

Under a general anæsthesia (ether) an incision was made through

Plate 3.

Shows the unoperated styloid process of the opposite side, or left side, and the stump of the operated one after operation.

the soft tissues of the protruding body in the center of the tonsil stump down to the tip of the process, and sharp dissection made first with a small periosteal elevator to free the periosteum from the tip, then blunt dissection with the forefinger by pressure, to the point of attachment of the stylo-glossus and stylo-pharyngus muscles, when sharp dissection with the periosteal elevator was again necessary.

Three and a half millimeters of the bony process was then bitten off in four pieces by means of a long-nosed Rongeur forceps, to the nodule previously mentioned, leaving in place about two millimeters of its base, as shown in "Plate 2," the operation being completed by dissecting out the tonsil stump.

The post-operative treatment was the same as that of tonsillectomy, the patient making an uneventful recovery in one week, and has since been entirely free from all previous symptoms.

Because of the presence of an acute middle ear suppuration together with symptoms from an abnormal styloid process, there may be some confusion in the mind of the reader as to whether or not the latter was in any way responsible for the presence of the former. To clarify such possible confusion, let me say that the two conditions were in no way associated.

A singular feature of these cases, as the same was true of Syme's case, is that the condition and symptoms manifest themselves so suddenly and late in life, when the condition has probably been present for many years without their apparent knowledge, though they can recall exactly the time that symptoms first began, which is usually a year or more before consulting a physician or surgeon. This may be because the surrounding tissues do not cause noticeable symptoms until a certain amount of chronic irritation is set up, though this is entirely problematic.

Since starting this article, in mentioning the case to Dr. D. Macfarlan, he informed me that he has seen a similar case.

Finally, I want to express my appreciation of the co-operation of Dr. H. D. Evans, who made the Roentgenographs with which this article is illustrated.

1831 Chestnut St.

Tardy Tetanus After Pneumococcus Infection.—A case reported shows that a medical infection is able to cause the flaring up of tetanus infection over a month after the wound—*Jour. Amer. Med. Assn.*, April, 1917.

CORRESPONDENCE.

A PRIZE OF $300.00 FOR THE BEST ESSAY OR TREATISE ON THE SUBJECT OF TEACHING AND TRAINING LITTLE DEAF CHILDREN IN THE HOME FROM INFANCY TO SCHOOL AGE.

THE American Association to Promote the Teaching of Speech to the Deaf is authorized to pay $300 of the income received from the Alexander Graham Bell Grosvenor Memorial Fund for the essay, treatise, or other form of composition complying with the following conditions, that most clearly details how a mother can best teach and train her deaf child in the home from infancy to school age:

Each essay submitted must (1) be delivered at the Volta Bureau, by prepaid express or mail, before 12 o'clock noon of November 1, 1917; (2) must be typewritten in the English language; (3) must contain at least 20,000 words, as it is doubtful if the necessary instructions and suggestions can be properly presented with a less number; illustrations may be used if the author prefers; (4) must bear a distinguishing mark or pseudonym, but nothing to tell who the author is or where residing; (5) must not be folded or rolled, but placed in a large, plain envelope bearing only the title of the essay and the distinguishing mark of the author; (6) must be accompanied by a small sealed envelope bearing the title and distinguishing mark on the outside and containing the name and address of the author in a signed statement that the essay is entirely the writer's own production; (7) must be wrapped and addressed to The Judges for the Alexander Graham Bell Grosvenor Memorial Fund Prize, Volta Bureau, 1601 35th Street N. W., Washington, D. C.

The Judges elected to pass upon the merits of the offerings are:

Mr. and Mrs. Edmund Lyon, Rochester, N. Y.

Dr. and Mrs. A. L. E. Crouter, Mt. Airy, Philadelphia, Pa.

Mr. and Mrs. Gilbert H. Grosvenor, Washington, D. C.

These Judges will render a report to the Directors of the Association, who reserve the right to withhold the prize should the Judges

report that none of the compositions possess sufficient merit to warrant making an award.

The composition awarded the prize becomes the property of the American Association to Promote the Teaching of Speech to the Deaf, to be published where and under such conditions as the Directors may determine.

If further details are required, do not address the Judges, but write to the Superintendent of the Volta Bureau, 1601 35th Street Northwest, Washington, D. C.

EDITORIAL COMMENT.

THE $300 PRIZE.

In the June *Volta Review* we told our readers of the generous gift to the American Association to Promote the Teaching of Speech to the Deaf, by Mr. and Mrs. Gilbert H. Grosvenor, of a trust fund of $5,000 to establish an "Alexander Graham Bell Grosvenor Memorial Fund," in memory of their second son, who died March 6, 1915. In accepting this memorial fund the directors resolved that the income shall be used in paying for the publication and distribution of literature that will help parents to intelligently train and teach deaf children in the home prior to school age, and that every publication paid for from the income of this fund shall bear on the title page an inscription stating that it is a publication of the Alexander Graham Bell Grosvenor Memorial Fund. Following a suggestion from the donors, the directors decided to offer $300, a sum equivalent to the first year's income, for the best essay on the subject of "Teaching and Training Little Deaf Children in the Home."

Following this action by the directors, this offer of $300 was placed in the form of an announcement and appeared in *The Volta Review* from June to November, inclusive. Then 3,000 copies of this announcement and of the editorial, "A Worthy Memorial Fund," reprinted from page 250 of the June *Volta Review*, were widely distributed, the majority of these circulars going to newspapers and periodicals. Hundreds of editors generously gave a synopsis of this offer of $300 in their respective papers, and some published the announcement in full. Through this kindly action by the press wide publicity was gained.

In that announcement the contestants were told that the following conditions must be complied with:

Each essay submitted shall consist of from 20,000 to 21,000 words. Three typewritten copies of the essay shall be prepared, each bearing a distinguishing mark or *nom de plume,* but nothing to tell who the writer is; the three copies shall not be folded, but sealed in a plain, flat envelope, bearing only the title of the essay and distinguishing mark or *nom de plume* of the writer. Then the name and address of the writer, with the mark or assumed name, shall be typewritten on a card or sheet of paper and sealed in a small envelope. These two envelopes shall then be sealed in a third envelope, bearing no indication of who the sender is, and addressed to "The Judges of the Alexander Graham Bell Grosvenor Memorial Fund, Volta Bureau, 1601 35th street, Washington, D. C."

The essays commenced coming in during the third week in October and were at once locked up, and none were opened until all were opened early in November. Then it was seen that many were obviously disqualified because of failure to comply with the plainly stated conditions. For instance, several contained far less than 4,000 words, one less than 6,000, while a few contained far more than the maximum allotment of words, one manuscript containing a total of more than 30,000 words. Some of the contestants sent one copy, some sent two. One essay was written in longhand, on thin sheets of note paper. The single copies came folded in envelopes bearing name and address. One of the best did not reach the Volta Bureau until the afternoon of November 2, over 24 hours after the time limit had expired. Thus we are led to believe that quite a number of the contestants gave little or no thought to the possibility of there being any conditions that must be complied with.

Of the essays that appeared to be qualified to enter the contest, the majority seemed to be somewhat padded, the personal-letter form of essay particularly so—that is, there was much that appeared irrelevant —and while nicely written, and interesting from a literary point of view, yet of little value to distracted mothers of deaf children. Some of these essays were single-spaced, and not very neatly done at that, thus making careful reading a difficult task, and some were frequently interlined with additions or corrections. In one essay the paragraphing

was admittedly so poorly done that an attached note placed the blame on the typist, and added that no time remained for correcting it. Yet the essay contained so much of practical value to mothers that it deserved better treatment. One contestant sent in the three copies of her essay with all the sheets arranged in reverse order, the last sheet coming first, thus compelling the judges to place the 70 or more sheets in proper order for convenient reading.

Yes, there were other essays that won admiration the moment the wrappings were removed, so neatly were the sheets typewritten and fastened together for safe and convenient handling by the judges, who, as a labor of love, have generously consented to read these manuscripts. One essay was illustrated with some charming pen and ink sketches, while several photographs accompanied another essay.

The result? That is another story that will appear in a following number. The final decision must be communicated by the judges to the directors, and the latter have the right to withhold awarding the prize should the final report show that none of the essays possessed sufficient merit to warrant an award.

At the request of the judges, the editor assisted in the preliminary classification of the essays, and the experience thus gained leads him to believe that while some of the essays are in a way exceptionally good, and while the writers of these excellent essays deserve high commendation for the ability shown in so clearly presenting their views, yet, taken as a whole, the results are disappointing; for practically all of the contestants failed to constantly bear in mind the one essential fact that suggestion and instruction and explanation must be clearly presented, that the average mother, who possesses little education, not the slightest knowledge of how to train and teach a deaf child, and no money for paying a trained teacher, will find in the essay that is printed as a mothers' manual something more than a source of mere temporary inspiration when her baby is found to be deaf.

Without any manual a few mothers trained and taught their deaf children so well that on entering school life they kept pace with hearing brother and sister. But these mothers appreciated how great is the responsibility that rests upon parents of deaf children and did not shift the burden on to others. They were women whose strong sense of fair play would have enabled them to win in any undertaking affecting

the welfare of the family, no matter how perplexing and discouraging the conditions. There are other mothers who earnestly desire to do all that is possible for a mother to do in training their deaf children, but often are helpless without detailed instruction to guide them.

What the average mother of a deaf infant needs is not smoothly written generalizations or interestingly presented sermonizing, but a clear explanation of all she must do for her deaf baby, why she must do it, exactly how to do it, and how the members of her family and her relations may help rather than hinder in this most difficult of tasks. In other words, the successful essayist must show the mother how to train a congenitally deaf infant to grow responsive and obedient, to respect the rights of its parents and others, to grow observant and thoughtful, and how to keep in a growing healthy condition. The essayist must show the mother how to teach her child all that is taught in the kindergarten—in schools where sense-training prevails; must show how to teach the little one to read its mother's lips; and then must show how much wiser it will be for the mother to have a trained teacher come, if only for one week, to train the mother first, before the mother undertakes to teach the child to speak, to use its voice; otherwise its speech may be far from satisfactory, though its ability to read speech may be excellent.

And it was a knowledge of this pressing need that prompted the generous donors to make it possible for all mothers of deaf children to possess just such a helpful manual.

April 7, 1917.

TO THE EDITORS AND OWNERS OF NEWSPAPERS.

Dear Sirs:

We respectfully call your attention to the enclosed circular in regard to the common house fly, with the request that you publish it in your paper for the benefit of the community. The health and welfare of your readers must be of vital interest to you, and we believe that any suggestion for the eradication of this dangerous and annoying household pest will be appreciated by every one fortunate enough to see your paper. We would also suggest that you call the attention of the pastors of the churches in your circulating territory to the desirability of teaching their people the iniquities of the house fly. Furthermore, school trustees and teachers would find it instructive and interesting to em-

phasize the importance of this matter in talks to the pupils on the subject. There are a number of authorities who believe that the germ or virus of infantile paralysis is disseminated by the fly and all efforts should be directed to prevent a recurrence of last year's dread experience by this agency.

Yours truly,

THE MERCHANTS' ASSOCIATION OF NEW YORK.

KILL FLIES AND SAVE LIVES.

Kill at once every fly you can find and burn his body.

Observers say that there are many reasons to believe there will be more flies this season than for a number of years.

The killing of just one fly NOW means there will be billions and trillions less next summer.

Clean up your own premises; see and insist that your neighbors do likewise.

Especially clean "out-of-the-way-places," and every nook and cranny.

Flies will not go where there is nothing to eat, and their principal diet is too filthy to mention.

THE FLY IS THE TIE THAT BINDS THE UNHEALTHY TO THE HEALTHY.

The fly has no equal as a germ "carrier;" as many as five hundred million germs have been found in and on the body of a single fly.

It is definitely known that the fly is the "carrier" of the germs of typhoid fever; it is a widely believed that it is also the "carrier" of other diseases, including possibly infantile paralysis.

The very presence of a fly is a signal and notification that a housekeeper is uncleanly and inefficient.

Do not wait until the insects begin to pester; anticipate the annoyance.

April, May and June are the best months to conduct an anti-fly campaign.

The farming and suburban districts provide ideal breeding places, and the new born flies do not remain at their birthplace but migrate, using railroads and other means of transportation, to towns and cities.

Kill flies and save lives!

EDWARD HATCH, JR., *Chairman;*
JOHN Y. CULYER,
DANIEL D. JACKSON,
DR. ALBERT VANDER VEER,
Committee.

April, 1917.

RECIPES FOR KILLING FLIES.

The United States Government makes the following suggestion for the destruction of house flies: Formaldehyde and sodium salicylate are the two best fly poisons. Both are superior to arsenic. They have their advantages for household use. They are not a poison to children; they are convenient to handle, their dilutions are simple and they attract the flies.

PREPARATION OF SOLUTIONS.

A formaldehyde solution of approximately the correct strength may be made by adding 3 teaspoonfuls of the concentrated formaldehyde solution, commercially known as formalin, to a pint of water. Similarly, the proper concentration of sodium salicylate may be obtained by dissolving 3 teaspoonfuls of the pure chemical (a powder) to a pint of water.

OTHER SIMPLE PREVENTIVES.

Any odor pleasing to man is offensive to the fly and *vice versa,* and will drive them away.

Take five cents' worth of oil of lavender, mix it with the same quantity of water, put it in a common glass atomizer and spray it around the rooms where flies are. In the dining room spray it lavishly even on the table linen. The odor is very disagreeable to flies but refreshing to most people.

Geranium, migonette, helietrope and white clover are offensive to flies. They especially dislike the odor of honeysuckle and hop blossoms.

According to a French scientist flies have intense hatred for the color blue. Rooms decorated in blue will help to keep out the flies.

Mix together one tablespoonful of cream, one of ground black pepper and one of brown sugar. This mixture is poisonous to flies. Put in a saucer, darken the room except one window and in that set the saucer.

To clear the house of flies, burn pyrethrum powder. This stupefies the flies, but they must be SWEPT UP and BURNED.

RECIPES FOR STABLES, BARNS AND OUT-OF-DOORS.

Borax is especially valuable around farms and out of doors. One pound of borax to twelve bushels of manure will be found desirable as a

poison without injuring its manurial qualities or farm stock. Scatter the borax over the manure and sprinkle with water.

Lye, chloride of lime, or copperas (sulphate of iron) dissolved in water, crude carbolic acid, or any kind of disinfectant may be used in vaults.

THE ARMY SURGEON.

It is safe to say that the majority of physicians who are considering offering their services to the Government at this time have only a slight conception of the difference between military duties and civilian practice. The glamour of surgery has been cast over the duties of the physician in war time; but the work of the surgeon usually begins only after the duty of the soldier is done. The surgeon repairs the wounded man. The duties of the physician as a medical officer begin with the enlistment of the man before he is a soldier, take him from the recruiting office into the camp of mobilization, accompany him into the zone of war, select the site for the camp, keep the soldier fit for his duty as a fighting man, guard him from the devastation of infectious diseases, and prevent his incapacities from exposure, from bad food and from the thousand and one other conditions of army life which are more dangerous than the bullet of the enemy. There is work for the epidemologist, for the laboratory man, for the ophthalmologist, for the laryngologist, for the dentist and for the diagnostician, as well as for the internist and the surgeon. The surgeon by no means comes first. If any fact has become evident during the last three years it is that preventive medicine is the most important factor in keeping an army "fit," and, therefore, in the final determination as to which side shall be the victor.—*Current Comment—Jour. of the Amer. Med. Assn.*, April 7, 1917.

ABSTRACTS.

Extra-genital Chancres.—*Dr. H. C. Baum,* Syracuse, writes: In regard to extra-genital chancres I am personally impressed with the fact that the common communion cup offers opportunities for the transmission of syphilis. I have under observation a woman who developed a primary lesion on the lip twenty-eight days after taking communion; she had not been away from home nor otherwise exposed to contagion. I also have in mind a young physician who was examining a syphilitic patient when the latter coughed and some of he expectoration struck him in the eye; he immediately washed the eye, but about a month later deveoped a primary lesion near the outer canthus. With Dr. Halstead I saw a primary lesion in the nose resulting from the use of an unclean nose speculum employed by another physician. I have also seen recently a dentist with a primary lesion on the finger. Another recent case was that of the daughter of a boarding mistress who developed a chancre of the lip three weeks after she had been kissed by a middle-aged boarder.

Dr. L. H. Cook, Bluffton, Ind.: About fifteen years ago I saw an instance in which syphilis was spread by osculation. A young man came to my office with a sore on his lip. I recognized it as a chancre and cautioned him. Six weeks later a young woman came to me with a similar lesion on the lip, and on questioning her I learned that she associated with this young man. A couple of months later her two younger brothers, perhaps 7 and 9 years old, visited my office, and both of them had a chancre of the mouth acquired either through kissing their sister or using the same tableware.

Dr. William Allen Pusey, Chicago: I was reminded of one source of infection which had been brought to my mind by a case occurring in a laryngologist, and it is of sufficient importance to call laryngologists' attention to the danger. This was a case almost certainly contracted by the involuntary testing of the temperature of the laryngoscope on the back of the hand after it had been introduced into the mouth of a syphilitic patient. There happened to be an abrasion at the point of contact and the laryngologist came to me with a chancre

at the site a couple of months afterward. Many extra-genital chancres are so atypical that they are apt to go unrecognized, and I am sure among physicians such unrecognized extra-genital chancres are a source of some of the cases of syphilis without the history of a chancre. Within a few weeks I have seen a chancre in the hand of a physician which would have escaped recogntion and the patient would never have known he had syphilis until something developed later, if it had occurred in the days before we could demonstrate the spirochetes, or had the Wassermann reaction. In my experience in private practice chancres of the lip have not been nearly as frequent as they are in statistics. Dr. Cole called attention to the importance of wearing gloves when examining syphilitic patients. I think a much more practical safeguard is to be careful to seal up with collodion abrasions and fissures about the hands. It is not practical to have rubber gloves always on the hands when examining syphilitic patients. This is especially true of dentists, who are exposed to this danger. The safeguard which is practical, and which we should all avail ourselves of, is to avoid breaks in the epidermis as far as possible, and to seal them up immediately when they occur. While I hold no brief for the barber, I would mention the infrequency with which I have seen chancres about the face which seem traceable to the barber shop. It is surprising that they are not more frequent.

Team-Work in Germ-Land.—A "common cold" is a mixture of diseases—the product of team-work on the part of several different kinds of bacteria. This, we are assured by Dr. Irving W. Voorhees, writing in *American Medicine* (New York, February), is the reason why so many colds successfully resist all ordinary remedies. If a cold were not so familiar a disease that it has become an object of contempt, not to say of ridicule, we might know it as it is—not only one of the most uncomfortable of maladies, but the forerunner, often of much worse afflictions. The medical profession, says Dr. Voorhees, is now agreed that a cold is something more than an annoyance. Associated with the "cold" germ, or micrococcus of catarrh, there is not infrequently the germ of pneumonia or that of tuberculosis. Once the soil is prepared by what seems to be an infection of no real significance, there is no telling what complications may ensue. The doctor goes on:

"Because a cold is an acute infectious disease it should never be

neglected. If its tendency to infect were widely understood, it would be one of the reportable conditions along with scarlet fever and diphtheria, and no physician could pass it by carelessly without laying himself open to severe criticism and a fine for neglecting a public duty.

"Because most people seem to recover from a cold with no more apparent aftermath than unpleasant memories, it is looked upon as a necessity of modern life, or at least as an unkind visitation of fate. Nevertheless it is only too often the precursor of a prolonged illness and, ultimately, of a fatal issue. The determined effort of the Board of Health of New York City to prevent droplet infection in public conveyances ought to be heartily supported. It may be an impossible task, but it is surely worth trying. Perpetual warfare ought to be waged against those who wilfully cough and sneeze 'into the open' without protecting the face with a handkerchief. It is common practice to go through the paroxysm first and to produce the handkerchief afterward, and it is perfectly surprising to see people do this whose every gesture would indicate that in all other respects they had been perfectly brought up. . . . Spitting on the floor is in reality much less dangerous to public health than this sputtering of fresh germ-laden spray into the air-ways of defenceless passengers. Coughing or sneezing into the strong sunlight gives one a very vivid impression of how far particles can be projected even though the word bacteria may be unknown to him. During every moment of our earthly existence we are constantly inhaling and exhaling. Many thousands of cubic feet of air are thus taken in and given out during each day, and this goes on at night just as well as during our waking period. Imagine, therefore, what takes place when a person with an acute cold, for instance, enters a crowded hall. . . .

"It is coming to be recognized more and more that many, if not most, of the acute infectious diseases are air-borne. This must be true, for they first manifest themselves on the mucous membrane of the respiratory tract. Scarlet fever, measles, diphtheria, and many other like infections of childhood first manifest themselves in the nose and throat. Only recently it has been abundantly proved that infantile paralysis is caused by a very minute organism recoverable from cultures of the nose and throat."

If it were possible to isolate every person having a cold, colds

would become as rare as smallpox, Dr. Voorhees thinks. Since this is not possible, what can be done to limit the infection? First, he answers, we can teach a certain percentage of humanity how to avoid scattering the germs. He goes on to explain:

"The more intelligent element can be taught how all infections are spread, and can be depended on to exercise the same kind of care that surgeons and nurses employ in the operating room in preventing the transmission of germs from one patient to another. All discharges should be burned and not handled by innocent persons who know nothing about the ways of transmission. Inexpensive handkerchiefs should be used and promptly destroyed, not washed in public laundries. The patient should be taught that his hands and clothing catch the discharge and may transmit it to others. Close contact (kissing, petting, etc.) should be interdicted.

"A very important thing is to secure prompt and efficient treatment at the very beginning. In going over my personal records, I find that fully 95 per cent. of all patients coming for treatment do not appear before the third or fifth day. The infection is by that time pretty thoroughly established and constitutional symptoms of headache, chilly sensations, muscular pains, fatigue, etc., are in evidence. Very seldom has any effectual effort been made to check the trouble at its source in the nose or throat, while strenuous measures have often been adopted toward constitutional attack. A purgative, hot mustard footbaths, quinin and whiskey, aspirin, Turkish bath, some concoction prescribed by an obliging druggist, and many things based on superstition and ignorance have all been tried before consulting the nose and throat specialist, who can see just where the trouble lies and treat it accordingly. Direct application of antiseptic agents to the original focus of infection in the nose, throat or lungs is now possible by refined methods which are efficient in 90 per cent. of all cases. . . .

"When local treatment is instituted at home it usually consists in inhalations. These, while of undoubted occasional value, are not sufficiently concentrated to be of bacterial use. There is no doubt that when a cold is well under way, constitutional treatment must often be combined with local measures, but not in every case, for just so soon as the local condition improves the general symptoms clear up also. Local treatment can not be self-applied, for it is obviously impossible

for any one who does not know the anatomy of the nose to see what he is doing—in fact, the specialist does not always find it easy even with all his resources. . . .

"This direct method of treatment is so successful that it is perfectly surprising how few people know that it can be done. If it were widely known days of anxious suffering could be avoided. Every nose and throat specialist is equipped to carry it out thoroughly and efficiently."—*Literary Digest*, April 14, 1917.

Treatment of Epithelioma by Radium—Russell H. Boggs.

The writer emphasizes the fact in the International Clinics with many photographic illustrations that in each case the proper form of radiation and dosage for each case must be carefully determined.

Four classes of Epithelioma are to be considered:

First, the lesion which can be cured by one application of radium with the proper dosage.

Second, the lesion which is so situated that glandular involvement is likely to take place or has already occurred and the Roentgen ray should be employed as an adjunct to treat adjacent glands.

Third, those cases in which the local application of radium supplemented by the Roentgen ray will only act as a palliative measure.

Fourth, those cases in which excision is justified to be followed by radio-therapy.

Professor Boggs believes that radium and the x-ray should always be considered first in the treatment of Epithelioma, because, when properly applied, practically all Epitheliomatous tissue can be made to disappear and there are fewer recurrences than by any other method. In order to apply the method, however, the operator must have the requisite clinical experience with these growths as well as a knowledge of the use of the agents employed.

Inoperable cases in which the tonsil is involved are often markedly improved so far as symptoms are considered.

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Editorial

TO THE MEMBERS OF THE O., O. AND L. SOCIETY.

THE importance of co-operative work in medicine is to-day being recognized.

Through the scientific work of groups of internists, laboratory men and specialists, our knowledge of many formerly obscure conditions has been materially increased and the causal factors of these conditions in many cases demonstrated. The results of the work thus far accomplished have done much to educate the profession. It has brought to its attention the necessity for harmonious work in order to obtain the best results; it has taught the individual in medicine the value of the work of others and it has proven that in order to reach definite conclusions concerning many diseases a thorough co-operation of the internist, the specialist and the laboratory worker is necessary. As a further result of this work there is noted the tendency to a closer relationship between these various workers in medicine. This is a healthy tendency; it is one which spells for the future greater advances in the diagnosis and treatment of diseased conditions; it is a progressive movement and one which every member of the profession should assist in advancing.

The association of many ocular, aural, nasal and pharyngeal conditions with systemic disturbances had long been recognized. Through co-operative work of groups of physicians it has now been proven that the origin of many of these systemic disturbances is from foci of infection and that the vast majority of such foci are found in some portion of the head, especially the nasal accessory cavities, the tonsils, the ear and the teeth. As the result of these provings the work of the rhinologist, the aurist, the ophthalmologist and the dental surgeon has grown in importance and the influence of these workers has be-

come of great value in the searching for causal factors. A great impetus has been given to these men and great and rapid strides have been made in these special fields.

Recognizing the importance of co-operative medicine and the important part played by the eye, ear, nose and throat specialist, the A. I. H., as usual a very progressive body, has invited the O., O. and L. Society to meet with it in two joint sessions during the coming meeting of the Institute. At both of these sessions the contributions will be entirely by members of our Society and the class of papers will be of such merit that great credit should be reflected upon our Society.

In order to make this new feature as great a success as possible there should be a large attendance of our members present so that an active and strong discussion will take place. In this way the work of our Society and its members will be strongly brought before the profession and our Society will do much to advance the interests of co-operative medicine.

GILBERT J. PALEN, M. D.,
President.

WHAT OUR ENLISTMENT SHOWS UP.

(The associate editor of this month's issue has been out on an active service for some weeks in connection with recruiting, and apologizes to the subscribers for the delay in the issue, for which his occupation is somewhat responsible.)

ONE note of interest sounds strong to the public in general at this time,—what is a fit man and how many of us are fit. It is regrettable in answering this question that our hopes and anticipations are disappointed in the poor showing of the average city man who has lived along in the confidence that such a possibility as a "rejection" was far out of the question. I will not state the proportion of rejections I have made, but will say that they are exceptionally higher than what I had found in years of examining for volunteer organizations. And this is not due to the "stiffness" of the physical examination which, if anything, is more liberal. The fact is that, as we physicians have always been emphasizing, many have serious faults of which they are ignorant. These faults are often not

present disabilities, but most are future possibilities of trouble. To us the frequency of eye rejections are of interest, for these comprise the majority of the rejections I have met. Many are unconscious of their poor vision, many are using one eye to the development of disuse in the other.

Pyorrhœa and poor dental work are in abundance in the recruits. Smokers' throats are commonplace, but other throat conditions rare; intra-nasal trouble is also rare.

Generally, then, the impression that our officers of the (Medical) Reserve Corps will get on starting out in their work will be the desirability of the oft endorsed annual physical examination for the civil population.

D. M.

WHAT IS OUR MOST SERIOUS NEED?

IF the above question were put to half a hundred medical men I wonder if there would be two in absolute agreement. It is doubtful. There would be agreements of a general character, of course. There might be some relative to the main point. But as to how we should work to get to this point, what route we should take,—here would be discord and trouble.

And this will continue to be the case until we come to an agreement as to what constitutes the fundamental factor in our problem.

Disease itself, it must be readily seen, is not that factor, is indeed not so important a matter as is the question of what is the most essential factor in disease. By this I mean that thing which is ever present in disease and in which disease develops and determines the peculiarity of the clinical course which it takes.

We have so far as I am able to see, throughout all the past, considered the product of morbid processes as being the thing we call disease and the thing which calls for treatment; the thing which demands primary consideration. We have never been able to get away from this fallacy, for fallacy it is. We have clung to it with the tenacity of a bulldog. Wherein lies the evidence that it is a fallacy? In this: that symptoms and pathological states vary in different individuals; that they vary in the same individual under different conditions; that they mean one thing to one physician or school of phy-

sicians and a different thing to another: that every therapeutic scheme that has ever been thought of and based on these things has met with failure when generally applied in practice; and, lastly, the muddled up and unsatisfactory condition of our so-called science to-day. This last is alone proof that we either never were on the right track or else that we have jumped it. If bacteria, pathological states and symptoms are the fundamental things how is it they have so widely different a meaning to physicians? There are physicians who ignore everything but bacteria, others subjective symptoms, others something else. Each employs a certain line of treatment based on his own conclusions, and it cannot be denied with a certain, and possibly equal, degree of success.

Why is it so difficult to see that there is an element of truth in each of the various theories, as well as an element of nonsense? Nonsense we all see, but it is always in the other fellow's philosophy,—never in our own.

Isn't it true that no matter what theories we entertain regarding etiology, pathology and all the rest of it, we always have in the presence of the sick man a deep desire to know something of the individual's own peculiar make-up in addition to the nosological make-up? Isn't there always a feeling that behind the symptoms there lies something of importance, something that it would be helpful if we only knew it? I know I have always felt this. And isn't it possible that the cause of routinism in prescribing is due to the fact that we don't know more about the peculiarities of the individual patient? I am convinced that this is so. Just so long as we take note of the common and universal facts of disease only just so long will we deal in generalities in prescribing: and this means routinism. But it also means unscientific diagnosis. Indeed it means unscientific work all round, since we are dealing with only partial facts.

The individual is clearly the *sine qua non*. It is he who is sick, and sick in his own peculiar way. His sickness has elements in it which are not found in any other individual, just as he has elements in his normal physical make-up which are peculiar to himself; and these things, as I have just said, we have a sort of sub-conscious feeling, are important in the case and ought to be understood.

Science tells us that there is a direct relation between the char-

acter of the structure of an organism and the character of its functions and reactions, and, furthermore, a direct relation between the degree of development of an organ and its functional activity. We are told that this principle holds true throughout the entire organic kingdom.

This ought to mean much to us as physicians. We ought to see from this that function,—physiological and pathological—must forever remain an enigma while we remain ignorant of the basic factors of function. While the facts of organization remain shrouded in mystery it is not possible to have a clear and comprehensive understanding of what organization does. What do the symptoms of a drug mean to us while we are ignorant about the thing in which the symptoms develop and which determine their peculiar expression? Nothing, absolutely nothing! We simply know that something occurs, and that is all. Why it occurs in one way in one person and in a different way in another is beyond our grasp; it has no meaning to us whatever.

Hence the reason why we cannot learn materia medica. We struggle to commit to memory symptoms, and at the bedside endeavor to match symptoms of drugs and of disease. Often we succeed. But is this science? By no means! Such a method hasn't the least semblance of a science, since it hasn't a single conscious scientific element in it. It is a pure memory procedure.

The thing we stand most in need of in Medicine to-day is a clear cut and scientific method for investigating the individual as well as the disease. We need the key that will unlock to us the great world of facts behind those which now occupy all of our attention, and upon which we have so earnestly yet so insecurely built in the past, and are building now. We have always been earnest and sincere in our efforts, of that there can be no question. Yet nothing is so conspicuous in medical history as the kaleidoscopic changes in our therapeutic systems. We clearly have never struck rock bottom.

What appears to me to be the most vital thing in the situation today, and the thing most urgently demanded, is the incorporation into the medical college curriculum of the study of human morphology. And not only must it be incorporated, but it must be given a conspicuous place. It must not only be taught theoretically, but practically, as well. It must be applied in the clinic. The student must be

shown that the peculiar and varied manifestations of morbid processes are determined by the peculiar and varied conditions of the different organizations, and that these clinical manifestations can only be understood when we can understand what lies behind them. After that he must be shown how to get at these facts.

Furthermore, the science of morphology must be applied to the study of materia medica. It can be, and must be, shown that symptoms are in relation to organization. That is to say, certain persons react to a given drug in a certain way because so organized that they can react, and others do not react because differently organized. Drugs must be tested, or, as we usually say, proved, with the character of the organization in mind. In this way we get hold of not only the symptom but also get an objective view of what lies behind and which gives it its special expression. An understanding of morphology will enable us to uncover all these fundamental facts. It will take us to the root of matters; and only when we get there will we be able to build scientifically and substantially

If these things are not so then there is no scientific basis to any one of the so-called biological sciences. The science of physiology is then a pure myth. If there is no relation between character of organization and function then it is never possible to say, *a priori*, what the character of function of an organ is from an examination of the organ. The function of the heart, as we find it in a person, then, is a mere accident. A denial of this principle is nothing less than saying that the heart may perform the function of the liver and *vice versa*.

But some one may say that this is too silly for words. And so it is. But it is no more silly than it is to say that John Jones and Joe Green must of necessity function alike, be predisposed alike, be susceptible alike, when one has a dominant thoracic development and the other a dominant abdominal development. Like function and reaction demand like organization. Variation in function and reaction proves variation in organization. And what is more, it proves that an understanding of function and reaction is dependent upon a previous understanding of the thing which functions and reacts.

What we need most of all, then, is a method of gaining an understanding of this fundamental thing—organization. After we have gained this, then we, as homœopathic physicians, must retest our drugs

in order that we may determine what lies behind the symptoms and thus be able to understand their peculiarities and meaning. Until we have such a method and do this work we will continue to grope and fumble. We will go on growing weaker and weaker, not only as a school but as a profession.

Philip Rice.

FADS.

THIS is hardly the subject, one would think, at first glance, to present in a journal of this nature, yet it seems to me that it appeals more to the specialist than to the general practitioner. The specialist is more closely confined to office work, sees cases of a certain class, and is more apt to get into a rut in his work, and needs something of an entirely different kind to vary the monotony of it and broaden his ideas. Someone has said that a rest is a change of work, that to do nothing is not a rest,—and this I believe to be as true a word as was ever spoken.

I knew of a professional man who some years ago had the fortune to make a lucky strike in a mining investment that resulted in an independence. He thought to retire from work and succeeded in remaining idle for about two years when, knowing nothing else to occupy his time, he had to return to his routine work. I say that man was to be pitied. A few days ago I had occasion to call on one of our men here who is in a special line of work; there were perhaps a dozen patients in his waiting room; he saw me at once as I would take only a few moments of his time. In his working office he said to me,—"Doctor—I am working too hard. I have no time for so many other things I want to do." I felt sorry for him and spoke of my idea of a fad (only for a few moments), but it interested him, and he said he would like to have a further talk with me on that subject.

Now what do I mean by fads? Let me illustrate with an example: About twenty years ago I was one of the organizers of a club for the study of land and fresh water shells. We make frequent collecting trips in the summer and it is surprising how much one sees when there is an object in view and how one goes back to work with greater energy. Papers are read by the club members during the winter and a pleasant social time enjoyed. Last winter my paper was

on Pearls, and with the help of the Government Department of Fisheries I learned more about pearls than I knew before,—so much so that if I had time and means I would like to take up and develop the raising of them systematically. That would take perhaps years, but they would be filled with pleasure and perhaps profit. This is but a single example, and yet I have many, many fads I would like so much to develop had I time and means.

Now why these remarks on a subject so far apparently removed from our regular work? Doctor, do you not think that it would be good for you to think over this idea for your own self? Will you not do better work if you get completely away from it occasionally? Furthermore, I think this idea can be taken into our office with us and used to advantage with our patients. There are many, many neurasthenics who dwell upon their ailments and by so doing aggravate their condition instead of helping us in our efforts for their recovery. By a little questioning we can find what they are interested in and encourage them, and by so doing bring about a better condition for final recovery. Every one, I believe, has his or her fad, and if we develop our own particular one, and encourage those of our patients I believe we will do better work and get better results. In any event we will, with the assistance of our fad, get more pleasure out of our own work.

FRED. D. LEWIS.

ARE ROENTGENOGRAMS AND ROENTGENOLOGISTS INFALLIBLE?

THIS is a question that has been disturbing my peace of mind for the last month or so. It may be that up to that time I had more faith in Roentgenograms and the Roentgenologists' interpretation of them than they deserve. At all events my faith has been somewhat shaken since. From now on reports from the Roentgenologist will be accepted with a little grain of salt, and accepted conclusively only when they tally up with the clinical findings. The experiences which shook my faith were two. I shall cite them briefly.

The first was that of a patient whom we shall call Mr. Black. He has suffered with rather severe attacks of vertigo off and on for the last eight years. Careful examination, using every method known

to the eye and ear specialists, led me to localize the lesions in the eighth nerve on the right side (both branches). The type of lesion was destructive in contradistinction to the irritation. All other cranial nerves showed normal reactions. Wassermann was negative; symptoms or signs were present suggesting increased intracranial pressure. The patient was rayed by an expert of large experience. His interpretation of the negative made off the skull led him to conclude that the patient had a neoplasm in the parietal region anterior to the leg center on the right side. Had there been a tumor in this region two inches in diameter, as the Roentgenologist had claimed, it should at least produce some headache and choking of the disc, both of which were absent. Besides a right-sided lesion in this area would not produce symptoms and signs of right-sided eighth nerve lesion. The patient has since improved considerably under treatment, and, in his own words, is feeling considerably better in all respects than he has for over a year. A detailed report of the case will be made at some future time.

The second case was that of a patient whom we shall call Mr. White, who had suffered from severe headache over a period of four months, especially marked on the right side in about the same region and on the same side that Mr. Black's tumor was related to have been. Besides there was marked choking of both optic nerves, the right more than the left. There was no involvement of the other twelve nerves except perhaps in the first and ninth. The patient's mental condition was so poor at the time of the examination that it made it difficult for me to say positively that they were involved; however, there was sufficient doubt that I recorded it so on the record. The same expert Roentgenologist reported, not to me, but to those who were on the case before me, that there was no evidence of tumor. At the operation I found a goose egg sized sub-dural cyst containing very dark blood stained fluid and old clots in the region of the pars opercularis of the frontal lobe.

In the case of Mr. Black, the Roentgenologist diagnosed a large neoplasm which did not tally up with the clinical findings; besides the patient has improved since. In the case of Mr. White, with a large cyst (clinically tumor), he excluded tumor.

To one who has depended so much upon the Roentgenologist in

the past, this last month's experience has been rather disappointing. Although my faith has been shaken, it is by no means lost. Don't we, in our specialty, make just as crass errors at times as the Roentgenologist? Of course, we do. Let us acknowledge it. We make errors when we feel the cock-surest. Those who have some knowledge are generally credited with knowing considerably more by those who know less, while those with less knowledge are often credited with even less by those who know more. The moral is to study your case well and accept the other fellow's opinions when they balance with your own or when he has freed you of your error.

G. W. M.

MEETING OF THE O., O. AND L. SOCIETY.

THE meeting of the O., O. and L. Society, as announced in the May issue of the Journal, will have its headquarters at the Hotel Rochester. It is advisable that early reservations are made by writing to the manager of the hotel; the rates will be found in the May issue.

The Rochester members of the Society have been putting forth every effort to make the meeting a success from a clinical standpoint and we are assured a day of clinics and clinical cases in addition to the excellent number of contributions by members of the Society. These will include a variety of papers, case reports and lantern demonstrations.

We trust that the members will turn out loyally and assist in making this meeting a great success.

Gilbert J. Palen, M. D.,
President.

QUINSY.

Joseph V. F. Clay, M. D.,

Philadelphia, Pa.

TO properly appreciate the occurrence of peritonsillar abscess it is essential that one have a clear understanding of the anatomy of the tonsillar fossa and its relations and the position of the tonsils within the fossa.

From the median line of the soft palate, mingling with the muscular fibers at the base of the uvula, we find extending downward, outward and backward a thin ribbon-like muscle which is lost in the muscular tissue of the postero-lateral pharyngeal wall and fuses with the stylo-pharyngeus muscle. This muscle is the palato pharyngeus, and, covered with mucous membrane, constitutes the posterior faucial pillar. Extending from the base of the uvula, downward, outward and forward, is a second muscle, broader, longer, and more or less triangular in outline. It finds its attachment at the base and side of the tongue and is known as the palato-glossus muscle. With its mucous membrane covering it constitutes the anterior faucial pillar. These muscles, diverging from the base of the uvula, outline a space more or less triangular in shape, the depth of which from the free margins of the pillars to its base, which is formed by the superior constrictor muscle of the pharynx, varies in different instances. This space constitutes the tonsillar fossa, which is occupied by the tonsil, surrounded by its capsule and attached to the margin of the palato-glossus and palato-pharyngeus muscles. In the upper extremity of the tonsillar fossa is a small triangular area lodging in some cases the superior pole of the tonsil, while in others it is simply bridged over by a fold of mucous membrane from the anterior to the posterior pillars forming a cul-de-sac.

Normally the capsular surface of the tonsil, as it occupies the tonsillar fossa, is not found attached to the constrictor muscle (Davis). This arrangement affords space above, anteriorly, posteriorly and laterally, where pus pockets may form. In cases where the tonsil is

submerged, whether they are large or small, the tonsil is tucked into the supra-tonsillar fossa and restrained by the plica. This anatomical condition interferes with free drainage of the tonsillar crypts and favors the development of quinsy.

Quinsy or peritonsillar abscess is usually a streptococcus infection starting as a superficial tonsillitis, a deep lacunar or follicular tonsillitis, or a deep suppurative tonsillitis in which the gland becomes the seat of an abscess. It is conceded that peritonsillar invasion is a result of extension of the infection through efferent lymphatics. In some instances pretonsillar invasion is very slight, consisting merely of a slight redness and swelling of the tonsil and the patient complaining only of a slight sore throat.

There seems to be little doubt as to the anatomical arrangement of the tonsil favoring the development of quinsy. Tonsils with open crypts, but thoroughly free, the superior crypts having free drainage, show less tendency to the development of quinsy. Tonsils which have a thoroughly developed plica, large submerged or small submerged, the tonsils being snugly enclosed by the arches and plica and well pushed into the supra-tonsillar fossa, certainly present very favorable arrangement for quinsy formation. Their crypts are shut off and infection once established these tonsils usually continue to be bacterial incubators, in which the infection, latent often for a period, may be fanned into activity by a lowering of the bodily resistance or secondary infection. Collections of pus may remain for long periods, being pent up in the peritonsillar space or in the tonsil itself. Every operator has encountered these pus pockets in this region during the operation of tonsillectomy. We have seen four of these cases within the past year. In none of these was there any local evidence of the existence of the localized abscess. One of these cases had had frequent attacks of quinsy, but, at the time of operation, was free from acute symptoms although there had been an attack of peritonsillitis several months previously.

It is claimed that tuberculosis and kidney conditions favor the development of these tonsillar infections. We do not feel that these diseases have any more tendency to predispose to the development of quinsy than any other depleating disease. Albumin in the urine during an attack of quinsy or any severe bacterial invasion of the throat

or other organ is rather to be expected. Certainly these cases offer less resistance to the invasion.

Quinsy is a condition common to adult life between the ages of seventeen and thirty-five years. However, we frequently observe the condition in early childhood. The writer has seen it in a child of four years and it is not uncommon in persons over fifty years. One attack predisposes to another. This is the general observation of most clinicians and our clinical investigations have supported this. One patient under our observation, a woman of fifty-five years, came under our care ten years ago, giving a history of annual attacks from the time she was twenty-five years of age until she was fifty. Between this and her fifty-fourth year she was free when she again had two severe attacks.

Preceding the onset of the peritonsillar symptoms there is usually the complaint of a sore throat or a feeling of fullness. There may be associated symptoms of a febrile invasion chilliness, general aching and malaise. The temperature may be high, reaching 103 degrees F. or this preliminary angina may be afebrile. Inspection of the throat reveals a simple tonsillitis, the tonsil swollen and the arches reddened. Sometimes a follicular tonsillitis occurs, the surface of the tonsil being studded with a grayish white exudate presenting in the mouth of the crypts. This exudate, at times, spreads over the entire tonsil, giving the appearance of a membrane—indeed not infrequently the picture is very suspicious of diphtheria. Only cultural investigation will positively differentiate.

As the peritonsillar tissue are encroched upon, there is a sense of deep soreness with dysphagia. Early this is due to the irritation of the tonsillar plexus which is formed from filaments of the glossopharyngeal under cover of the hyoglossus muscle. Commonly pain in the ear and dull hearing are complained of and usually this is reflex through the nerve anastomoses—the branches of the glossopharyngeal through their communication with the otic ganglion through the small superficial petrosal nerve. This, however, is not always entirely reflex. At times a true aural inflammation exists so that a careful objective watch must be exercised to note changes in the drum-head indicating invasion of the tympanic cavity. This overlooked may add not only further suffering, but danger through ex-

tension of the process to the mastoid. We have observed a number of cases in which a quinsy was complicated by a suppurative otitis media and even a mastoiditis.

Dysphagia is a prominent symptom in quinsy. This may be marked early before great swelling is present and is due to irritation of the nerve endings and the associated myositis of the pharyngeal muscles. Later the dysphagia is distinctly mechanical, the bulk of the tissue swelling rendering the act almost impossible.

Salivation is another annoying feature of quinsy; this also is an early manifestation, the patient notices large quantities of saliva in the mouth and this surplus of secretion calls for increased frequency in deglutition with its accompanying pain. This hypersecretion may be explained in part by a study of the nerve anastomoses. The parotid gland receives its nerve supply from the auriculo temporal—the great auricular and the carotid sympathetic. The auriculo temporal is a branch of the tri-facial and communicates through slender filaments with the otic ganglion which conducts secretory fibers from the glossopharyngeal to the parotid.

The voice is usually altered being husky, and phonation, like deglutition, is attended by great pain.

Stiffness of the jaws is another prominent symptom and in some cases quite intense amounting to a trismus. This symptom is usually very much intensified because of the pain occasioned by attempts to open the mouth.

Suffocative attacks are observed during the course of a quinsy. This is due to the marked swelling of the tissues. The uvula in many instances is found tremendously swollen. We recall a case in which we were asked to see a case of a large post-nasal polypus. Upon examination a peritonsillar abscess was found and associated a uvula which was markedly œdematous. In another case seen by us last winter we were asked to come prepared to do a tracheotomy because a quinsy patient was suffocating. Upon examination we found a uvula so œdematous that it completely blocked the space between the arches and pharynx. Very free scarification of the uvula and incision of the peritonsillar abscess relieved the condition in both cases.

The swelling in the peritonsillar region may be so extensive as to materially cut off the breathing. Œdema of the epiglottis and larynx occurs and presents a very alarming clinical picture.

Headache in these cases is at times very intense; in fact, some cases presenting a state of menengismus;—hyperpyrexia, photophobia, and muscular twitching. This is very probably due to the toxæmia.

Quinsy is a septic infection and it is common to observe a chill early in the process and chilly sensations at intervals with marked sweating.

The pulse and respiration are accelerated usually in proportion to the temperature range. They cannot sleep or eat and are in constant pain. The spectacle presented by a patient suffering from quinsy is pathetic. They are prostrated, the respiration obstructed. the mouth constantly filling with saliva calling for continuous efforts to swallow, which act causes atrocious pain and they are further tormented with a violent headache and general distress of a high temperature.

The cervical lymphatics are frequently involved. The tonsil and peritonsillar region drain into the upper deep cervical lymph nodes. We have seldom encountered suppuration of these glands during quinsy.

In a goodly percentage of cases of quinsy both sides become involved, the second tonsil takes on activity as the original attack is subsiding.

If not evacuated, rupture of the abscess occurs through the anterior pillar or between the pillars at the upper border of the tonsil and when this occurs usually there is prompt and complete relief from all suffering, the patient settling into a sound sleep the first he has had for days.

The complications of quinsy are:

(1) Septic thrombo phlebitis.

(2) Rupture during sleep, inspiration of pus and strangulation.

(3) Dissecting abscess (downward involving the larynx).

(4) Hemorrhage.

(5) Infection of middle ear and mastoid.

Septic thrombo phlebitis is a rare complication of peritonsillar abscess, but does occur and follows the same course as when it occurs from septic processes elsewhere. Metastatic abscesses are also found associated with this. Rupture during sleep and the inspiration of the septic material into the larynx is another unusual complication of quinsy. That it does not more frequently happen is perhaps due to

the fact that these patients rarely can sleep until the abscess has opened. Burrowing or dissecting abscess is noted in a very small percentage of cases, this process usually following the fascia. Strangulation has occurred by the accumulation of pus and rupture into the laryngopharynx. That hemorrhage is less frequent in these cases is due to the fact that the great vessels in the vicinity are protected by a considerable barrier of connective tissue and a tough sheath. A number of cases of involvement of the internal carotid artery with resulting fatal hemorrhage have been recorded. Hemorrhage has also resulted from erosion of the lingual artery. Newcombe collected fifty-one cases of hemorrhage in which twenty-eight were fatal. In sixteen cases the internal carotid artery was ligated in one case without the slightest effect upon the hemorrhage. In one case both the internal and external carotid were ligated and one case the common carotid.

Infection of the middle ear and mastoid is a complication to be feared. This occurs through contiguity of structure and through the lymphatics. Most careful examination of the ears must be practiced in order to detect the inception of the involvement of the middle ear. Not infrequently peritonsillar abscess is a complication of and follows acute mastoiditis, and in these cases careful investigation shows that the tonsil was really the original source of infection.

Quinsy must be differentiated from aneurism, malignancy, diphtheria and syphilis. In malignant conditions there is more or less ulceration which is not commonly observed in quinsy. The rapidity of onset of quinsy is not common to the advent of malignant conditions. Diphtheria offers a little more difficulty in differential diagnosis and certainly the only positive differentiation is the presence or absence of the Klebs-Loeffler bacillus. It is wise therefore in cases of quinsy presenting an exudate to culture it at once. In luetic conditions the tertiary or gummatous lesions would be the only ones offering suggestion of quinsy. The acute inflammatory symptoms, local and general, would be absent in gumma. Quinsy usually presents no difficulty in differentiation from aneurism. The almost invariable inflammatory character of the lesion in quinsy will aid in differentiation.

Treatment. Before the peritonsillar involvement is marked, there

being simply an inflammation of the tonsil itself, the treatment consists in rest of the patient in bed, bowels to be opened by a saline and the patient is placed upon a light nutritious diet. Locally we advise the application of iced compresses to the throat. This is often supplemented by having the patient use small pieces of ice in the mouth. An application of equal parts of tincture of lavender and spirits of turpentine to the tonsils and tonsillar region will temporarily allay the pain. It is our opinion, however, that local application has but little effect in aborting the condition. Gargles are of little or no value and it is usually impossible to have the patient perform the act on account of the distress occasioned thereby. Sprays are in favor and more likely to reach the point. Equal parts of sodium salicylate and bicarbonate of soda, one teaspoonful to four ounces of warm water and sprayed into the throat, will temporarily relieve pain and lessen the stiffness of the pharyngeal muscles. The original point of infection is the tonsil and this is a bacterial invasion. The conquering of the condition depends upon the patient's ability to muster up sufficient fighting force to combat the invading organisms. Theoretically the autogenous vaccine should be a valuable force in handling these cases, but the length of time required for the preparation of this limits its use to combatting the systemic symptoms, for the local condition has usually progressed to abscess formation by the time the vaccine is procured.

There are some homœopathic remedies which according to our clinical experience exert an abortive influence on this condition. The first of these is lachesis. This case starts out severe from the onset, the patient is prostrated from the beginning, they have the characteristic sense of constriction, cannot swallow liquids, will not tolerate the slightest thing about the neck. They sleep in short naps to awaken startled and much worse. The tonsils are purplish, there is a dark purplish streak along the arches. *Phytolacca* is another remedy in early quinsy; there is pain at the root of the togue; throat feels rough; pain in throat extending into the ears. Cannot swallow anything hot. The phytolacca case presents a dark, dusky throat with an œdematous uvula and an exudate of the tonsils. (Apis.)

Belladonna: throat dry, red; liquids swallowed with difficulty, constricted sensation; inclination to swallow frequently.

Mercurius: bluish red swelling; burning in throat, stitches in ears on swallowing.

When it appears impossible to abort the abscess formation and there is marked swelling, surgical intervention only will afford the patient the looked-for relief. It is not necessary to subject the patient to the unpleasantness of palpating with the finger. If the examiner is not content to use the knife before palpating, a blunt probe will occasion less distress to the patient. The application of a local anæsthetic usually serves to prolong the agony by further manipulation and it will be remembered that inflamed mucous membrane resists the action of these local anæsthetics.

The abscess is usually above the tonsil so that the greatest swelling presents at the upper border of the tonsil. However, if the abscess be located posteriorly the posterior arch will present greater swelling. The incision is made with a curved sharp pointed bistoury. This should be introduced through the anterior pillar parallel with the fibers of the palato-glossos muscle. If the swelling is posteriorly, the incision is made posteriorly. If pus is present and the incision has been made sufficiently deep, the pus will escape and the patient will have instantaneous relief. At times the abscess will be missed by a too small and a too superficial incision. A good plan is to make a deep thrust with the bistoury, then introduce a pair of nasal dressing forceps open and withdraw with the blades of forceps open. This will often break up a well organized abscess wall and enlarge the opening. If this searching procedure does not evacuate the abscess cavity and it is not deemed expedient to use the knife deeper, a grooved director may be passed into the wound and search made posteriorly for the pus. One German Levinger goes so far as to enucleate the tonsil. We have not practiced this, but we have liberated the entire upper pole of the tonsil in order to afford drainage and relief.

If pus is not found and relief not afforded by the incision, suppuration may be encouraged by external application of heat in the form of flaxseed poultice applied to the neck.

After excavation of the abscess by incision or spontaneously through rupture, the abscess cavity must be watched for several days following the opening and dilated daily. Failure to do this may result in a refilling of the cavity and recurrence of the symptoms.

Tonsillar abscess within the substance of the tonsil must be liberated by incision directly through the substance of the tonsil. Frequently these cases evacuate through a crypt and drain for several days.

During convalescence following quinsy the patient requires most careful attention. Rest, good wholesome diet, the indicated remedy and a change of scene works wonders in bringing about health. The patients should be cautioned not to return to their usual duties until they have thoroughly recovered in weight and strength. Too frequently, however, this return to health is delayed until the focus is entirely removed by enucleation of the tonsils.

Quinsy is one of the real indications for a complete thorough removal of the gland. Partial removal of the tonsil is sure to be followed by disappointment for this procedure does not provide for a thorough liberation of the supra-tonsillar fossa. Tonsellectomy only offers insurance against a further attack and these patients should be advised of this and encouraged to have the operation performed.

2102 Chestnut St.

A surgeon in a Western town engaged to perform an operation of minor character upon a somewhat unsophisticated patient, asked him if he were willing to have only a local anæsthetic.

"Sure," replied the other, "I believe in patronizing home industry whenever you can."

A CRITICISM OF THE COMMITTEE'S REPORT OF THEIR INVESTIGATION OF MY THEORY OF OCULAR MOVEMENTS AT THE MEETING OF THE AMERICAN HOMŒOPATHIC OPHTHALMOLOGICAL, OTOLOGICAL AND LARYNGOLOGICAL SOCIETY AT BALTIMORE.

EDGAR J. GEORGE, M. D.,

Chicago, Ill.

NOT having been given the opportunity to review the papers presented at the meeting of the Society last June by the committee appointed by the President to investigate my theory of ocular movements, I was unable to defend my contentions. But since they have appeared in the December issue of the JOURNAL OF OPHTHALMOLOGY, OTOLOGY AND LARYNGOLOGY, I feel that they should not pass without comment, particularly the papers of J. A. Ferree, M. D., and Charles Sheard, Ph. D., of the Ohio State University, Department of Applied Optics, Department of Ophthalmology of the Homœopathic College, entitled Ocular Movements and the Center of Rotation, as they contained statements that were erroneous, consequently misleading to anyone who had not given the subject thought or serious consideration.

To me the subject of ocular movements is a most interesting and important one, one to my knowledge of which there has been but little research since Listing's time when he promulgated the theory of ocular rotation. Why his theory has so long been generally accepted without question is beyond my conception, as it has never given a reasonable account or a comprehensible understanding of the etiology of heterophoria and heterotropia, consequently their treatment has been anything but reliable or satisfactory. On the other hand, the theory of oscillation does give a definite and explainable understanding of their etiology, that any deviation of the visual lines from parallelism is due to an inequality of the relative length of the recti

muscles, or their faulty insertions. Since I have adopted the theory of oscillation, my muscle work in the correction of heterophoria and heterotropia has been infinitely more satisfactory than ever before.

Three years have passed since I advanced the theory of oscillation and I have not since ceased my investigations of ocular movements, nor up to the present time have I found any reason for changing my views.

They say "that figures do not lie," but untruths can be figured. For myself I am not an expert mathematician, and I dare say there are few ophthalmologists who are, but there are other men who are experts in the mathematics of optics. Mr. C. C. Allen, of the firm of Geo. S. Johnston Optical Company, is a physicist of optics, and together we have gone over the drawings and calculations of Dr. Ferree and Mr. Sheard and found the following discrepancies and mathematical errors in their attempt to disprove the theory of ocular oscillation, which, as said before, would be misleading to one who had not given the subject serious thought.

OPTICAL.

C. C. Allen.

At the request of Edgar J. George, M. D., a complete analysis, if possible, is undertaken of the first, or optical part, of a report entitled "An Ocular Movement and the Center of Rotation," by J. A. Ferree, M. D., and Charles Sheard, Ph. D., for the purpose of determining to a greater extent the value of the statements and conclusions contained therein with relation to the theory of oscillation as advanced by Dr. George.

Referring to Figs. 1, 2, 3 and 4 of this report we quote the consideration of these Figs.: *"We therefore conclude that, for fixation at infinity, the angle subtended by the center of the cornea in moving from one arbitrary fixation point to a secondary fixation point, is the same whether the center of the eye or the macula be chosen as the center of rotation, but that the arcs traversed by the center of the cornea in order that the macula may be in the line of fixation in two arbitrarily chosen directions is twice as great in case the macula is chosen as the center of oscillation as compared with its value if the center of the eyeball is taken as the center of rotation."* These con-

clusions are quite correct yet it would seem that a method of measurement based on the normal stimulus of the eye will lead to a more complete analysis of the subject at issue. The normal stimulus, so far as movements of the eyeball are concerned, is to so direct the eye that the visual axis falls upon the point viewed and, for this reason, *let us consider solely the visual axis of the eye,* the line extending from the macula, through the center of the pupil, to the object viewed. Let the direction of the visual axis when the eye is gazing directly forward from its socket be termed the *zero position,* and let the angle subtended between this zero position and the direction of the visual axis when the eye is oscillated or rotated be termed the *angle of deviation.* When the angle of deviation has reached the extreme angle beyond which the eye cannot fixedly maintain its gaze, let this extreme angle be termed the *angle of fixation.* By thus using the visual axis as the basis of measurement results are secured dependent entirely on the *normal function of the eye to so place itself that the image of the object viewed will be formed directly upon the macula.* The conclusion reached by the authors of the above quoted report is that the angle of deviation will be the same when the object viewed is at infinity according to either of the theories of oscillation or rotation. At finite distances, however, this is not the case as is evident from a consideration of Fig. 8 of the report of which we quote the author's conclusion: "Similar calculations can be made for other fixation distances, and the conclusion will be reached that the angular differences when O, and M, are considered as the rotation centers, respectively, are too small to permit of experimental tests in favor of the stationary macula." O, in this quotation refers to the center of the eyeball and M refers to the macula. With this conclusion, however, we cannot agree. "Straws show the direction of the wind," and if, when the object viewed is located at a finite distance and away from the zero position, a lesser angle of deviation (*and consequently less exertion of the recti muscles as well as less movement of the eyeball within the socket*) be required according to the theory of oscillation than of rotation, *the conclusion must be in favor of the theory of oscillation* and not that the angular differences *"are too small to permit of experimental tests in favor of the stationary macula."* A consideration of Fig. 1 will show these angular differ-

ences clearly. Let the object viewed, O, be placed 6 meters, 3 meters, etc., forward from the center of the eye, C, and the same distance to one side of the zero position of the visual axis, when the angle of deviation, from the center of the eye, C, to the object, O, from the zero position will be 45° according to the theory of rotation. According to the theory of oscillation the center of rotation is at the macula, M, and the visual axis will extend from the macula to the object, O. It is apparent that the difference between the angles of deviation according to rotation and oscillation will be *greatest* when

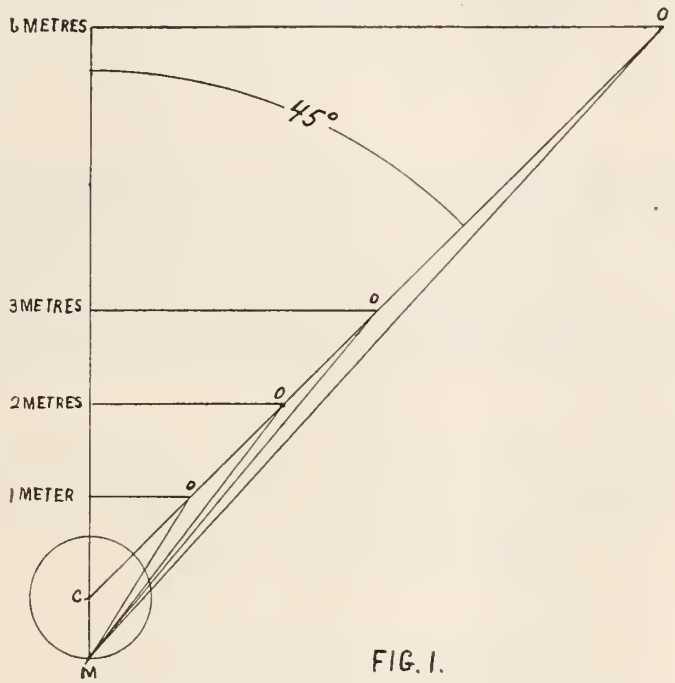


FIG. 1.

the object is *nearest* the eye and that this difference will be less and less as the object is receded until the object reaches *infinity* when the deviation angles according to *both* rotation and oscillation will be the same. We believe that there is a *greater normal tendency* of the eye to view near objects by the oscillation of the eye rather than by the *movement of the head* and that this tendency becomes less as infinity is approached until, in viewing an object at infinity, the necessary movement is practically done *by the head with but little, if any, oscillation.* The man at his desk, the bookkeeper, draughtsman, artisan, etc., oscillate the eyes to a very considerable extent while at their

work, but the same individuals when viewing an object at infinity, such as a star or the moon, *will move the head to such position that practically no oscillation is required.* Table 2 serves to show the exact angular differences of Fig. 1. The object distances are given in the left hand column and the deviation angles according to rotation at the top of the table. Beneath are found the *deviation angles required by oscillation* to view an object which requires the *angles given at the top of the table by the theory of rotation.* As an example, an object one meter from the eye requires a deviation angle of 45° in order that its image may fall upon the macula according to theory of rotation. The deviation angle required by the theory of oscillation will be found in the one meter line of the 45° column, which is

	5°	10°	15°	20°	25°	30°	35°	40°	45°
6 METRES	4°-59′	9°-59′	14°-58′	19°-57′	24°-57′	29°-57′	34°-57′	39°-56′	44°-56′
3 "	4°-59′	9°-58′	14°-56′	19°-55′	24°-54′	29°-54′	34°-53′	39°-53′	44°-53′
2 "	4°-58′	9°-56′	14°-55′	19°-53′	24°-52′	29°-51′	34°-50′	39°-50′	44°-49′
1 "	4°-56′	9°-53′	14°-50′	19°-48′	24°-44′	29°-42′	34°-41′	39°-40′	44°-39′
½ "	4°-53′	9°-46′	14°-40′	19°-34′	24°-29′	29°-25′	34°-22′	39°-20′	44°-19′
¼ "	4°-46′	9°-32′	14°-20′	19°-9′	23°-59′	28°-51′	33°-45′	38°-41′	43°-40′

TABLE 2.

44°-39′, or *21′ of arc less* than the deviation angle required by the *theory of rotation.* The formula for determining these angles are:

$$\text{Tan. angle of rotation equals} \frac{b}{a}$$

$$\text{Tan. angle of oscillation equals} \frac{b}{a + d}$$

Where a is the distance, along the zero position of the visual axis, of the object from the center of the eyeball, b the distance the object is displaced at 90° from a, and d the distance from the center of the eyeball to the macula.

That portion of the report relative to Figs. 5 and 6 must be accepted as the result of a series of individual experiments by the authors. We are unable to find that the text relative to Fig. 7 of the report can be considered as having any bearing whatever on the theories of ocular movement at issue for the reason that *no optical*

tests have been carried out, but the whole discussion is based on a *supposed error* in the correct setting of the strabismometer. *This is simply a discussion of probabilities based on the misuse of the instrument and can have no bearing on the facts of the case.*

We now quote the first portion of the text relative to Fig. 9 of the report. "We are also unable to see how *duction* tests of the various muscles could be made, or if made have any resemblance whatever to our ordinarily accepted sthenic values of adduction, abduction, et. al., if the macula is the center of an oscillatory eye. For if a

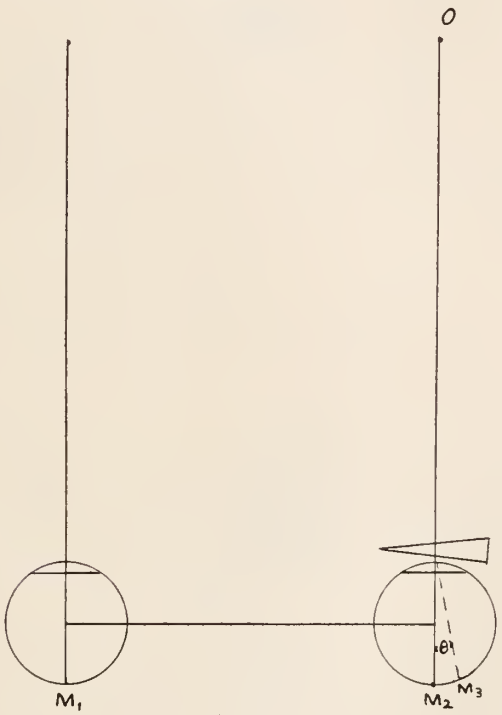


FIG. 9. (REPRODUCED)

prism is introduced before an eye oscillating about the macula the result will be that the light entering this eye will be deviated by the prism, say, from position M_2, in Fig. 9, to position M_3, and this *deviated beam of light can never be made to fall upon the macula* by virtue of any rotation or oscillation about the macula." We reproduce here Fig. 9, referred to in this quotation. The authors have unfortunately fallen into a very great error in making this statement as will be evident from a description of Fig. 3. All light in nature

is radiant, that is to say, any point such as O in Fig. 3 (and which we have taken the liberty of giving a similar designation in Fig. 9) *radiates light in all directions* and it is easily seen that it is only necessary to oscillate the eye until its *visual axis is parallel to the beam deflected by the prism* when the image of the object *will be formed upon the macula* by another beam of light *also radiating from O*. We know that the *center of the eyeball* cannot *by any means* be made to coincide with the prism deviated beam *any more than can the*

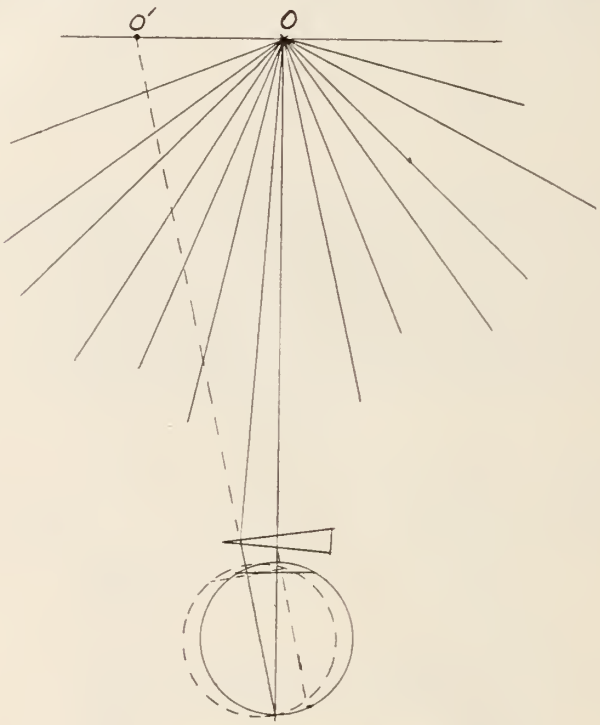


FIG. 3.

macula and the utter fallacy of the authors' statement becomes at once evident. We all know that a prism interposed before the eye *does not* render it *impossible* to view the same object as before. The eye simply involuntarily oscillates to the position shown by the dotted lines where its *visual axis lies parallel with the prism deviated beam* when the object is viewed with the same ease as before the interposition of the prism. The interposition of a prism does not render it impossible to view the object as the authors of the report appear to

wish us to believe, but simply *appears to displace the object from O to O'*. Any one may easily try the experiment. Further argument is advanced by the authors showing the minimum power of prism which may be interposed before one eye *without producing diplopia,* but we are neither concerned with nor are we discussing *binocular vision.* The theory of oscillatory movements advocated by Dr. George is *alone* the subject of the above mentioned report and it is needless to confuse the issue by any irrevelant matter.

After reading the foregoing it may be asked in what manner are we to determine the deviation angle of the visual axis. We have under construction an instrument for this purpose consisting essentially of a rigid device for holding the head, before which is a graduated arc capable of being so adjusted that its center may be caused to coincide with the center of the eyeball, the macula, or any intermediate point. Upon this arc is mounted a viewing device consisting of a very narrow vertical slit adjacent to the eye and a small illuminated spot some distance therefrom. This viewing device is first adjusted to the zero position so that the eye sees the spot through the slit after which the viewing device is moved around the arc, the line extending from the illuminated spot, through the slit, always intersecting the center of the arc. If the illuminated spot appears to pass out of view at either side of the slit it is evidence that the center of the arc does not coincide with the rotation center of the eye and the instrument is adjusted until the illuminated spot is clearly seen through the slit during its *entire movement along the arc.* When this is accomplished the *center of the arc will coincide exactly with the rotation center of the eye.* An optical device for determining the distance of the cornea *at all times* from the center of the arc enables us to determine the distance of the center of rotation from the cornea. Upon the completion of this instrument we hope to be able to offer exact data concerning the actual location of the rotation center of the eye. Until this or other reliable data are available let us not condemn one or the other theories of ocular movement for, after all, both are theories and, therefore, entitled to consideration.

ANATOMICAL.

Edgar J. George, M. D.,

Chicago, Ill.

The following quotation made from my article which appeared in the Journal of Ophthalmology, Otology and Laryngology, October, 1914, entitled A New Conception of the Ocular Movements with a New Strabismus Operation Based Thereon, "Normally, the movements of the eye (according to Stevens' tropometer) are 40° to 50° nasalward and temporalward, upward 25° to 30°, downward 40° to 50°. If we assume as heretofore that the rotation of the eye is at its equator, the posterior segment of the eye must move the same number of degrees of arc as the anterior. This would be impossible in view of the fact that while the optic nerve and its sheaths are flexible, they are non-elastic, consequently are not capable of stretching sufficiently to allow the head of the optic nerve to describe an arc corresponding to that described by the anterior pole," is, the writers (Dr. Ferree and Mr. Sheard) believe a rather bold assertion for the following reasons:

(1) "That there is no evidence that the optic nerve, from the foramen forward to its anterior attachment to the bulb, is normally in a taut or tonic condition." Have the authors forgotten the difficulties encountered in excising the optic nerve in the enucleation of an eye after the muscles have been tenotomized? This in itself is a positive proof that the optic nerve is neither elastic nor sigmoid enough to permit more than slight advancement of the eyeball, otherwise the optic nerve would be easily severed. Such being the case, how is it possible for the head of the optic nerve to traverse the same number of degrees of arc in the rotation of the eye at its center as the cornea? 50° laterally which by measurement necessitates the stretching or lengthening of the optic nerve at least 8 millimeters and to a greater degree in marked cases of strabismus or high degree of myopia, say, 20 diopters, which is an increase in the antero-posterior of the eye 6.1 millimeters posteriorly. Besides there is not sufficient room within the muscle cone to give the nerve such a latitude. See Figs. 1 and 2. Then, too, the vessels and nerves that enter the eyeball

posteriorly around the head of the optic nerve would be subjected to the same stretching as the optic nerve. See Figs. 1 and 2. It is true that there have been a few cases of marked exophthalmus where the vision has not been affected by optic atrophy, but they are exceedingly

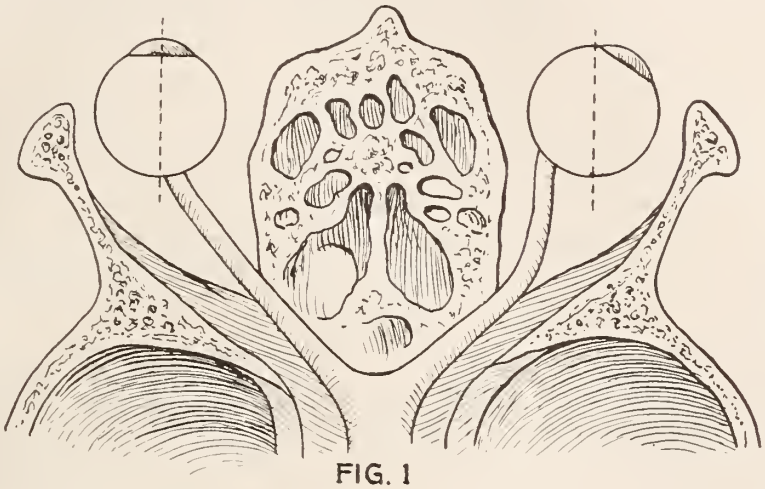


FIG. 1

Fig. 1. Shows the right eye rotated outward 50° and the head of the optic nerve inward 50°.

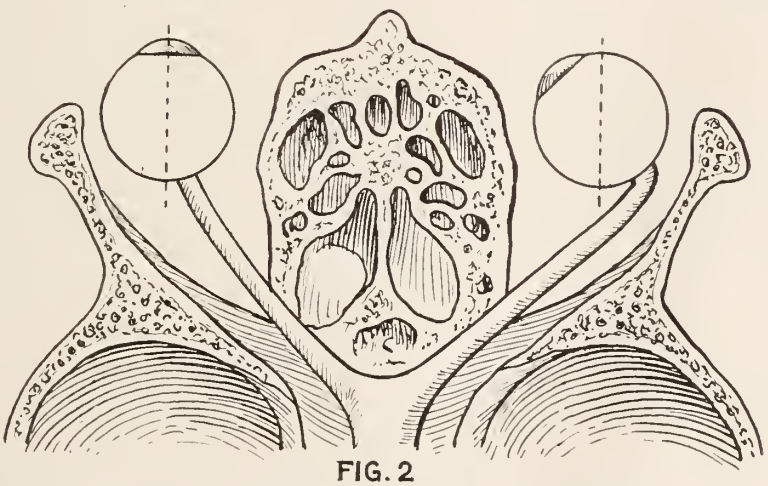


FIG. 2

Fig. 2. Shows the same eye rotated inward 50° and the head of the optic nerve outward 50°.

Figs. 1 and 2. Are for the purpose of demonstrating the outward and inward excursion of the optic nerve in the turning of the cornea 50° laterally. In order to do so it necessitates the stretching of the nerve 8 millimeters.

rare. In cases of exophthalmic goiter the motility of the eye is not disturbed to any great degree by the pushing forward of Tenon's

capsule and the eye. If the eye rotated at its center and in the capsule like a ball and socket joint, its motility would be greatly impaired by the displacement of the capsule and the stretching of the optic nerve, but, on the other hand, with oscillation the protrusion of the eye has but little effect upon its motility, excepting in cases of a marked degree, and then only to retard its movement to some extent. The cases cited of voluntary and involuntary proptosis of an eye as evidence that the optic nerve is sufficiently long enough to permit rotation of an eye 50° laterally is no evidence at all, as the cases were simply anatomical freaks. If proptosis of an eye or the eyes was a common and frequent occurrence with every one, then it might be said to be a positive evidence. One of the most conclusive evidences of the theory of ocular oscillation is the implantation of a glass ball in Tenon's capsule after enucleation for the purpose of giving a better motility to an artificial eye. In the operation the tendons of the lateral and vertical muscles are sutured together in the form of a cross over the ball, and the capsule and conjunctiva are sutured over the tendons, forming a firm enclosure of the globe. The increased motility is due to the tendons and muscles being joined together over the crest of the ball, the ball serves as a fulcrum to the muscles and as each of the lateral and vertical muscles in their action act in opposition to one another from their central attachment to each other, the glass globe is rocked or oscillated as though it were an eye.

As to Tenon's capsule, our anatomists of to-day are frequently finding anatomical errors of old masters, consequently we must assume that the latest authorities are the most reliable. But when Listing stated that the eyeball rotated at its center, he did not take into consideration the anatomy of Tenon's capsule, that it was a closed fascia surrounding the eyeball (five-sixths) posteriorly and being intimately connected to the eye at the head of the optic nerve posteriorly, and to the tendons of the recti muscles anteriorly, that such a movement of rotation of the eye like a ball and socket joint within the capsule was impossible, nor would it be possible for the capsule to rotate with the eye, owing to its orbital attachments.

In regard to the orbit, there not being sufficient room to permit oscillation of the eye, I will refer to my article that appeared in the December issue of the Journal of Ophthalmology, Otology and

Laryngology, the issue where Dr. Ferree's and Mr. Sheard's article appeared, in which I answered the same contention, explaining that there is sufficient room for the eye to oscillate, "that the orbits are concave back of their margins and that the eyeball does not rest entirely within the orbit (as was stated by them), but that its equator is about on a line with the external margin and that when the eyeball oscillates its convexity fits into the concavities of the orbit and takes up but little more space than if it rotated at its equator." Furthermore I might add that in the act of oscillation the bed of fat in the orbit, on which the capsule and eyeball rests, is depressed on the side of version and raised on the opposite side. The fat owing to its numerous globule-like balls assists greatly in the movement of the eye.

OPERATION.

Dr. Ferree and Mr. Sheard state: "That the technique of my operative procedure and treatment is based upon the assumption that the center of ocular rotation is practically the geometrical center of the eyeball, and not the macula." This criticism of my technique was taken from my article published October, 1914, when the only instrument available at the time for measuring the field of ocular fixation was Stevens' tropometer, and the rule for the adjustment of the ocular muscles was based upon central rotation, namely, 1 millimeter for every 5°, and twice the amount if only one muscle was to be adjusted to gain the effect of 1 millimeter movement of the eyeball. The scale of the tropometer being computed from the center of the eye according to Listing's theory. They failed to note that I had also stated in the article that these measurements were not exactly correct according to the theory of oscillation, but that I would have an instrument made, a Strabo-phorometer, the scale of which would be computed from the posterior pole, and that the operative technique would be governed accordingly. Suffice it to say that such an instrument recently has been made by the Geo. S. Johnson Company, Chicago, and that it will not only measure the field of fixation, but ocular deviations at infinity, so that the exact angle of a squint can be determined in degrees, as well as the lesser deviations of heterophoria. It is also valuable for locating and diagnosing paretic muscles. As to the effect of the readjustment of the recti muscles upon the check ligaments in operating according to the method described some three years ago, it is

most beneficial, as they, too, like the recti muscles, are congenitally misplaced and require restoring to their normal position.

The experiment of Dr. Dean W. Myers, showing radiographs of an eye pierced by a needle in a living subject, was an exceedingly heroic and interesting one, but not a reliable demonstration for establishing a proof of the movement of the eye when the extreme delicacy of its balance is taken into consideration. For example, the lightest pressure put on the side of the eyeball with the finger will cause its displacement, manifested by diplopia. Such being the case, then what would be the effect on an eye that is pierced antero-posteriorly with a needle 74 millimeters long, weighing 8 grs., with a perforated lead shot placed on the needle at the cornea that weighed 7 grs., making a total weight of 15 grs., with a little more than one-half of the needle, and the shot (46 millimeters), extending beyond the cornea and 59 millimeters beyond the center of the eye, the supposed pivotal point of rotation (Listing's theory), and 74 millimeters in front of the posterior pole? With a preponderance of weight at the distal end of the needle, the cornea acting as a fulcrum, the recti muscles attached to the eye anteriorly, the resultant effect would be a marked displacement or tilting of the posterior pole of the eye upward, and downward when turned upward, as shown in the crossing of the needle in Dr. Myers' radiograph plate, Fig. 2, which was misconstrued as a proof that the eye rotated at its center.

If the theory that the eye rotates at its center in Tenon's capsule like a ball and socket joint is a correct one, such an experiment would be a useless one, as it would be most difficult to pass the needle through the eyeball without transfixing it to Tenon's capsule posteriorly.

In conclusion, I wish to thank the investigators for their efforts to disprove the theory of oscillation, and to say that if the society wishes to carry on the investigation further for the good of the cause, that "my hat is in the ring," but let it be done in the spirit of good fellowship, and not through the hostility of a few.

110 No. Wabash Ave.

ENUCLEATION OF THE EYE AFTER TRAUMATIC INJURIES.*

Jas. A. Campbell, M. D.,

St. Louis, Mo.

AN injured eye may require removal, because it is so seriously affected that there is no possibility of its being saved; or it may demand removal, because it may threaten to involve the other eye by sympathetic inflammation.

It is remarkable what serious results may follow very slight injuries of the eye; and equally strange that, at times, eyes may recover their normal functions after most unpromising injuries.

I think we are justified in saying that many useful eyes have been sacrificed by over-zeal; on the other hand, over-caution may lead to dangerous hesitation with dire results. There are many cases where there can be no question as to the propriety, even necessity, of removing an injured eye. In a certain number, especially where the deformity is small and a definite amount of vision remains and a very little inflammation is present, we generally counsel a watchful waiting. This is apt to be so if the injury is in safe locations, not in the ciliary region; punctured wounds in the sclera or cornea, even when foreign bodies have penetrated the eyeball, and can be removed by the magnet; or foreign bodies have perforated the eyeball and are lying in the orbital cavity behind the eye, as a shot, belong to this class.

The dreaded sympathetic ophthalmia is the great danger to be feared. This may result, as we know, from punctured wounds of the eye, or foreign bodies located anywhere in the eye. It may complicate eye operations. Tumors in the eye or calcareous degenerations may cause it. Even a blow on the eyeball has produced it, etc., etc. And yet we know of many cases with the above conditions present which were not followed by sympathetic ophthalmia.

The interval between an eye injury and sympathetic involvement

*Read at the Missouri Institute of Homœopathy.

of the other eye varies in a remarkable and uncertain way, ranging all the way from a few days to fifty-two years. This last interval happened in one of my own cases.

With the above as an introduction and explanation, I wish to present a case to illustrate some of the phases of the subject.

Chas. L. was referred to me, recently, by Dr. C. O. Boynton, of Sparta, Ill. He was a machinist. A few days before, while using a heavy hammer, was struck in the right eye by a piece of steel, which penetrated the eyeball at the lower sclero-corneal margin. There was not much pain at the time of the accident, and very little since then. There was no vision left, even light perception. An occluding hemorrhage filled the anterior chamber. The pupil was displaced downward and attached to the small perforation.

The case was watched for a few days. No general or local symptoms of irritation were present.

The important question was, is there any foreign body in the eye? At his first visit, I used the giant magnet on the eye, with no perceptible result; no pain or other indications of the presence of iron or steel.

The only thing left then was an X-ray examination, which revealed a small triangular foreign body, either in the posterior walls of the eyeball, or immediately behind it in the orbit. The localization of foreign bodies, with a special apparatus, known as a localizer, usually decides this point definitely, though not always.

If the foreign body is in the eyeball and is located where it may be removed by the magnet or other methods, the attempt may be made, which, if successful, may very much lessen the danger of further complications, though not always. In this case the position of the foreign body was at such a point that attempts to remove it by the magnet would be more of an operation than the removal of the eye; and would not do away with the danger of further trouble, even if successful. So the eye was enucleated, and the offending body was found to be a piece of steel sticking through the posterior walls of the eye, partly within and partly outside the sclera.

The patient made rapid recovery and is now wearing an artificial eye with general satisfaction all around.

The magnet cannot be depended upon in all cases, for it is only

of use for magnetic bodies, steel or iron. In this connection we must not forget that manganese steel is a non-magnetic metal and hence is unaffected by the magnet.

In conclusion, it may be put down as an accepted fact, that every damaged eye, with a foreign body in it, which cannot be removed, should be enucleated, and that an X-ray examination should be made in every injured eye with a suspected foreign body.

Mermod-Jaccard Bldg.

SYMPATHETIC OPHTHALMIA IN WOUNDED SOLDIERS.

Weekers remarks that one of the unexpected happenings in the war is the extreme rarity of sympathetic ophthalmia, notwithstanding the great frequency of war wounds of the eyes. In his personal experience he has encountered only one instance of it among 800 cases of war injury of one eye. He recalls that during the Franco-Prussian war of 1870 fully 55 per cent. of the wounds of one eye were followed by sympathetic ophthalmia, and even during peace times it averages 11.6 per cent. according to Hobby's statistics, and 21 per cent. after unsuccessful cataract operations, according to Steffen. He has found only a very few cases mentioned in accessible literature during the war, while many comment on the rarity of the sympathetic involvement of the other eye. These facts justify conservative treatment of the wounded eye, unless one's hand is forced by irritation and pain. It is much better, he thinks, to retain the eyeball, even with vision entirely lost, than to be forced to depend on a complete prothesis. He is inclined to ascribe the rarity of sympathetic ophthalmia nowadays to the asepsis and antisepsis which are now so generalized, adding that the day when operators will take as many precautions before opening an eye as for a laparotomy, post-operative sympathetic ophthalmia will very nearly disappear completely. All the wounded in the war are placed at once in hosiptals where the discipline of asepsis reigns, and there is no need to remove a wounded eye for the sole reason of warding off sympathtic ophthalmia. There is no hurry; one can at least wait a few days. If the eyeball has to be sacrificed he advises exenteration as giving a better stump, while it offers fully as many guarantees against sympathetic ophthalmia as enucleation.—*Jour. Amer. Med Ass'n.*, May 26, 1917.

CHRONIC SUPPURATIVE EAR.*

Wm. G. Shemeley, Jr., M. D.,

Camden, N. J.

THE problem of chronic ear suppuration, which it has been my pleasure to bring before you to-day, to the author, resolves itself into the problem of a correct diagnosis; an accurate determination of the extent of the pathological condition; and the early application of the properly selected treatment. Paper after paper may be written or read upon this important subject; and all will lead in a straight path back to diagnosis. And how can a correct diagnosis be made with only a small working knowledge of the parts? In the majority of the cases it can not. The problem then narrows down to the question of how soon shall the general practitioner refer his case into competent hands:

The subject of chronic running ears naturally falls under a group of headings:

External to the tympanic membrane.	1. Disease of bone of canal due to destruction of periosteum abscesses. 2. Pustular skin conditions that through improper treatment have become chronic. 3. Those due to certain fungi: (Myringomycosis aspergillina.) 4. Tuberculosis. 5. Syphilis.
The tympanic membrane itself.	1. Myringitis chronica. 2. Myringitis granulosa.
Those internal to the tympanic membrane.	1. Tympanic cavity. 2. Eustachian tube. 3. Mastoid process.

*Read before the Section on Otology, Laryngology and Ophthalmology, at the Sixty-fourth Annual Session of the New Jersey State Homœopathic Med. Soc., Atlantic City, May, 1917.

Of those diseases which may produce a chronic discharging ear, yet whose causative factors are external to the tympanic membrane, the various eczemas that through neglect or improper treatment have reached a chronic state occupy a dominant position. Careful inspection should at once point out the fact that the discharge is external to the drum. As for those due to fungi, the peculiar appearance of the fungus under the microscope gives us again the causative factor.

In syphilis the history of the case, and the various laboratory tests, will put us on the correct path.

Those few cases in which the disease has reached the bony portion of the canal, and produced a caries of the bone, can generally be demonstrated by the presence of a fistulous opening with pale pink granulation. A probe introduced will give us the rough, sandy feel of dead bone.

Treatment under this group of headings is absolutely dependent upon diagnosis; of what use to treat a syphilitic caries with local measures if the systemic treatment be neglected; or again of what use are carefully selected remedies if the case is one of the fungi.

As for fistulous tracts caused by necrotic bone the treatment is absolutely surgical, once your diagnosis is established.

The Tympanic membrane itself gives us two conditions which may produce a chronic discharge from the ear: namely, Myringitis chronica and Myringitis granulosa. Inspection of the drum membrane will make the cause clear, and treatment is directed towards the removal of the cause if any can be determined and the use of some mild unguent.

The tympanic cavity, the Eustachian tube, and the mastoid process, one or all, are fertile soil for the production of a chronic discharging ear.

Necrosis of one or more of the ossicles frequently produce a very troublesome ear. This type of case is often seen, cured spontaneously by the so-called "method of outgrowing discharge." If the offending ossicle or ossicles slough out, of course the ear condition improves; for the cause having been removed, nature is able to overcome the remaining pathological condition. In those cures not so fortunate, ossiculectomy must be practiced.

A persistent ear discharge may be caused by extension of a suppurative process from the tympanic cavity to the attic. Very seldom does this condition result in a spontaneous cure, although with the advent of vaccine therapy, numerous cases of cure have been reported, but, unfortunately, the author's experience has not been so brilliant.

As a general thing operations must be advised as frequently; this is further complicated by the presence of a cholesteatoma, the presence of which may be determined by a microscopic examination of the discharge.

Chronic suppuration of the Eustachian tube will produce a persistent and often baffling ear condition. Direct inspection of the tube by means of the Yankhaur speculum and the location of the drum perforation will serve to make a diagnosis. For this class of case the method of closure of the Eustachian tube by curettage through the middle ear by the method of Yankhauer is worthy of serious thought. For that class of case which is dependent upon abscess of the mastoid process for its origin, once the diagnosis is made, operative interference is the rational method of treatment, not only saving your patient many hours of discomfort, but often saving his life. Where conservative treatment is practiced for a time do not wash out the ear with solutions. Wipe out carefully with dry sterile cotton, and insert a gauze drain; instruct the patient to have this changed, as it becomes soiled, if it is impossible for the physician to do so.

Diagnosis, first, last, and all the time; this having been correctly made, chronic discharging ears, and their treatment, instead of being a nightmare to the doctor, will become a source of pleasure.

Prophylaxis, diagnosis, treatment, these three in chronic discharging ears; but the greatest of these is *Diagnosis*.

7 Haddon Ave.

POST-NASAL MEMBRANE—REPORT OF A CASE.

Wm. M. Hillegas, M. D,

Philadelphia, Pa.

A FEMALE patient, aged fifty-three years, referred by an out-of-town physician for examination of the throat and a possible tonsil operation. The physician reported that the patient had a constant cough for eighteen months with recurrent attacks of pharyngitis. She had been under his observation frequently during that period and he was well acquainted both with her husband and with her. I met her husband at the time of the operation and he was apparently in perfect health. His report was that the chest examination was negative except for some bronchial rales. A test with tuberculin, hypodermically given, was negative, there being no reaction. All remedies given internally failed to relieve the cough.

Examination—posterior pharyngeal wall puffed and congested; no enlargement of Luschla's tonsils; pharyngeal tonsils enlarged, irregular, and diseased in the crypts, with adhesions of both pillars, especially the posterior pillars. No examination was made at this time of the post-nasal space.

Operation under nitrous-oxide and ether; tonsillectomy (by the Haseltine method). Removed both tonsils, which was done with but little bleeding. The vault was examined for adenoids and I discovered a membrane dividing the post-nasal space in the center. The finger could be inserted on either side of this membrane to the roof of the post-nasal space. This membrane at the septum was about one-half inch wide at its septal margin, narrowed to a quarter of an inch wide at the posterior attachment. Entirely soft tissue, not fibrous, and not thicker than 1/16th of an inch. This was severed and removed; no adenoids discovered. Patient had a fine reaction with but little bleeding and left the hospital next day in good condition. I did not see the patient again. The attending physician reported that the throat recovered rapidly to its normal condition, without any attending dryness of the fauces, which is apt to occur following the removal of

tonsils in elderly people. I had him brush the tonsillar fossæ with argyrol solution daily. Patient recovered her strength but slowly although the cough ceased at once. Two months after the operation cranial symptoms developed. Wassermann reaction taken for the first time was positive and death occurred from brain syphilis in two months more. What influence, if any, the syphilis had on the formation of the membrane in the post-nasal space is not determined. However, there was no history of throat involvement at any previous period of her life and I doubt its part in the etiology. I believe the condition was congenital.

1807 Chestnut St.

Why Acute Otitis Media Becomes Chronic.—Bourgeois remarks that now in more cases than ever before, acute otitis media is passing into a tenacious chronic phase and he ascribes this in many instances to the lack of prompt and efficient treatment under war conditions. It is beyond our power to modify a bad general condition in time to affect otitis media, or to attenuate the virulence of peculiarly vicious germs, or prevent destructive lesions and immediate infection after wounds of the ear. But much can be done by early paracentesis, supervision of the efficiency of our drainage, aseptic dressings, and trephining in time. With these measures it is possible to control nearly all cases of otitis media, and an aseptic dressing will ward off further damage, so that the trauma of the tympanum will heal. Any general debility, adenoids, focus of osteitis, and secondary infection are potent facors in the chronicity. He expatiates further on the advantages of surgical incision rather than allowing the lesion to progress to spontaneous perforation of the membrane.—*Jour. of the Amer. Med. Assn.*, May, 1917.

REPORT OF TWO INTERESTING EAR CASES.

Otis D. Stickney, M. D.,

Atlantic City, N. J.

CASE I.

ROBERT M. Age 62 years.

History.—In 1877 had pain in A. D. In a few days the ear began to discharge. Ever since then the ear has been discharging, excepting now and then when the discharge would stop for a brief time. The discharge has always had an offensive odor.

On March 12, 1917, the patient came to me complaining that for the past four days he had been annoyed by dizziness, and that for the last twelve hours this was so marked that he could walk only with difficulty. He said that objects about him were rising and falling, as if he were on a boat. On turning his head quickly his vertigo was increased. Coughing also made him very dizzy. He also complained of intermittent buzzing tinnitus.

Status praesens: A. D.: Canal filled with fœtid pus. Posterior superior perforation, with granulation in this region, and another perforation in Shrapnell's membrane with partial destruction of external attic wall. With a bent probe cholesteatomatous material could be removed from the attic. A. S.: M. T. retracted, calcareous deposit anteriorly, atrophic area posteriorly.

Functional test: A. D.: Deaf with conversation tube; could not repeat loudly spoken words. Weber lateralized to right ear; Rinne negative; Schwabach shortened. C_1 neg.; C_4 neg.; small A_1 heard but shortened. (He heard the small A_1 fork when the noise apparatus was going in the opposite ear.) A. S. whisp. ½m. acoumeter 1/3m. Schwabach slightly shortened, Rinne negative; C_1 neg.; C_4 slightly shortened. Spontaneous rotatory nystagmus to the right with eyes in any direction, but the movements were small.

His suppurating ear was kept as clean as possible for the next four or five days, and at the end of this time his spontaneous nystagmus had disappeared.

His static labyrinth, tested at this time, gave the following results: Irrigating his right ear with water at 80° F. produced a rotatory nystagmus to the left, lasting one minute and 25 seconds. The galvanic test was next used. This test was made without an assistant, and I think anyone having tried this will agree with me in saying that it is difficult for one to do this alone, and that accuracy as obtained in the test made in this manner is almost impossible. However, the findings were so indicative of an irritative lesion of the static labyrinth, that I feel justified in reporting them.

R.	L.
Kath. 1½ m.a. rot. nyst. to right.	Kath. 4 m.a. rot. nyst. to left.
Anod. 2 m.a. rot. nyst. to left.	Anod. 6 m.a. rot. nyst. to right.

To me it seems well nigh impossible for the examiner to elevate the patient's upper eyelid, apply one of the electrodes firmly over the tragus, watch for the first nystagmic movement, manage the current controller, and read the galvanometer at the same time. I am not saying this in deprecation of this test, because, on the contrary, if properly carried out, I believe it is a most valuable quantitative indication of the condition of the static labyrinth, but to those of us who have no office assistant accuracy in this test is difficult to obtain.

Nystagmus after turning was as follows: After 10 turns to the left, with head slightly inclined forward, a nystagmus of 20 seconds to the right. After 10 turns to the right, a nystagumus of 10 seconds to the left. My interpretation of this result was again an irritative lesion of the right labyrinth.

His Romberg sign was positive. On walking with eyes closed he deviated slightly to the right, and walked with a broad gait. Could not stand on one foot.

On March 16 the galvanic test was made again. The results were as follows:

R.	L.
Kath. 2 m.a. rot. nyst. to R.	Kath. 4 m.a. rot. nyst. to L.
Anod. 1½ m.a. rot. nyst. to L.	Anod. 4 m.a. rot. nyst. to R.

On March 20 he complained of slight vertigo, and staggered somewhat; had pain in right side of head.

On March 27 would stagger on rising from chair. Said that his sensation of uncertainty or slight vertigo always became less toward evening.

On March 29, after 10 turns to the left, with head slightly inclined forward, nystagmus to the right of 20 seconds, and he past pointed to the left. After 10 turns to the right, with head forward, nystagmus to the left 20 seconds, and he past pointed to the right.

On April 4, fistula test. On compression a wide slow movement of eyes to the opposite (left) side; this was then followed by several very rapid movements of the eyes, the direction of which was indeterminate—they were in the horizontal plane.

A diagnosis of the aural condition based on the patient's symptoms, results of tests, and visible pathologic tympanic changes:

A. D.:—Chronic suppurative otitis media, with cholesteatoma; circumscribed labyrinthitis; fistula of labyrinth. A. S.:—Chronic adhesive otitis media, with degenerative changes of the internal ear.

April 14. Radical mastoid operation. Bone very sclerotic, antrum and attic filled with cholesteatoma and granulations. External attic wall had been destroyed, and also the tegmen mastoideum, so that the dura of the middle fossa was exposed and covered with granulations over an area 2 c.m. in diameter; fistula of horizontal semi-circular canal; horizontal portion of facial nerve lying exposed in tympanum.

April 15. Slight headache; rotatory nystagmus of third degree to the left; vertigo and nystagmus both less marked on looking to the right. Patient hungry. No fever. Lies constantly on left side. I regarded his labyrinth symptoms as those of a diffuse secondary serous labyrinthitis induced by the operative traumatism.

April 17. Slight vertigo on moving in bed. Rotatory nystagmus to the left, excursions less wide than yesterday; on looking to the right nystagmic movements have about disappeared; no fever; good appetite; no headache; patient sitting up in bed. On trying the pointing test with his eyes closed he past pointed to the right with either hand.

April 18. Very slight nystagmus on looking to the left. Patient was given permission to be out of bed.

April 24. Nystagmus has disappeared. Patient walks about ward. Has slight uncertainty of gait, especially on turning head quickly. Has had no elevation of temperature since operation. Hears small A_1 fork through dressing.

CASE II.

Gertrude C. Age 6 years.

Family history good. Previous personal history unimportant.

History of present illness as given by the child's mother: On February 13 developed an acute rhinitis. About one week later had severe pain in left ear, and a high fever. In a few days the ear began to discharge.

On March 26 the child was brought to my office. She was pale and very nervous and apprehensive. She complained of pain in her left frontal region, and her mother said that this was more severe when the ear did not discharge freely. Her tongue was heavily coated, breath offensive, and she looked ill.

Status praesens: The left external auditory canal was filled with greenish foul-smelling pus. In the membrana tympani was a small antero-inferior perforation. There was no sagging of the posterior superior wall of the canal. The left mastoid was slightly tender to pressure, but was not visibly swollen, nor did it give a sensation of thickening on palpation.

Calomel, to be followed by a saline, was prescribed, and the mother was directed how to care for the ear.

On March 29 the child was again brought to my office. The aural condition was much the same, although the mother reported that the quantity of discharge had diminished, and that the odor was less. The child had been closing one eye off and on during yesterday and to-day. When her mother asked her why she did this, she replied that with her two eyes open she saw two objects where there should have been only one, and that by closing one eye she only saw one of the objects at which she was looking. In the dark room, with the candle flame and a piece of red glass held before one eye, I satisfied myself that she had a horizontal homonymous diplopia, caused by a well-defined paresis of her left external rectus muscle.

Fearing intra-cranial involvement, an immediate opening of the left mastoid was advised. Other indications for operation were pain in the left side of the head (worse when the discharge was not free); a temperature of 100° F., as noted on her two previous visits; her septic appearance, and slight mastoid tenderness to pressure.

On March 30 a simple mastoid operation was performed. The

cells were broken down, and the resulting cavity was filled with pus and granulations. There was no carious destruction of the tegmen mastoideum. A small area of the dura was exposed in this region, and found to be normal. The child began to improve on the following day. The ear discharge, which was green and had an offensive odor, ceased in one week. From the color and odor of the discharge, I regarded the infecting organism as the bacillus pyocyaneus, but regret that no microscopic examination was made. The double vision became less each day, and had entirely disappeared in two weeks.

To me the interesting problem in this case is the determination of the pathologic basis of the paresis of the left external rectus muscle. I believe it was a toxic neuritis of her left abducens nerve rather than slight localized basilar meningitis. The dura over the tegmen mastoideum, as already mentioned, was exposed and found normal. None of the other cranial nerves were involved.

April 24. Wound entirely healed. Child has increased in weight, and her mother says that she has never been in better health.

922 Pacific Ave.

An old lady who had been introduced to a doctor who was also a professor in a university, felt somewhat puzzled as to how she should address the great man.

"Shall I call you 'doctor' or 'professor,'" she asked.

"Oh! just as you wish," was the reply; "as a matter of fact, some people call me an old idiot."

"Indeed," she said sweetly, "but then they are people who know you."—*Tit-Bits.*

HYSTERICAL APHONIA—CURED BY A FALL.

W. D. Rowland, M. D.,

Asbury Park, N. J.

UPON October 10, 1916, Victor, aged 11 years, son of a French Canadian local pharmacist, consulted me for a persistent aphonia. He gave the following history: In August a tonsil and adenoid operation had been performed by the father's brother, of Haverhill, Mass. The result was very satisfactory The boy is attending school and for two weeks has not been able to talk above a loud whisper. He is of normal size, red-headed, nervous temperament, mentally active, smiles, and is careful in personal habits. At home his mother restricts him in evening visits away from home, which does not meet always with his approval. At school he dislikes the work in vocal training by a very competent teacher. I was able to elicit the fact that he had *been forced* to do this work against his will, excusing himself on account of *sore throat*. He stammers slightly at times, and complains at times of difficult breathing. Laryngeal inspection showed slow apposition of the cords on attempted phonation. No inflammatory signs were in evidence. Slight soreness in the cervical glands on palpation, but were not found enlarged.

I used moderate vibratory massage, and low spark vacuum electrode high-frequency over the larynx externally covering also the cervical sympathetic areas. Argyrol 8% was applied to the laryngopharynx. Internally he received Phosphoric Acid 6x, 1 q. 3 hrs. to q. i. d. These treatments were given each two days to weekly, until November 4, without any apparent improvement. About October 20, his piano teacher, who has offices in my building, reported that that morning Victor, on leaving after his lesson, asked: "When (in loud tones) shall I come again (in whisper)." I considered the condition a neurosis from the start, but this report was most interesting evidence in favor of this opinion.

The boy returned to Massachusetts again to see his uncle, and was

examined by some laryngologist in Boston. They advised that it was neurotic.

The interesting feature of the case is that upon March 5, 1917, while returning home from the Y. M. C. A. in the dark of evening, he slipped upon ice and fell, and on arising was able to speak in normal tones. This evening his parents tell me that he continues to speak properly.

He started first to justify himself in his opposition to vocal work in school, until he probably truthfully could not vocalize normally. His fall probably elicited *some exclamation* !!!x!!?, after which he knew that he could speak and continues to do so.

A tramp knocked at a kitchen door and said: "Please, kind lady, I'm a sick man. The doctor gimme this medicine, but I need something to take it with."

The lady was ready to help.

"Poor fellow," she said, "do you want a spoon and a glass of water?"

The tramp answered: "No, mum, I wouldn't trouble you. But this medicine haster be took before meals. Have you got a meal handy?"—*Texas Medical Journal.*

OBSTRUCTION DEAFNESS SIMULATING DEAF-MUTISM.

W. D. Rowland, M. D.,

Asbury Park, N. J.

UPON March 22, 1917, Jerry, aged 5½ years, was brought by his mother on account of deafness. He seems to hear only very loud noises, but responds only when interested, especially when the object (watch, tuning-fork, etc.) is shown him. His speech is very faulty, the faulty articulation and intonation of deaf-mutism; a few words are spoken properly, such as "mother," "automobile." He is busy—into all things within reach. Most of the time he is tractable, but occasionally very obstinate. He is of normal size, very healthy in appearance and activity, mentally alert.

The history shows that he talked better at 1½ years than now, the present condition coming on gradually. At 4 years he had measles complicated by O. M. S. A. right ear; the discharge soon cleared up. He has a sister of seven years who is normal and attending school.

An examination further than tuning-fork, which was negative by air and positive by bone conduction, and watch, which was not heard, was practically impossible. He objected to opening his mouth, to permitting inspection of the ear canals; in fact, I told the mother to return at another time so that I could further study the child and possibly accomplish a more thorough examination. He returned in two weeks, this time talking more to my nurse-assistant, and showed interest in toys. No further examination was permitted; he refused all approaches at mouth or ear inspection.

My observation, with the history of better speech at 1½ years, led me to think that the child was deaf from adenoid obstruction, and that his vocalization was faulty simply because he could not hear his own voice and be guided thereby. I advised examination under anæsthesia, and the care of hypertrophied tonsil and adenoid tissue providing they were found. Accordingly he was sent to the hospital, and upon April 12 we operated. It was necessary to anæsthetize him

before being able to divest him of his overcoat; the remainder of his clothing being left on, because we knew that so soon as he reacted from anæsthesia that he would be out of bed; and so he was.

The examination disclosed normal nasal passages, normal ear canals and membrani tympani, submerged tonsils—cryptic and hypertrophied, and a great mass of adenoid tissue. The latter upon removal by three La Force (medium size) full bites, and gauze (on finger) to complete about the fossæ of Rosenmiller, was the greatest mass I have ever seen removed from any patient; it literally filled up the epipharnyx and extended into the post-nasal spaces, completely obstructing the Eustachian orifices.

A visit a week later, at the office, showed a *little* improvement in disposition and hearing. The mother said that he is more tractable. I believe that this child will gradually acquire control (auditory) of his speech, and will be saved from a life of a *mental defective.*

The German Central Book Station for the Blind was opened in Leipzig in December, 1916. Enough books have been provided to supply the demand for twenty years. Every field of study is represented—philosophy, pedagogy, history, geography, law, political economy and civics, art, history of art, literature, biography, medicine, reference books, history of literature, war literature, music, and the study of music. There is also a large reading room containing periodicals of all kinds. A special room is provided for msuic, literature and a completely equipped print shop, as well as a large store room.—*Ophthalmic Record,* April, 1917.

ATTEMPTED SPINO-FACIAL NERVE ANASTOMOSIS.

Wm. G. Shemeley, Jr., M. D.,

Camden, N. J.

MR. H———, 72 years of age, was admitted to the Receiving Ward of the West Jersey Homœopathic Hospital, November 11, 1916, suffering from a bullet wound behind the right ear. A probe carefully introduced into the wound revealed the fact that the missile had grazed the mastoid tip and appeared to be lodged somewhere in the region of the styloid process. The patient gave a history of having been intoxicated and attempting suicide had placed a 22 calibre revolver behind his right ear. An extensive powder burn of the skin was present.

The patient had practically no control of the eyelid of the right eye; the corners of the mouth drooped, and the right side of the face had a peculiar "wooden" expression. There was a slight bloody discharge from the right ear. Tinnitus was also present and complained of by the patient. Blood pressure (Tyco's) was, systolic, 186; diostolic, 126; examination of the tympanum of the right ear revealed a torn membrane in the posterior inferior quadrant. from which small amounts of blood exuded.

The Hospital roentgoenologist, Dr. H. B. Deen, X-rayed the case, and gave the following report:

"We find a bullet lodged about ½ inch behind and on a level with the external auditory meatus."

From the history and symptoms of the case a diagnosis of facial nerve severence was made, and spino-accesserius-facialis anastomosis according to the technique of Dr. Harvey Cushing ("Annals of Surgery, May, 1903") was decided upon. A pre-anæsthetic hypnotic of Morphine sulphate gr. ¼, Atropine sulphate gr. 1/150 was administered.

The anæsthetist, Dr. Everett A. Tyler, selected rectal anæsthesia

as the method to be employed; and demonstrated the value of this method in skilled hands in work about the head and neck.

The region of the operation was prepared by the author's routine method: Iodine 3% to the skin, following by thorough wiping off with Benzine, and ending with a liberal application of 85% Alcohol; after which the skin is rubbed dry with sterile gauze.

1
Appearance of Patient's face.

2
Showing location of wound.

3
Attempt to close both eyes.

4
Attempt to whistle

A grooved director was introduced into the original wound. An incision was made along the anterior border of sterno-cleido-mastoid muscle. The muscle was exposed and retracted and the spinal accessory nerve isolated.

The bullet was then removed in fragments, by carrying the dissection upward.

The fractured styloid-process was removed; no portion of the facial nerve was observed in the stylo-mastoid foramen.

The bony facial canal was exposed and still no nerve was encountered. The thought then occurred to the author that the bullet having flattened out had caught the nerve in its jagged edges and the torsion due to the rotary motion had resulted in the loss of a considerable portion of the facial nerve.

The attempt was then made to isolate the nerve further along in its course. When the distal portion of the nerve was encountered not enough nerve trunk existed to bridge the gap and the operation had to be abandoned.

The skin wound was closed by Michel's clips. A silver nitrate gauze (2% drain) was inserted into the original wound. A plain sterile gauze drain was inserted into the canal of the right ear. The patient made an uneventful recovery and was discharged on the twelfth day following operation.

The paralyzed muscles of the right side of the face received the

daily application of the galvanic current, under the direction of Miss Marian Bryant, the hospital masseuse.

December 20, 1916, lateral tarsorapphy was performed on the right eye.

The patient at the present time is fairly comfortable.

The facial deformity gives him the greatest concern. The author is inclined to believe that it is better to wait until the original wound is healed before attempting either spino-facial or hypoglossal facial Anastomosis.

Of course, in this particular case, due to the peculiar condition present, the result would have been the same.

7 Haddon Ave.

The Price of Knowledge.—Thoughtless people often grumble at the two or three guineas paid for a few words of advice. They do not reflect how long it has taken the physician to acquire the knowledge that enables him to give profitable counsel, or that the advice, if faithfully followed, may mean prolongation of life and increased efficiency in work, to say nothing of greater happiness for the patient himself and his family. The public has still to be educated to a right appreciation of the intellectual value of things and to deliverance from the the superstition of a crude commercialism as the ruling principle of life.—*Brit. Med. Jour.*, Jan. 27, 1917.

A CASE SHOWING INVOLVEMENT OF THE SECOND, THIRD, FOURTH, FIFTH AND SIXTH CRANIAL NERVES.

Gilbert J. Palen, M. D.,

Philadelphia, Pa.

MRS. F., age 69. Patient had eight children; six are still living in good condition; two are deceased; one at the age of twenty-one, from grippe, and the other, at the age of thirty-six, from kidney trouble. Two miscarriages; one of these being her last child at the age of six months. Denies lues. History otherwise negative.

In 1894 suddenly developed double vision and the eyeball "pointed in" according to her statements. Was treated at the German Hospital for some time, the diplopia still continuing and being her only symptom.

Six months ago had a severe pain in the left side of the neck, which lasted about four weeks. Following this the left eyelid dropped gradually. Two months ago the eyeball movements became limited in all directions and a sensation as if her face was asleep developed on the left side. This started in the left upper lid and gradually spread to the entire side of the face and scalp. With this she had a sensation in the mouth and cheek as if she had lost her taste. No head noises, no dizziness, no nausea, no headaches, no trouble in walking; in fact, no other symptoms than the ones mentioned. About this time she was treated at the Wills Eye Hospital. Their record, which has been obtained through the courtesy of that institution, dated August 7, 1916, is as follows: Diagnosis—Paralysis of the third nerve. Condition, pupil turned in towards the nose for some years, has complete ptosis, anæsthesia of the left side of the face, contraction of the frontalis, faint reaction of the pupil. Vision, right eye, 6/15 with glasses, 6/60 without. Left eye, counts fingers at three feet.

Upon my first examination on November 21, 1916, I found com-

plete ptosis of the left lid, slight proptosis, the eye being in the median position and the pupil well dilated. There was no direct pupillary reaction, no consensual reaction, and no reaction to accommodation. There was slight movement of the eyeball; this being rotary in character, when looking down and out. The left disc was pale, the veins of the upper nasal side having a collapsed appearance. The sensations complained of in the face were limited by a sharp line in the center and included the entire side of the face and scalp. The skin over this area and the surface had less color than the opposite side, and the same or similar sensation extended to the anterior portion of

Fig. I.

the tongue and cheek. Careful testing proved that taste was not affected. There was no involvement of the muscles of mastication. Vision O. D. = 20/20 with plus 1.50 sphere combined with a one cylinder axis 150. Good pupillary reaction. No consensual pupillary reaction when light is thrown in the left eye. Fundus was normal. The left eye, V. = O. pupil widely dilated; no pupillary reactions. Although patient was carefully examined, no other neurological signs could be found. The X-ray of the head was negative as also the Wassermann.

The condition, as outlined, has remained unchanged since I first saw the patient in November. During this time and previous to this time she received antispecific treatment. The sensations which she has in the face are not due to anæsthesia, being rather a paræsthesia with attacks of drawing coming on spasmodically. It is evident that this patient had primarily a paralysis of the left abducens and several years later involvement of the ocular motor. That the trochlearis still was showing some function at the time I first saw her is shown

FIG. II.
Looking up. To demonstrate ptosis.

by the movements of the eyeball downward and outward. This, later, however, was lost. Further, there is involvement of the optic nerve and of the sensory branches of the fifth; the motor branch escaped. A lesion to produce involvement of these various nerves must be a basal one and of a diffuse character. The only cause suggested by the history being the miscarriages. Despite, however, thorough antispecific treatment, there has been no improvement in the condition.

2102 Chestnut.

INTRA-NASAL OBSTRUCTIONS. THEIR REMOVAL IN YOUNG CHILDREN.

George J. Alexander, M. D.,

Philadelphia, Pa.

THE importance and necessity of the removal of adenoids and hypertrophied tonsils that are obstructive to respiration have been so well established by the medical profession, and by this body so thoroughly instilled into the minds of the general public, that it is a common occurrence for the lay person to make a diagnosis, and upon his own initiative approach the rhinologist for confirmation of such opinion which, if sustained, is accompanied by their request for their elimination. This accomplished, the child may still remain a mouth breather, with the characteristic noisy eating (the result of eating and breathing through the mouth at the same time), frequent colds, a constant rhinorrhea, a bad disposition and other more deeply seated defects, such as underdevelopment, physically or mentally, or both.

After removal of the adenoids and upon observation for a certain period symptoms such as mentioned above, together with others, the child will be brought back by the parents to the rhinologist for re-examination with the question as to whether all the adenoids have been removed. After a thorough examination the rhinologist finds no adenoids present, but by a careful study of the nose discovers a deviated septum, or hyperplasia of the turbinates, or a combination of both.

Just at this point I want to appeal to the rhinologist to consider more seriously in young children the presence of these intra-nasal conditions along with the adenoids that are invariably associated, and to urge their correction, for, to remove the adenoids and allow the nose to remain as it is, is to do poor work with correspondingly poor results. Again, the responsibility of the rhinologist by no means ends here, for it is he who should so familiarize the general practitioner with these conditions and facts that the latter will always be on the

alert to find them, make the diagnosis and insist upon the proper method for their correction. An endeovor will be made in the lines that are to follow, to prove to the internist or the general practitioner the importance of being familiar with these points. Ever since my earlier experience in rhinology I have observed these intra-nasal conditions in young children, mostly, however, in dispensary patients while examining for adenoids, it being a common thing to find associated with adenoids a deviated septum and hyperplasia of the inferior turbinates in children ranging in age from five to twelve years and older.

While realizing the detrimental effects of their presence it was not until within the last three years that I have had the courage to take the initiative in their removal by operative procedure.

This was the result of numerous cases having been referred to the dispensary by school physicians for the removal of non-existing adenoids or where adenoids had been removed by myself and others. In some cases a careful examination revealed no remains of adenoids; in other cases a request was made for the removal of adenoids, but no mention made of existing obstructions in the nose. It was while observing the patients without adenoids, but having all the symptoms of existing adenoids, that the thought occurred to me—why not try to give these little patients the benefit of operative measures similar to those given adults?

The main problem that confronted me was, would it interfere in any way with the development of the nose in a child so young? Finally, wishing first to have the opinion of another with wide experience, I told Dr. G. W. Mackenzie of my ideas. He was favorably impressed and, with his characteristic enthusiasm, advised me to try them out.

Knowing that the septum would never spontaneously adjust itself and after observing for a sufficient period to allow the inferior turbinates, if possible, to assume a normal state after the removal of the adenoids, I made my first step toward relieving them of their so-called adenoid symptoms which were in reality the result of the intra-nasal conditions mentioned.

At first I recognized four indications for operative procedures, namely, first, obstruction to breathing; second, susceptibility to colds; third, constant presence of secretion in the nose, and, fourth, ear com-

plications. But soon with further experience numerous others presented themselves, many of which will be included in the two cases that are to illustrate this monograph.

OPERATIVE TECHNIC.

For the operation of these young patients a general anæsthesia must be substituted for the local anæsthesia as usually applied in older children or adults. When anæsthetized, the patient is placed in a semi-reclining position on the operating table, while the operator takes his position on the side of the table most convenient for him. The operation is carried out under the usual aseptic surgical precautions and the face first cleansed with alcohol. There is no application of astringents or antiseptic solutions of any kind to the nose, except for the submucous resection of the septum. In this instance I use one ounce of normal saline solution containing four drops of adrenalin solution 1 to 1,000. This is injected between the perichondrium and cartilage and the periosteum and bone, serving two purposes. First, it helps to separate the soft tissue covering from the cartilage and bone, facilitating further the separation with the elevator. This aid is a distinct advantage to the operator since the perichondrium and periosteum in these young children is very adherent to the cartilage, and the entire septum gives one more the impression of working on rubber than on cartilage and bone. Secondly, the adrenalin is added for the purpose of controlling bleeding, which it does not do in an entirely satisfactory manner; perhaps, because of the specially intimate relation between the perichondrium and cartilage and periosteum to the bone, and to the use of ether in which there is always more bleeding than with local anæsthesia. After completing the submucous resection of the septum, I proceed to trim the hyperplastic tissue from the inferior border or posterior end of the inferior turbinates, where this is required, then the adenoids or tonsils, or both, are removed where removal is indicated. The nose is then thoroughly packed on both sides with plain gauze strips to prevent subsequent reaction and bleeding. The patient is kept in bed in the hospital for two days, when the packing is removed, after which the patient is allowed to be around and the necessary after-treatment applied in the hospital or office until healing has taken place.

Surprise may be expressed at the extensive operative work done

at one time; however, up to the present there have been no complications in any instance that would suggest contraindication for same, there being nothing more serious than mild shock and some rise of temperature to 100° or 103°.

The results of these operative procedures are always satisfactory, and in many cases remarkable, taking into consideration the benefit derived by the child, as is substantiated by the history of the two following cases, of a brother and sister, cited mainly because they represent two widely different classes of symptoms, both practically due to the same causes for which operative measures were applied, and, too, because they were private patients, offering the opportunity while administering the post-operative treatment for observation in following them up closely after operation:

Case 1. August 3d, 1916. Female, M. K. H., age 7 years. Has no history of having had any of the usual children's diseases except mumps nine months ago. The father says she has shown signs of impaired hearing for the last two years, and seems a bit stupid when spoken to. Her skin has a sallow color and she is under weight; her disposition is irritable and last year she did not progress favorably in school. Some improvement in her general health followed the removal of adenoids and tonsils two years ago.

EXAMINATION.

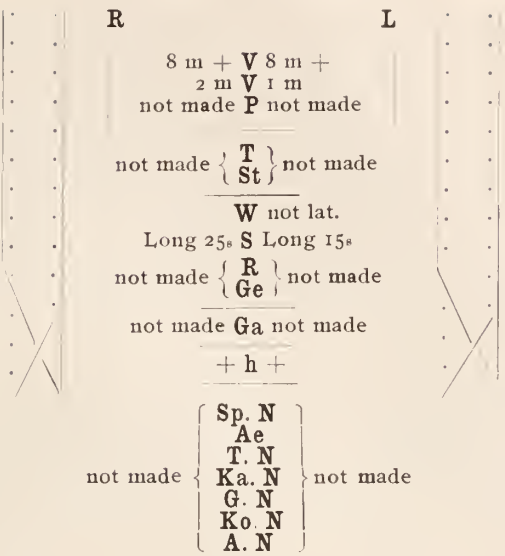
Otoscopic findings—Left ear—the tympanum is extremely thin, transparent and markedly retracted with complete fixation of the malleus, a mass of adhesions attaches the tympanum to the entire surface of the promontory, the only mobility to the tympanum being in a small portion of the anterior and posterior superior quadrants, the long process of the incus and the stapes being visible through the tympanum.

Right ear.—The external canal is filled with semi-formed serumen, after removal of the serumen, the tympanum is seen to be extremely retracted, thick, gray, opaque and fibrous, with no mobility except slight motion in the posterior quadrant, fixation of the malleus being complete.

Low tones, short in both ears, more on left side.

High tones, normal on both sides.

The functional test proves the presence of impaired hearing, the



result of defective sound conduction, which is undoubtedly secondary to the presence of adenoids and intra-nasal obstruction.

The nose shows an S shaped deviation of the septum to the left above and to the right below, with a spur on the left side posteriorly along the suture line; the middle turbinates are not visible, being concealed by the irregular septum; there is also hyperplasia of both inferior turbinates.

Mouth.—Teeth poor, a number of the upper incisors having been removed, hard palate high and narrow, tonsil fossæ clean, uvula absent and a white scar on the edge of the soft palate extending from one fossa to the other with contraction of the part, causing some constriction of the post-nasal space.

Pharynx.—Many lymphoid thickenings on the posterior wall, of its inferior or buccal portion, and a large mass of adenoids on its uppermost portion in the post-nasal space, located by the digital method.

Operations were accomplished by the technic mentioned above, and in the following steps. 1st. A submucous resection of the septum. 2d. The hyperplasia of both inferior turbinates was removed, and, lastly, removal of the adenoids.

There was not much bleeding from either the septum, turbinates

or the adenoids, and the patient left the operating room in good condition. Four hours later she was restless and her temperature was 103 ax., pulse 128 and respiration 36. Fifth hour, temperature was 103 2/5, and on the sixth hour 102. On the second day at 6 A. M. the temperature was 101 1/5 ax., pulse 132, respiration 36, and by 6 P. M. of the same day the temperature, pulse and respiration were all nearly normal, showing a normal recovery from the shock, and was discharged in good condition following four weeks of after treatment.

Case 2. August 5th, 1916, male—C. B. H., age 12 years. At the age of four years had an attack of pain in the left ear which was followed by a discharge. There had also been attacks of tonsillitis until a few years ago when the tonsils and adenoids were removed During the last four years he has had attacks of hay fever starting regularly on the twentieth day of August, the nose being stopped up during the period of attacks and at other times seems to be free and no mouth breathing, but at all times has a moderate amount of post-nasal dripping. An osteopathic physician, Dr. Van Runk, was consulted for treatment of the condition, and, upon examination of the patient's nose, advised that the case is one for a rhinologist and referred him to me.

Examination: Nose—some secretion in the form of delicate threads attached to the different parts. The mucous membrane is red, thickened, and inclined to be dry, worse on the right side. The septum shows marked thickening in the region of the middle turbinates. There is marked hyperplasia of both inferior turbinates, and the anterior ends of the middle turbinates, which remain in firm contact with the septum after shrinking with cocain, and adenoids on the vault of the pharynx are visible through both sides of the nose.

Mouth—shows large red protruding tonsil stumps.

Otoscopic findings: Right ear—tympanum is thin gray, retracted and freely movable. Left ear—tympanum is very thin, gray and markedly retracted, with a thin scar in Shrapnell's membrane, the malleus showing as a sharp narrow outline.

Operation of this patient was also carried out according to the method outlined under the heading of operative technic, with one exception, for example, the removal of the anterior ends of the mid-

dle turbinates was accomplished subsequently in one sitting by means of local anæsthesia, feeling that in this instance the necessary operative work was too extensive to be done at one time.

The procedures under ether were—first, a submucous resection of the septum; second, removal of the hyperplasia of the inferior border of both inferior turbinates; third, removal of the tonsil stumps, and, fourth, removal of the adenoids. There was only a moderate loss of blood, and the patient was taken from the operating room in good condition. Two and one-half hours later the temperature was 100 2/5 ax., pulse 80, respiration 24; fourth hour, temperature 101, pulse 120 and rather thin, respirations 20; fifth hour, temperature 101, pulse beats not recorded, but quality good, respirations not recorded, patient sleeping. Next morning, at six o'clock, the temperature was 100 2/5, and by evening the temperature, pulse and respirations were normal.

Sixteen days after the operative work done at the hospital, I removed the interior end of both middle turbinates in the office under local anæsthesia at one sitting. The patient was discharged cured a couple weeks later.

It will be recalled that the reasons for seeking attention for these two children, both of the same family, were vastly different, there being one dominant symptom in each case, one being manifested in the ears, in the form of impaired hearing, while the other was confined to the nose as a chronic inflammatory process aggravated at certain regular intervals by the pollen of the rag-weed, though the primary cause of their trouble was practically identical and for the most part the result of intra-nasal obstruction.

A voluntary letter from the mother ten weeks after correction of the causative factors in the ailments of these two little patients states that the girl's hearing has improved and that there is a marked improvement in her progress at school. The boy has had no recurrence of hay fever, and both children have taken on weight, their complexions have become beautiful and their dispositions greatly improved.

Such results as those just mentioned, "and they are not exceptional," should certainly be a stimulus to the profession, general practitioner and rhinologist alike, to give this subject more nearly the earnest attention it demands.

1831 Chestnut Street.

A CASE OF DUBOISIN POISONING.

H. L. Northrop, M. D.

Philadelphia, Pa.

MISS F. H., age 26. In February, 1916, had rise of temperature in afternoon; Von Pirquet positive; lungs examined by three first-class internists, who would not make a positive diagnosis of tuberculosis (X-ray examinations also made). Her urine was examined carefully in July, 1915, and found perfectly normal. In November, 1916, homatropine was instilled into the eyes for purpose of refraction. Mydriasis was not satisfactory and duboisin solution was used, a drop in each eye, three times daily for two days and part of another. At four o'clock on the afternoon of the third day her mouth became very dry, her tongue dry and hard and literally clicked in her mouth (like false teeth), marked vesical tenesmus developed and pure, bright blood was passed from bladder. This urinary condition lasted for almost a week. One day had severe, serious hæmorrhage from bladder while riding in trolley. Her temperature rose to 102 and her pulse to 112; she vomited; had excruciating pain in bladder, urethra and in both kidneys, worse in left. Urinalysis: specific gravity 1010, acid, cloudy, albumen a pronounced trace, sugar negative. Microscope showed pus, blood cells and hyaline casts. Improvement followed after one week and then came a recrudescence, with severe pain throughout the entire urinary tract, temperature 105, pulse 140. Again urinated bright, pure blood. Blood examination: White count 18,600, red cells 3,500,000, polynuclear 78%, lymphocytes 20%, eosinophyles 1% and numerous blood plates. Physical examination showed hypogastric and vaginal tenderness of bladder, rigidity of abdominal muscles, worse on left side.

The above symptoms gradually subsided under medical treatment. Urinalysis, February 7, 1917, shows a mere trace of albumen, seen by the heat and acetic acid reaction All of the other tests were negative; the specific gravity was 1.013 and the urea count was .8%.

Microscope shows some amorphous urates, a few pus cells, and a few hyaline casts.

During the recrudescent attack referred to above there was marked mydriasis and pains in the eyes.

This patient is now in good health and free from all symptoms.

The first mydriatic used was homatropin, gr. ss. to ℥ss, and the second was duboisin sulph, gr. ¼ to ℥i.

S. E. Cor. 15th and Walnut Sts.

A new movement is being lauched for the purpose of creating industrial workshops for blind soldiers. The responsible parties of this movement are not only philanthropists, but also commerical and industrial societies. One of these workshops will be given over to the manufacure of automobile and aeroplane motors; it will be opened soon. This work has been conceived in a practical spirit, and is expected to yield good results. The blind, themselves, will participate in all the benefits of the enterprise in the proportion of 95 per cent., which will be added to their salary. The industrial side of the movement is taken care of by one philanthropic association which proposes to lodge the unmarried blind workers coming from regions invaded by the enemy, and to look after their material welfare, besides forming little reunions, circles and groups to look after the intellectual welfare of the blind. This movement will be known as "The Trades of the Blind Soldiers."—*Ophthalmic Record,* June, 1917.

REVIEWS.

TEXT-BOOK OF OPHTHALMOLOGY. By Hofrat Ernst Fuchs, Professor of Ophthalmology in the University of Vienna. Authorized Fifth English translation from the Twelfth German Edition; completely revised and reset, with numerous additions specially supplied by the author and otherwise much enlarged by Alexander Duane, M. D. Book contains 1,030 pages of text, 462 illustrations, 36 pages of index. Publishers, J. B. Lippencott Co, Philadelphia and London. Price, $7.00.

In preparing this, the Fifth English Edition, the translator, Duane, with the permission of Professor Fuchs, inserted such additions as he thought might be desirable. The translator has made a number of radical alterations in the arrangement of the text, which makes the book more serviceable as a work of reference. The many pages of remarks in fine print which were massed as an appendix at the end of chapters or major divisions, and whose considerable value and interest were somewhat obscured by this arrangement, he has split into shorter sections, each placed in direct juxtaposition to the portion of the text with which it was related. Some of the more important items in the fine print he has transferred bodily to the text. He has also transferred to part V., on operation, the description of varied operative methods previously scattered through other portions of the book.

These changes had the approval of Prof. Fuchs, the author. In the chapter on motility, the translator has entirely rewritten the section on the diagnosis of ocular paralysis, and in the articles on heterophoria, squint, and nystagmus, has consolidated with the original text the matter which in the former edition he had himself added as an appendix.

The progress of Ophthalmology has necessitated numerous and important changes in all parts of the book. Probably of most importance to the American reader are the additions in the chapters on glaucoma, diseases of the retina, and disturbances of motility, and in the section on refraction, accommodation and operation, the latter

section has not only been rearranged but considerably added to. Among the many additions scattered through all parts of the book may be mentioned the remarks on tuberculin and vaccine therapy, the visual field and color testing, the mapping of scotoma and the blind spot, the squirrel plague and elk's blood conjunctivitis, Samoan conjunctivitis, peculiarities of conjunctivitis in the Near East, extragenital gonococcus infection, inclusion blennorrhœa, the etiology of trachoma, blastomycetic dermatitis, superficial linear keratitis, sclerosis of the choroid, suppurative choroiditis, Elliott's summary of glaucoma therosis, retinitis stillata, retinitis exudation and angiomatosis retinæ, the different forms of retinal degeneration, the varieties of accommodative troubles other than paralysis and the newer operations.

For anyone who is practicing ophthalmology, he cannot well afford to be without Fuchs' book. For anyone contemplating the practice of ophthalmology and who is compelled to limit himself to a few books, the first to be thought of is Fuchs. Fuchs' text-book on Ophthalmology contains all that any other book on ophthalmology contains plus something more.

The translator has given us Fuchs' book together with sufficient touch of his own vast experience to make it even worth more than Fuchs' original German work. This latest translation, no doubt, will find an even larger sale than any of the preceding editions.

Diagnosis From Ocular Symptoms. By Matthias Lanckton Foster, M. D., F. A. C. S. The book contains 490 pages. Publishers, Rebman Company, 141 West 36th Street, New York. Price, $6.00.

In the preparation of this book the author has deviated from the beaten path; in other words, he has shown originality. Lots of us show originality at times, but too often the originality results in the presentation of something which is no improvement over older methods. Not so in the attempt of Dr. Foster. He has presented something original which is, at the same time, an improvement over anything witnessed in a text-book heretofore. The author presents the subject of Diagnosis in the only direct way. For instance, he analyzes the case from the subjective and objective symptoms, as the case presents itself to us in our practice.

Dr. Foster has introduced a method of teaching which, no doubt,

will be followed by others. His method of teaching, if generally adopted, will make dry subjects interesting to the student. The student is not compelled to commit to memory a lot of dry facts. He is taught to think and reason, and the moment he does so, he becomes interested. There can be no doubt as to the success of this new movement inaugurated by Dr. Foster. In the 490 pages (including index) the author has been enabled to go more deeply into the subject of diagnosis than could be accomplished by any other method. It is an exhaustive work and surely a handy reference book.

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—*Phila. Chamber of Com.*, May, 1917.

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Editorial

AMERICA AND THE WORLD WAR

THE breaking of Germany's solemn promise to the United States not to conduct a ruthless submarine war, was the technical point that brought about the break between the two countries and forced the entrance of the United States into the world war. The real question involved, however, is considerably broader. The fight is one between democracy and autocracy.

Are the people in the civilized countries of the world equal to the task of governing themselves or do they need a master in the form of one who receives his power by divine right.

To those of us born in America the answer is that we *are* able to govern ourselves. That we, as a people, are more prosperous and contented than people who live in countries ruled by autocrats. That we are willing to stay here and not emigrate. That we love liberty and are willing to spread its doctrine, and, if necessary, die for it.

To those of foreign birth the answer is the same. They left their fatherland, governed by rulers with divine right, and finding, after a while, that they enjoyed the same privileges as the native born citizens, were willing to remain here rather than return to the land of their birth. When the time comes and the opportunity is offered, our fellow citizens of teutonic birth will rank among the highest in their loyalty to our country.

America is in this war for no other reason than to fight for democracy and liberty. The cause is a righteous one and must win. It will win, but let it be done swiftly and with the least sacrifice in human lives. As to how this can best be accomplished, there may be some difference of opinion. Honest criticism should not be looked upon as knocking, and should be welcomed by our government. Criti-

cism of the British Government by Lord Northcliff resulted in a change that gave to them Lloyd-George who was originally considered a knocker but who has since proved to be the man of the hour.

We are pre-eminently concerned with the problem of conserving human lives. As pointed out by the French and English envoys to the United States, the loss of life through lack of doctors at the front is appalling. There is need for a considerably larger number than have already volunteered for service, and if the number of volunteers is not sufficient, it has been intimated (not by the Washington authorities) that there will be need for consecription.

Let those who can be spared hurry to the call of the nations, lest we, as a class, be judged as slackers.

G. W. M.

THE CASE FOR WAR-TIME PROHIBITION.

IRVING FISHER,

President of the Committee on War-Time Prohibition.

EVERY reason for prohibition in times of peace is multiplied during war, and war removes or weakens almost every argument against it. These facts explain why so many thoughtful and conservative men who have hitherto been against prohibition advocate it now as a war measure.

In times of peace the liquor interests argue that they greatly extend the farmer's market for grain. But the war has brought a world food crisis. Short crops, devastation of wheat fields, destruction of grain ships by the submarines, and withdrawal of men from agriculture to battle fields and munition works, all conspire to threaten Europe with starvation.

America must feed Europe. Yet we have been complacently eating up our own food stocks, and, therefore, have not yet realized that, for the first time in our history, we, too, are about to face a real food shortage. Only those closest to the facts, like Mr. Hoover, realize this fully. Hunger and food riots are possible next winter unless heroic measures are applied now. Consequently, childhood is asked to forego its pleasures and age its rest to "plant a plot" for the honor of the flag.

And a much bigger economy is also asked. Dr. Alonzo Taylor, now of the Department of Agriculture, calculates that the grain now

used in the manufacture of liquor would enable us to send a pound loaf a day to each of 11,000,000 men at the front. England, whose hungry stomach has been her teacher, first limited and at last prohibited the use of grains for liquors. Even Germany, with her age-long traditions of beer drinking, has reduced the beer output three-fifths.

In times of peace great stress has been laid upon the claim that the liquor traffic "gives employment to labor." About 289,000 wage and salary earners depend upon the industry. This reckoning includes salesmen, mechanics, teamsters, etc., as well as brewery and distillery workers, saloon keepers and bartenders. These produce and distribute a luxury, and since that luxury does society far more harm than good, we may say that, socially speaking, their work is wasted. Even in time of peace such waste of man power is bad economy. In time of war it is inexcusable. The labor is sorely needed in the army or navy, to replace soldiers and sailors in industry, and to make food and munitions. Would it not seem ridiculous to draft man power to the farm from other useful industries, themselves suffering a labor shortage, while the liquor industry is merrily wasting the work of 289,000 men?

War prohibition would not now result in great hardship to the distilling and brewing interests. A recent circular issued by the Distillery Securities Corporation of New York indicates that the demand for explosives for the war, and the commercial uses for alcohol will tax the capacity of all the distilleries. In fact, we now need, for our military preparations, to put the full resources of distilleries to use in the manufacture of industrial alcohol. Each pound of smokeless powder requires two pounds of alcohol in its manufacture. Some big guns need for each shot as much alcohol as is contained in a couple of barrels of whiskey and a score of barrels of beer. The stocks of spirits in bond should all be denatured and used for powder making fuel or other military purposes. The breweries can probably also find a way to be useful, *e. g.*, in producing foods and other necessities, and providing cold storage.

But the time-honored and most effective argument for the liquor traffic is that it makes large contributions to the revenues of the nation, state and city. At first blush the war may seem, to those un-

familiar with the principles involved or with experience abroad, to increase the force of this argument. The war increases the need of revenue, but the government's revenue comes out of the national dividend of produced goods and the liquor traffic does not add to it, on the contrary, subtracts from that dividend. This national dividend is now about 40 billion dollars a year, of which two billions are wasted in liquor. If saloons were closed the two billions would be set free for something else, some useful articles of consumption. Whatever these articles might be, they could, if desired, bear the tax now borne by the liquor which they would replace. In short, prohibition would not reduce the volume of taxable goods, but it would simply substitute other goods than liquor—such, for instance, as soft drinks, candy, foods and clothing, which otherwise would never have been produced at all.

Furthermore, prohibition, by keeping sober one or two hundred thousand men now incapacitated each day by drunkenness, and by increasing the productive power of those who, while not drunk, are "slowed down" by alcohol, would speed up production probably at least ten per cent. (a manufacturer estimates it, from actual records, as over twenty per cent., in his factory), which ten per cent., if applied to the more than half of our national dividend now produced in "wet" territory, would add over two billions to our national dividend. It follows that the more than two billions now spent on alcohol and the more than two billions of national income which prohibition would bring could all be paid in taxes without making the people one cent poorer.

Revenue of the liquor traffic, national, state and local, including the new war taxes proposed, is estimated at $484,000,000. It follows that even with this colossal sum to pay in taxes prohibition would make us several billions better off. It is in such ways that in Russia, England, and Canada, prohibition is "paying the cost of the war." It is merely a matter of making new tax schedules to pour in the treasury some of the tremendous savings from prohibition. Professor Thomas S. Adams, of Yale, who has made a life-long study of taxation and who is a member of this committee on War Prohibition, has made out a tentative schedule which would restore all revenue lost through prohibition without even counting on any additions to the national dividend from added efficiency.

Calculations on severaal million lives made by Arthur Hunter, president of the American Actuarial Society, show that the mortality rate among moderate drinkers is eighty per cent. higher than among abstainers of the same age. The most disabling diseases to which armies and navies are liable as well as the most demoralizing (in more senses than one), are usually contracted under the influence of liquor. Every army camp is surrounded by dangers to young men and alcohol takes away their self-control. A mere "dry zone" around these camps cannot solve this problem as nearly as would national prohibition, and such a partial measure, by making an invidious distinction between the rights of a soldier and those of a civilian, only exasperate the soldier and stimulates him to evade the restrictions. National prohibition, on the other hand, would mean a national ideal to which the soldier would willingly live up. He would do so out of patriotism, so long as the rest of us back him up.

For the life, health and efficiency of the men in the military, industrial and agricultural arms of the national service, for the conservation of food stuffs and for the soundness of our fiscal policy we need war prohibition.

AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS.

THE American Board for Ophthalmic Examinations has granted certificates of proficiency in Ophthalmology to the following applicants. Certificates will also be granted to certain other candidates who have not yet completed their tests by sending in their proper case reports and lists of these additional names will be published as soon as they are acted upon by the Board:

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Barnes, J. Steele.
Bell, Mace Hudson.
Bennett, Arthur G.
Black, Nelson M.
Blair, Wm. H.
Blue, J. B.
Johnson, Walter Buckley.
Johnston, Wilson.
Kennedy, E. W.
Kirkendall, John S.
Koller, Karl.
Kollock, Chas. W.
Lamb, Robert Scott.
Lane, Arlene Laura.
Larkin, Bernard, Jr.

Briggs, H. H.
Brown, S. H.
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Butler, Wm. K.
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Caldwell, Chester T.
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Thompson, Peter H.
Vail, Derrick Tilton.
Veasey, Clarence A.
Virden, John E.
Walter, Will.
Weed, Harry M.
Weiner, Meyer.
Wells, David Washburn.
Wilmer, Wm. Holland.
Wolff, Julius.
Wood, Casey.
Zentmeyer, Wm.

SOUTHERN HOMŒOPATHIC MEDICAL ASSOCIATION.

THE next annual meeting of the Southern Homœopathic Medical Association will be held October 24th, 25th, 26th, at Washington, D. C.

MEETING OF THE AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS.

THE next examination given by the American Board for Ophthalmic Examinations will be held beginning on October 30, 1917, at Pittsburgh, following the meeting of the American Academy of Ophthalmology and Oto-Laryngology.

Those who desire to take the examination and be certificated by the Board, should make application to the secretary. Make application before August 1st, 1917.

Application blanks or any further information may be secured by addressing the Secretary, F. C. Todd, M. D., 506 Donaldson Bldg., Minneapolis, Minn.

MENINGITIS.

Neil Bentley, M. D.,

Detroit, Mich.

THE topic I wish to take up is some phases of meningitis seen by the otologist.

Pathologically, we recognize certain divisions of meningitis. (First.) Pachymeningitis, or inflammation of the dura mater. This is nearly always of the circumscribed variety. It is the type we see so frequently at mastoid operations, and usually responds promptly to treatment. The most common location is over the tegmen antri or around the sigmoid sinus. The infection usually travels by direct extension through diseased bone. Often, however, the path is probably through the spaces in the bone, the lymph or blood vessels, the underlying bone at least appearing quite healthy.

There is quite apt to be a collection of pus between the dura and the bone, the extra dural abscess. Under these circumstances there may be considerable pain, but the pain is due to the pressure of the pus on the dura, rather than due to the inflammatory process in the dura itself. This abscess may communicate with the tympanum through a fistula, being thus less dangerous.

Localized pachymeningitis is met frequently with the absence of any symptoms; on the other hand, all the symptoms of diffuse purulent meningitis or brain abscess may be present. If the process is perfectly walled off there will be no change in the cerebro-spinal fluid. However slight the symptoms may be in this class of cases, one must remember that it is a condition fraught with many grave possibilities and must be treated as such.

(Second.) Circumscribed purulent lepto-meningitis. In this case there is usually a fistulous perforation of the dura. The inflammation involves the pia mater and arachnoid, but adhesions are formed which bind the dura, arachnoid and pia mater more or less firmly together. The adhesions are seldom firm, and, while at times the pus and bacteria are walled off completely, quite commonly some

of the pus and bacteria find an entrance into the spinal fluid. The general aspect of the case can be expected to be similar to, but less severe, and the progress less rapid than in the diffuse form. There can be now no question that this localized form is a condition curable by operative procedure. This fact has been attested by a yearly increasing number of cases reported by men of unquestioned veracity and ability.

(Third.) Diffuse purulent lepto-meningitis. In this condition nature's efforts at localizing the infection have failed and the process extends usually quite rapidly. In the cerebro-spinal fluid we expect to find pus and bacteria with loss of the reducing substance. It is in defining this last stage that we find the greatest disagreement among authorities.

Moreover, there is generally recognized still another division—the serous meningitis. In the text-books serous meningitis is regarded as a congestion and œdema of the arachnoid and pia mater without there being any infection of the meninges. It is quite often secondary to a circumscribed pachymeningitis. The symptoms will be, or rather may be, identical with the previous types. We expect them to be less severe, but this is not necessarily true.

The fluid is ofttimes altered but little, or there may be some increase in the cell content. At times the cell increase may run up as high as a few thousand per cm. Globulin is rarely in excess and the dextrose is present as shown by prompt reduction of Fehling's or Benedict's reagents. Upon one finding, however, all agree; if pus and bacteria are found in the cerebro-spinal fluid, then we can not have a serous meningitis.

The serous type—also called meningismus or meningeal irritation—is the type usually found in pneumonia, typhoid, infective, endocarditis and nasal sinus disease. Of course, the purulent type also occurs.

Now I have gone into the different divisions of meningitis, at some length—pachymeningitis, circumscribed and diffuse lepto-meningitis and serous meningitis. The question naturally arises, Upon what shall we base our classification? Some good men make this distinction,—if your patient dies, we have a diffuse purulent meningitis; if he recovers, then it is positive proof there was present no diffuse menin-

gitis. Men like Hinesberg, Bertelsmann, Buschmann, subscribe to this view (p. 388, Kerrison). It is certainly a method that leaves the diagnosis in little doubt, but I would not judge it very satisfying to a patient. On the other hand, there is the view of Kaplan, p. 91:

"We may have a localized meningitis in which there will be no change in the cerebro-spinal fluid; but if the protecting barriers break down one no longer deals with a circumscribed disease and the bacterium becomes apparent either culturally or in the smear. The latter finding marks the existence of a diffuse cerebro-spinal meningitis. We are justified in distinguishing between the diffuse and circumscribed forms of meningitis micotica. I consider the absence of an accepted meningitic serology, such as a pathologic pleocytosis- globulin in excess, etc., as the distinguishing feature between the circumscribed and the diffuse forms of the disease. The presence of these manifestations and above all the finding of the exciting micro-organism remove the disease from the class of the circumscribed meningitis." According to this view, the findings in the spinal fluid quite largely determine the diagnosis of the presence and extent of the meningitis. The infection usually travels by direct extension through diseased bone. Often, however, the path is probably through the spaces in the bone, the lypmh or blood vessels, the underlying bone at least appearing quite healthy.

The cerebro-spinal fluid occupies the space between the dura and the arachnoid, filling the spinal canals. It is thus in contact with the ventricles, although there has been found no free communication. Upon this subject, however, there is quite a little conflicting testimony. Most workers, however, agree with Mott that the spinal fluid is a true secretion of the choroid plexus cells.

The normal reaction of the fluid is slightly alkaline and is capable of reducing Fehling's solution due to the presence of glucose or dextrose. There is some protein present, traces of globulin and albumose.

Normally, the appearance of the spinal fluid is clear like water. The normal cell count is seldom above eight per cubic millimeter, most of which are small lymphocytes. It does not clot on standing.

SYMPTOMS.

In a typical attack of purulent diffuse meningitis, the onset is announced by a severe chill, sharp rise of temperature and pulse and

severe headache. There is often vomiting, which may be quite severe. The patient is usually very restless, irritable and has the appearance of being severely ill, often out of all proportion to the rest of his symptoms.

These conditions continue. By the second or third day the neck muscles become stiff and the patient strongly resists any effort to flex the head forward on the chest, or even to move it sideways. Frequently there will be severe headache; later, there is twitching of muscles, singly or in groups. A tonic spasm of the muscles of the extremities sets in, so that the arms are held flexed on the thigh, the thigh flexed on the abdomen. Convulsions are not apt to occur in adults, but do in children. Opisthotonos may occur. Retraction of the abdomen is frequent with tympanitis.

Vertigo is frequently present. A general hyperæsthesia is apt to be a prominent symptom, so that the slightest touch causes a child to cry out in pain. This is sometimes followed by anæsthesia.

In the epidemic type, cutaneous eruptions are common, herpes facialis being said to be present in more than half the cases.

The condition of restlessness may pass over into delirium, which often becomes very violent. This delirium is possibly as constant a symptom as we have of diffuse meningitis.

Pupillary inequalities, one being either contracted or dilated, changes in the fundi, as optic neuritis are quite common in diffuse meningitis, and usually occur in the eye corresponding to the lesion. Photophobia is a prominent symptom. Ptosis and a strabismus which frequently changes and passes off are frequent symptoms. Head claims to find a Kernig positive in 84 per cent. of his cases. Babinski is often positive. Meyers found Oppenheim's test positive in 50 per cent. of his child tuberculous cases.

Now I have gone into the symptoms of the severe cases of meningitis quite thoroughly. It shows a well marked, clear-cut picture. I hope none of you expect to see it regularly with all the details. However that may be, it is always well to have the picture clearly in mind.

There is no certain way of clinically diagnosing the exact division or extent of the meningeal involvement. Almost all of the symptoms mentioned may be produced in a case of pneumonia where post mortem examination discloses very little pathology. On the

other hand, a purulent process involving all of the meninges, extending down into the cerebral fissures and into the cerebral tissue may show little outside of the terminal coma. While this seems discouraging, it is, of course, the exception. Similar freaks occur in all diseases. Thus we may find an abdomen full of pus from a ruptured appendiceal abscess where there has been almost an absence of symptoms, but such is far from being the usual case.

Clinically, there are certain symptoms quite commonly present. The headache is severe, usually quite out of the ordinary variety. The vomiting is quite constant, and has no relation to food taken. The delirium is quite suggestive.

Rigidity of the neck is quite constant and quite suggestive of meningeal involvement. I personally attach as much attention to this symptom as to any other. It might be misleading where there is present a cervical adenitis, and external periostitis or a thrombosed sinus.

Pupillary inequalities, strabismus and ptosis are quite dependable signs. Kernig's sign, a positive Babinski or Oppenheim, helps to nail on a diagnosis.

However, the most dependable, the most frequent and the most absolute of all is a positive spinal fluid. Please note that I said a positive spinal fluid. A normal finding does not rule out a meningitis, yet repeated negative results should go a long way in that direction. Don't depend upon just one spinal fluid examination. Do not wait until coma sets in before making the test. Any suspicious case should have the spinal fluid examined.

In any given case, the ocular inspection alone is not conclusive. Many cases may show distinctly local lesions upon post mortem. Yet upon microscopic examination of the meninges inflammatory changes can be demonstrated through a large area of the cerebral meninges, often, even down into the cord. In other cases the chief alterations are found in the ganglion cells of the cord (Anders).

Therefore, the diagnosis of a circumscribed meningitis can not be made macroscopically. If the examination even at post mortem is not accurate, how much less accurate is the opinion at the time of the operation! It simply can not be accepted as being as reliable as the spinal fluid examination.

Treatment.

These are all septic conditions and the treatment is essentially surgical. In those forms of pachymeningitis dependent upon a mastoid or nasal sinus abscess, the prime requisite is a thorough drainage of the infected area, with the removal of the diseased bone in contact with the dura. It is advisable to go well outside the apparently diseased area. Careful search should be made for any fistula. Fungoid granulations on the dura should be carefully removed in thin layers with scissors. If any fistulæ are found, or if the dura appears tense and presents no pulsation, incision of the dura and possibly of the brain itself is indicated. In the circumscribed leptomeningitis the dura must be freely opened, especially in the region of any fistulous tract. I do not think it is advisable to attempt to put any kind of drainage through the dural opening.

In serous meningitis, the prompt removal of all diseased bone and full exposure of the dura often effect a cure. If there is any indication of fluid below the dura, or should symptoms of serous encephalitis be marked, or if the patient does not rapidly improve following the removal of the diseased bone, the dura should be freely incised. I do not think any drainage tubes should be inserted through the dural opening.

In diffuse purulent meningitis there should be no delay in incising the dura, multiple incisions being used. In the terminal stage of diffuse purulent meningitis, the dura, arachnoid and pia mater are infiltrated, most markedly along the lymph-sheaths of the large vessels. The cortex of the brain under this area is softened and the blood vessels of the pia often thrombosed. The suppurative inflammation dips down into the fissures of the brain and often extends down into the spinal canal. The terminal stage represents an almost hopeless condition. However, I believe it is a misnomer to designate only such terminal states as diffuse purulent meningitis. I believe Kaplan's contention to be the right one, *i. e.*, that when the spinal fluid shows a high cell count, globulin in excess and the bacterium culturally or in smear, we are then justified in diagnosing a diffuse, purulent meningitis. With this definition in mind, let us be more prompt in making spinal punctures. Repeated fluid examinations are the best gauge we have of the progress of the disease.

Intra-spinal injections of Urotatropine were introduced by Dr. Harvey Cushing. Forty grains of Urotatropine should be dissolved in 30 cc. of sterile normal saline solution. After the withdrawal of about 40 cc. of spinal fluid, providing this much can be obtained, the urotatropine should be injected once or twice daily. While this has seemed of value in some cases, it often fails and is not as much used as formerly.

The Haynes-Kopetski operation for draining the cisterna magna in purulent lepto-meningitis is practically given up.

In several cases of meningitis I have tried intra-spinal injections of an isotonic solution of colloidal silver. In all the cases in which I tried it, some operation was performed. It is, therefore, impossible to state exactly what results are attributable to the silver. In my opinion it has proved of considerable value. Nevertheless, I have used it faithfully in other cases that died of a diffuse purulent meningitis, the diagnosis being confirmed by a post mortem. Yet in the milder cases it has seemed of value, as under its administration cases of an undoubted serous and purulent meningitis have recovered.

In conclusion, let me again repeat, I have only gone into some of the phases of meningitis. This is a field that is invaded by the neurologist, the general surgeon, the internist and the oto-laryngologist. Its problems can best be met by a united team work. Since the ear, the mastoid cells and the nasal accessory sinuses all are in intimate relation to the meninges, it seems but natural that the oto-laryngologist has come to regard the brain membranes as his lawful hunting ground. Certain it is that in any given case where there is a suspicion of meningitis the ear and nose should be most carefully examined.

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THROMBOSIS OF THE LATERAL SINUS. A REVIEW.

Emil Amberg, M. D.,

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ANATOMY.

CONCERNING the anatomy of the lateral sinus Phillips', Text-book, Diseases of the Ear, Nose and Throat, 1911, says (page 346, etc.):

"The sinus lateralis, or transversus, begins at the torcular Herophili (sinus confluens) and ends at the bulb of the jugular vein. The sinus has two anatomical divisions, taking names from the direction in space which they respectively occupy. That is, it is divided into a vertical and a horizontal portion, the vertical section being termed the sigmoid portion of the lateral sinus, or, more commonly, the sigmoid sinus. The place where the horizontal segment joins that of the sigmoid presents a rather angular turn, which is often termed the "knee" of the sigmoid sinus. During its course from the torcula to the jugular vein, it traverses and grooves portions of the occipital, parietal, and the mastoid portion of the temporal bone, and meanwhile receives the superior petrosal sinus, the mastoid emissary vein, and the inferior petrosal sinus, the latter entering at the jugular bulb.

The exact course of the sigmoid sinus varies in its relation to the cortex and to its approach to the suprameatal spine, and, furthermore, according to Kœrner, the sinus extends farther forward on the right side than it does upon the left.

The average distance from the anterior surface of the knee of the sinus to the spine of Henle in 463 adult temporal bones measured by Held was 12 mm. In one of his cases the sinus impinged upon the posterior meatal wall."

Kœrner, Text-book, 1909, page 269, says:

"The disturbing protrusion of the sinus is never found in pronounced dolichocephalic, frequently in mesocephalic and still more fre-

quently in brachycephalic skulls. In 77 per cent. of the cases the right sinus is more protruding outwardly and forwardly than the left."

In the Hand-book of special surgery of the ear, and the upper respiratory organs, by Katz, Preysing and Blumenfeld, Vol. I., first half, 1912, we read about the "Varieties of the sinus transversus and of the jugular bulb." Streit investigated the extremely variable conditions of the sinuses of the brain. He found the following:

1. Sometimes the sinus transversus, in its horizontal portion, is divided in two parts by a horizontal lamella. If this separation extends through the whole horizontal portion, it is duplicated thereby.

2. The end portion of the sulcus sigmoideus is sometimes changed into an almost entirely closed canal shortly before it enters the foramen jugulare.

3. The pars horizontalis of the sinus transversus may be missing, whereas the descending portion starting at the entrance of the superior petrosal sinus is present.

4. The horizontal portion of the sinus transversus may be extremely narrow.

5. Both sinus transversi are of normal width so far as the horizontal portion is concerned, but they make their exit through the enlarged foramen mastoideum. The left foramen jugular is formed by an oblique slit, whereas on the right side the slit is so narrow that even a bristle cannot pass. The blood of the sinus cannot flow through the jugular foramen, therefore the foramen mastoideum has a width of one centimeter on both sides (Observations of Budde).

6. The sigmoid sinus can sometimes protrude so far forward that the bone surrounding it becomes as thin as paper and transparent. Especially at the upper knee of the sinus frequently sharply circumscribed bulbous-like excavations are formed (Zuckerkandl). If these excavations are of extreme abnormality at the knee and at the middle and lower portion of the sinus, the whole mastoid process may be undermined to an extent that it appears like a thin shell surrounding the sinus. Very many varieties of dehiscences have been described by Zuckerkandl, Hartmann, Hyrtl, Brueckner, Hauervaas (ref. Streit).

Also the groove for the bulbus can be very narrow and slit-like. Ruedinger saw temporal bones without the least intimation of the jubular fossa. Kasslow found that only a thick anatomical probe

could pass the foramen jugulare. In one skull Zuckerkandl saw the right foramen jugulare eight times as wide as the left. In the same case there was not a trace of the left sinus transversus with the exception of a small portion near the jugular foramen.' A mighty sinus petrosus inferior entered this small opening, therefore Zuckerkandl thinks that the left jugular vein was an outlet only for the enlarged inferior petrosal sinus. Dehiscences of the bulbus toward the tympanic cavity and toward the posterior cranial fossa have been observed by von Troeltsch, Zuckerkandl, Budde, Stenger, Mueller and Kœrner.

Abnormal connections of veins with the sinus transversus.

Toynbee found in one case extremely large spaces in the anterior wall of the meatus for veins which communicated directly with the sinus transversus, which had, probably, caused suppuration of the sinus transversus, starting in the outer meatus.

Frequently small holes are found at the anterior periphery at the knee of the sulcus, from which osseous channels which contain veins, according to Streit, lead to the outer surface of the mastoid process. Manifold varieties exist also concerning the mastoid emissary, and the emissarium condyloideum.

Verga describes an abnormal connection of the veins between the sinus transversus and the sinus cavernosus.

Rarely, the vena auditivia interna enters the sinus transversus. Also the vena ophthalmica may communicate directly with the sinus transversus, through the so-called accessory blood conductor, the sinus ophthalmo-petrosus.

Concerning the sinus petrosus superior and inferior, I quote only in part: "The vena aqueductus vestibuli enters the sinus petrosus superior. The superior petrosal sinus enters also into communication with the veins of the tympanic cavity through small veins from the fissura petro-squamosa."

E. Amberg (The Relative Frequency of a Protruding Lateral Sinus, etc.), *New York Med. Jour.* and *Philadelphia Med. Jour.*, Sept. 9, 1905, writes in part:

"Hartman says: 'The shortest distance between the sigmoid fossa and the posterior wall of the meatus was in my crosscuts, which were made perpendicular to the axis of the meatus, among one hundred

temporal bones, forty-one times one centimetre and less, once five mm., five times six mm., six times seven mm. The average distance was 11.5 mm., the greatest 19 mm.' "

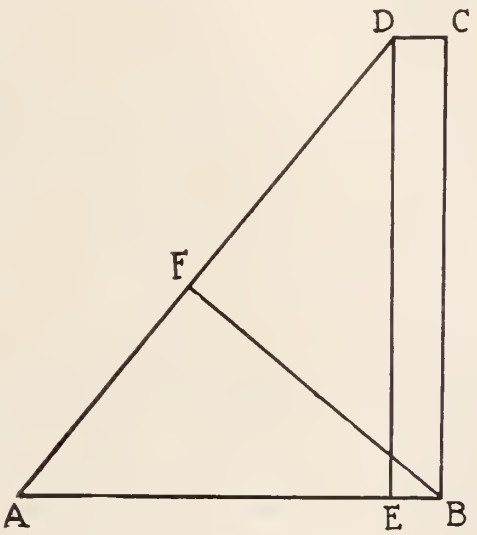
I have figured out that for practical purposes the lateral sinus which comes nearer than 10.6 mm. to the suprameatal spine can be regarded as displaced forward.

E. Amberg (*Physician and Surgeon*, Nov., 1899), "In order to form an idea when we ought to consider the lateral sinus displaced forward from a surgical point of view, I constructed a diagram of the conditions which we expect when we operate after Schwartze. (See figure No. 1.)

Fig. I.

Holmes says that the level of the posterior upper margin of the drum membrane lies, as a rule, fifteen mm. from the spina supra meatum. The distance of the antrum mastoideum from the meatus is, after Bezold, two mm. or less. Schwartze says that the mastoid has to be opened, as a rule, five to ten mm. behind the spina supra meatum, and that the width of the outer opening might be twelve mm. After these measurements I made a diagram in the following way: I constructed a trapezium with a right angle, one side of which, B C, represents the distance from the spina supra meatum to the antrum, fifteen mm. (after Holmes), the top of which, D C, represents the distance

from the posterior wall of the meatus to the antrum, one and five-tenths mm. (after Bezold, two mm. and less), and the base of which represents the distance of the anterior border of the opening E from the anterior border of the posterior wall of the meatus B, for which distance, E B, I allowed one and five-tenths mm., which allowance can certainly not be considered as too liberal. For the second part of the base, E A, I allowed twelve mm., the largest diameter, according to Schwartze. If we connect A and D and draw the perpendicular from B on A D, we find that this perpendicular, B F, has the length of about ten and six-tenths mm. I do not think we go much out of the way when we regard a lateral sinus displaced forward if it approaches the supra meatal spine more than ten and six-tenths mm."



If we allow for B E seven and one-half mm., F B is about twelve and one-half mm., and if we allow for E A ten mm., F B is about twelve mm. The latter distance corresponds to that of Held.

In this connection I may add that the finding of this lateral sinus has been made easier for me by applying the method described by me in the *Journal of the American Medical Association,* of May 19, 1906. I called attention to the fact that in adults an easily accessible portion of the lateral sinus may be found when we open that part of the mastoid process which is located in the direction of the line which divides into two halves the angle formed by the temporal line and the anterior border of the mastoid process (an angle of about 115° in

adults). In the *Medical Record*, October 22, 1910, I published a guide for the lateral sinus line for adults.

One shank should be held over the anterior border of the mastoid process, the other over the temporal line. (See figure No. 2.) The handle of the guide (figure No. 2) gives the direction of the lateral

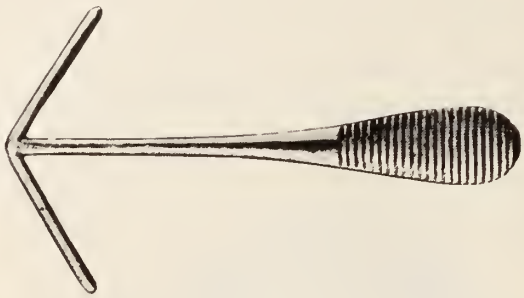


Fig. II.

sinus line. Even if the angle formed by the anterior border of the mastoid process and the temporal line should be somewhat different, the instrument is of service by allowing the same margin of deviation to both shanks. The length of the whole instrument is about 8.25 cm.

PATHOLOGY.

William R. Wilde, of Dublin, in his book, "Practical Remarks on Otology," German translation, 1855, page 489, says:

"In a communication recently presented to the Medico-Chirurgical Society of London, concerning ear diseases which cause brain affection to which I have already called attention on page 234, Mr. Toynbee has tabulated the various cases narrated in medical and surgical reports."

"I think I may be permitted to state here that I have called attention to this matter already before that time, in January 1844, and that I reported some cases which occurred at that time in Ireland."

On page 491 Wilde says: "I recollect, by the way, two cases which I think are types of many others of the same kind, in which the lungs become affected in the last stage of the disease, and in which the trouble in the chest appeared to be the immediate cause of the end. In both a considerable swelling of the neck occurred along the musculus mastoideus, which swelling reached from the ear to the clavicula.

"Several years ago I treated one of these cases with Dr. Cusack

and Dr. Stokes. A large abscess developed in the region of the jugular vein, and the patient died of gangrene of the lung.

"In this case the odor of the breath was totally unbearable. In the other patient whom I treated last month with Dr. Cusack and Dr. Newland, a considerable swelling occurred on the side of the neck from the region of the ear to the clavicula: the patient died, apparently, of the affection of the lung and with the same odor of breath as the other mentioned before. In such cases I am inclined to think that the disease of the temporal bone extends to the lateral cavity and produces a suppurative infection of the venous system which ends, at last, with a disease of the lungs."

Von Troeltsch, "Diseases of the Ear, Wuerzburg, 1862," page 207, says as follows: "Like any cranial bone, the temporal bone, through the vessels of the diploe, is intimately connected with the endo-cranium, namely, with the dura mater with its venous sinuses just as the cutaneous lining of the meatus and the middle ear with the underlying bone, quasi representing the pericranium of the same." Von Troeltsch continues: "At all times surgeons have pointed out that each injury of the skull in its hard and soft parts should not be considered of little import, because it has been demonstrated that it is surprisingly often followed by inflammatory processes, and abscesses in distant organs which lead to a fatal outcome. Long ago already such an experience was attributed to the participation of the diploe. Now we know, especially through the epoch making pioneer work of Virchow, that besides the veins of the lower extremities and the pelvis, no part of the circulatory system furnishes so favorable conditions for the formation of thrombi as the vessels of the dura mater, and the net of venous capillaries communicating with them. The net is found in all hollow spaces of the cranial bones, fills them to a large extent and causes them to be organs rich in blood. Purely mechanical moments give such significance to the osteophlebitis of the diploe, so dreaded by the surgeons. The vessels of the diploe are frequently (although not in all places) adherent to the unyielding osseous walls. In this manner they cannot collapse and thrombi, fibrinous coagula can develop more easily. By further growth they reach the sinus, develop still further, are at last carried away and create metastatic inflammations in the current of the pulmonary artery, etc. Von Troeltsch mentions that the fre-

quency of such occurrences had been demonstrated in England for some time."

Kœrner, "The Otitic Diseases of the Brain, the Meninges and the Veins, Wiesbaden, 1908," page 32, etc., says: "Stenger ("Transactions of the German Otological Society, 1904, 109) brought the development of sinus-thrombosis in dogs nearer to our understanding. He experimented with highly virulent streptococci. Firstly, he laid a tampon with cultures upon the wall of the sinus; secondly, he introduced such a tampon into the sinus which he had opened; thirdly, he injected cultures into the sinus, and fourthly, he scratched the wall of the sinus and placed an infected thrombus on the injured spot. Only by the fourth method, a putrefying thrombus developed. Making also use of similar investigations by Talke (in Bruns' Contributions to Clinical Surgery, Vol. 34, part 2), Stenger reaches the following conclusions:

1. The wall of the vessel is the greatest protection against an infectious thrombosis. Microbes, which reach the healthy blood current through a healthy wall of the vessel, are annihilated. A non-mechanical formation of a thrombus is preceded by a diseased wall of the vessel with a subsequent diseased blood current.

"2. Microbes do not cause a thrombus by settling on the intima, but the thrombus is caused by inflammatory changes in the blood, which is indirectly caused by the microbic invasion.

"3. There are no so-called parietal thrombi.

"4. Formation of thrombi occurs before microbes reach the blood current. The infection of thrombi is secondary.

"According to a review by Hasslauer (Internat. Zentralbl. f. Ohrenheilkunde, Vol. V, No. 1) streptococci are mostly found in the sinus contents, in sinus-phlebitis, especially in acute cases. Streptococci were mostly found in the blood and in the metastases.

"Kobrach (A. f. O. 60. 1) proved by agglutination in an otogenous general pyemic infection the proteus vulgaris to be the cause, and Voss (Publications on Subjects of Military Sanitation, 1906), found by agglutination the bacillus pyocyaneus as the cause of an otogenous general infection.

Brieger and Stenger (1904) reported experiments on animals. Dr. Ludwig Haymann, assistant to the University Clinic of Munich (Archiv. fuer Ohrenheilkunde, Volume 83, page 123), says that in

experiments on animals only one kind of artificially produced sinus thrombosis comes into consideration, namely, the production of a sinus thrombosis from the outer wall of the sinus, whereas in the human being we think of several modes of infection, namely, infection from the outer wall of the sinus, propagation of thrombi in the veins of the bone into the sinus, accumulation of microbes at certain places in the circulation of the blood. Yet this objection can be met by the assertion that the latter possibilities are rather problematical. At any rate, he thinks the manner in which a thrombosis of the lateral sinus is produced, experimentally, in animals, represents the way in which it occurs in man in the great majority of the cases. Haymann experimented on twenty dogs and six monkeys. He asked himself:

(1) How long after the infection and, in what manner, does sinus thrombosis occur from the outer wall of the sinus in the different kinds of infection?

(2) Do microbes reach the blood current only from the outer surface of the sinus, and exclusively through a sinus thrombosis.

(3) What course does a thrombosis of the lateral sinus take if it is not influenced by diagnostic or therapeutic processes?

(4) How does the histological picture show the origin, development and spontaneous course of a sinus thrombosis, also the action of the microbes in the thrombus and in the wall of the sinus?

(5) Of what influence are certain interferences with the sinus and jugular vein—may they be used for diagnostic or therapeutic purposes—concerning the development and course of a thrombosis—(a) under normal conditions, (b) in local infection, (c) in general infection? Through painstaking experiments Haymann reaches the following conclusions:

1st. One can best create infectious sinus thrombi from the outer surface of the sinus by applying an infected tampon. If microbes are merely brushed on the sinus wall or rubbed into it, usually a thrombus is not created, even if the sinus wall is injured superficially. Sterile compression of the sinus need not cause a thrombosis.

2d. Microbes may reach the blood current without the aid of a thrombosis. An otogenous pyemia may develop without the formation of a thrombus at the seat of infection.

3d. Thrombosis of the lateral sinus, as a rule, develops as parietal

apposition (Auflagerung), which then becomes more or less quickly obturating. Under certain circumstances a larger portion of the blood column can coagulate so quickly that one gets the impression of a thrombus which appeared suddenly.

There is a great variation in the time between the effect of the infectious agent on the outer wall of the sinus and the beginning of the coagulation, in the lumen. The same holds good concerning the time in which a parietal thrombosis becomes an obturating thrombus.

4th. Thrombi may contain microbes already when they start. The microbes, however, can also appear secondarily. The microbes found in the thrombus immigrate mostly from the outside, but they can also be taken up from the blood.

The contents of microbes in the thrombi vary greatly. As a rule, the ends are more benign, but that is not an absolute rule. Moderate contents of microbes are no obstacle for organization.

5th. Thrombi may remain parietal and can thus be organized.

6th. Thrombi grow mostly centrally. Discontinued formation of thrombi may, among other conditions, occur in the following manner: Thrombosed veins of the dura may reach the lumen of the sinus which had become free of a thrombus and can, in this manner, create a new thrombus.

7th. It is peculiar that, experimentally created, especially parietal, thrombi show a pronounced tendency toward spontaneous healing. They begin to become organized already very early. This usually occurs also in malign thrombi. After 15, 17 and 23 days, originally infectious thrombi were organized, vascularized, resp. recanalized, although the infection at times had led to a total destruction of the wall of the sinus.

8th. The macroscopic appearance of the wall of the sinus does not permit to draw any safe conclusions concerning the contents of the sinus. The macroscopic appearance of a thrombus does not permit any conclusions concerning its benignity. A liquidly putrefied thrombus permits conclusions.

9th. Aseptic interference with a thrombus (incision and compression) do not lead to a thrombosis.

10th. Aseptic manipulations on the sinus, which otherwise are tolerated without any danger, lead to an extensive thrombosis, if a

bacteremia is created, experimentally, by the introduction of an emulsion of microbes (Bakterien aufschwemmungen) into a vein.

Politzer, "Text-book of Otology, 1908," pages 519, etc., says:

"Arthur H. Cheatle (Transactions of the VI. International Otological Congress in London, 1899; London, 1900) describes as sinus petro-squamosus a very variable venous blood vesseel which is not constant and which is located in a groove of the middle cranial fossa, enters the sinus transversus and often reaches the outside of the cranium through a canal in the temporal bone and the zygomatic process. This sinus, according to Cheatle, furnishes the anastomosis between the veins of the middle ear and those of the meninges and explains the transmission of a suppurative process from the middle ear to the cranial cavity without microscopic changes in the osseous walls of the temporal bone. A case in point was observed by Cleveland (Arch. of Otology, 1905). Other ways of infection are furnished by the vena auditiva interna and the veins of the aqueducts from which the inflammation is transmitted to the sinus petrosus inferior, and the venæ emissariæ mastoideæ, which cause the infection of the sinus transversus. The infection of the veins of the temporal bone can also start with an extradural abscess (Kramer, Zeitschrift fuer Ohrenheilkunde, Vol. 54). My own observations (Politzer) confirm the observation of Hasslauer (Centralblatt fuer Ohrenheilkunde, Vol. 5) that streptococci are mostly found in the infected sinus contents and in the metastases. The inflammatory processes in the veins of the temporal bone develop in acute and chronic processes of the middle ear, by extension of a suppurative infection of the bone to the wall of the vein. When in acute middle ear suppurations the inflammation advances to the wall of the sinus transversus, a suppuration develops between the sulcus and the wall of the sinus, which leads to a peri-sinus abscess. Hereby, at first, an inflammation is caused in the outer layers of the wall of the vein with the symptom of high fever.

"* * * In the further course an inflammation of the intima occurs with the formation of a thrombosis, pyæmia, and embolus with fatal ending, if the peri-sinus abscess is not opened in time. Besides the high, continuous fever, we have tenderness on pressure on the posterior wall of the mastoid process and later an œdematous swelling in this region."

Phillips' Diseases of the Ear, Nose and Throat, page 351, says:

"Finally, Libman, of the Mt. Sinai Hospital, New York, has published observations in which he holds that the finding of streptococcus in the blood stream, when all other possible sources of origin of the bacteremia are eliminated, indicates a sinus-thrombosis.

"In all of his published cases the positive findings of streptococci in the blood, by culturing the blood (after withdrawal from a vein), were substantiated at the operation by finding the sinus thrombotic.

"In the present state of the subject we do not feel that we are justified in saying that the finding of streptococci in the blood necessarily means the existence of a sinus-thrombosis, even after all sources of the bacteremia are eliminated. When, however, in addition to other classical signs, the blood shows streptococci, this finding then furnishes conclusive corroborative evidence of the presence of a thrombus, marked leucocytosis and a high polymorphonuclear percentage being among the associated symptoms."

Upon inquiry, Dr. E. Libman very kindly wrote me, June 1, 1917, as follows:

"According to our experience, streptococci occur in the blood in mastoid cases only if the sinus or the meninges are involved. The meningitis can be excluded by clinical examination and lumbar puncture. Of course, both conditions may co-exist. One must not lay too much stress on cultures that are positive within twenty-four hours after operation upon the mastoid, because bacteria may be thrown into the circulation temporarily by the operative procedure. A positive blood culture is then only of importance if it is very marked or if the clinical picture helps to make the diagnosis. In the same way blood cultures taken twenty-four to thirty-six hours before death are of no significance. It is important to exclude other foci in the body which might cause a streptococcemia. In young children one must be a little bit conservative in acting upon the results of a positive blood culture. It is possible that they get a bacteremia without a sinus thrombosis. We have seen bacteria present and seen recovery without operation upon the sinus, the fever lasting only a few days. Nobody, of course, can exclude the presence of a thrombosis in such a case, especially as cases recover and we have not the possibility of finding out by autopsy."

Dr. Duel and Dr. Dwyer, of New York City (American Otological Society, May, 1917), are engaged in studying the pathogenic properties of the staphylococcus pyogenes albus and the connection of the same with lateral sinus thrombosis. The different types of staphylococcus albus are being investigated at present by Dr. Dwyer.

Dr. Dench in a discussion in the New York Academy of Medicine, October 13, 1916 (*Annals of Otology, Rhinology and Laryngology*, March, 1917, page 199), states that a healthy sinus wall cannot always be determined macroscopically, that he had frequently incised the internal jugular where the vein contained no clot, and that a microscopic examination of the wall of the vein showed infiltration with streptococci.

FREQUENCY.

Phillips' Diseases of the Ear, Nose and Throat, page 345, says:

"Hassler compiled the intracranial complications from a total of 81,684 cases of diseases of the ear, from which number there were 116 deaths from intracranial extension, classified as follows:

Meningitis 40
Sinus-thrombosis 48
Cerebral abscess 28

Kœrner compiled the results of 115 autopsies where death had been due to otitis infection of the meninges and found:

Meningitis in 31
Sinus-thrombosis in 41
Brain abscess in 43

The reports of the Manhattan Eye, Ear and Throat Hospital from 1895 to 1905 record 12,744 cases of purulent otitis media aside from other ear diseases, with 60 cases of intracranial complications:

Meningitis 30
Sinus-thrombosis 23
Brain abscess 7

SYMPTOMS AND DIAGNOSIS.

Kœrner mentions that phlebitis and thrombosis of the sinus of the dura mater and of the jugular vein were correctly recognized in connection with suppuration in the temporal bone, in 1826 by Hooper, in 1836 by Abercrombie, in 1840 by Bruce, in 1845 by Virchow, and in 1849 by Sédillot.

Politzer says: The purely pyæmic cases of sinus thrombosis are characterized by severe chill and fever, with the characteristic very remitting course and through emboli and metastases in the various organs. The much less frequent purely septic cases are characterized by the high continuous fever, various exanthemata and hæmorrhages, especially, however, by the symptoms of a general intoxication (delirium), vomiting, cyanosis, icterus, enlarged pupils, weak pulse, dry tongue, heart collapse, coma. Not infrequently septic and pyæmic symptoms are combined (septico-pyæmia) (Kuemmel).

"Headache is the main symptom in a phlebitis and thrombosis of the sinus transversus following an otitis purulenta. It is, as a rule, one-sided, circumscribed, in the posterior portion of the affected side, and when it is more diffuse already a symptom of an accompanying meningitis. Through propagation of the thrombus into the neighboring veins, symptoms may arise which, considerably, confirm the diagnosis, namely, secondary thrombosis of the jugular vein, with induration and pain along its course, œdema of the lateral part of the neck (sometimes accompanied by abscess formation along its course and extension to the vagus nerve with its symptoms). Obturation of the emissarium in the fossa sigmoidea and in consequence of this a painful œdema restricted to the region of the mastoid process, a phlegmasia dolens en miniature behind the ear may occur. The uneven fulness of the jugular veins, resulting from the collapse of the vein in connection with the sinus on which Gerhardt laid great stress concerning the symptomatology of the sinus transversus, could not be confirmed by other investigators, etc., etc.

"Chills occur more frequently toward the end, so that frequently several chills are observed in one day. An important, also very inconstant, diagnostic symptom of the thrombosis of the sinus transversus is furnished by an œdematous swelling in the region of the entrance of the emissarium into the sinus (Griesinger). A complicated complex of symptoms presents itself when the thrombus extends into the sinus petrosus superior and inferior, and from here into the sinus cavernous. The thrombosis of the sinus petrosus superior manifests itself pre-eminently by swelling of the veins in the region of the temple, thrombosis of the retinal veins (Politzer), epistaxis and epileptiform attacks.

"If the thrombus extends into the cavernous sinus a thrombosis occurs in the ophthalmic veins and a stowing in the vessels of the orbita, disturbances of vision, photophobia, paralysis of the oculomotor nerve, of the abducens and trochlearis, exophthalmus, ptosis, œdema of the lids, abscess of the orbital tissue and neuralgia of the trigeminus."

Concerning the differential diagnosis Politzer refers to the lumbar puncture as an aid in diagnosis of meningitis against sinus thrombosis and continues by saying that in meningitis and abscess of the brain there are never found such intense chills and high temperatures as in sinus thrombosis. "In sinus thrombosis brain symptoms are only little pronounced. The mind is clear until toward the terminal coma, and, contrary to meningitis, there is found a pronounced euphoria. If we omit to consider the ear affection it may be possible to think of typhoid fever, malaria and miliary tuberculosis. According to Hansberg sinus thrombosis may simulate acute articular rheumatism."

Kœrner claims that phlebitis of one of the two petrosal sinuses does not make any symptoms, that the symptoms of epistaxis and epileptiform attacks are, theoretically, construed. He claims that in some cases pyæmia and formation of metastases result, although more rarely than in diseases of the transversus sinus.

ROENTGEN RAY EXAMINATION.

Dr. Ralph Butler, of Philadelphia, (*The Journal of the Pennsylvania Medical Association,* January, 1917), says: "Recent improvements in the taking and reading of Roentgen ray plates makes them necessary in doubtful cases. About a year ago the writer had a case in which they showed a clot in the sinus and we operated in spite of largely negative ear symptoms, finding the clot just where the plates indicated. The mastoid was normal macroscopically."

H. W. Loeb, Operative Surgery of the Nose, Throat and Ear, 1917, page 364, under "Roentgenographic Evidence," says: "Thus far roentgenography has been of little service in the diagnosis of sinus thrombosis. In the normal sinus, it is possible to distinguish the curve of the sinus groove from the torcular herophili to and through the mastoid region; if, however, the sinus is thrombosed, particularly with a dense organized clot, the outline of the groove will appear considerably diminished."

PROGNOSIS.

Kœrner (Text-book of Otology, 1906, page 207), says:

"The outcome of sinus phlebitis unless surgically treated is mostly fatal. If the thrombus is solid and not degenerated, it may become organized and obliterate the sinus. Such spontaneous cures are rare. If a solid thrombus which occludes the lumen well, suppurates only in the middle, there is no danger of general infection and formation of metastases, but the danger of complicating meningitis and abscess of the brain becomes greater. In general pyæmic infection spontaneous cure may take place if no dangerous metastases exist and no other intracranial complications set in.

"Nevertheless, such cases are so rare that the prognosis of an otitic sinus phlebitis, which is not operated upon, is bad. Death mostly results in consequence of pyæmic and septic general infection or meningitis."

If death results, it is caused according to Kœrner by:

1. Pyæmic or septic general intoxication.
2. Pyæmic metastases, especially by pyo-pneumo-thorax following the rupture of a lung abscess.
3. Complicating meningitis or brain abscess.
4. Hæmorrhage from the sinus (rare).
5. Paralysis of the vagus (rare).

TREATMENT.

Kœrner, The Otitic Diseases, 1908, page 125, etc., under Indications for operation and choice of method, says:

"If there exists a suspicion that a sinus phlebitis exists in a suppuration of the ear, or the temporal bone, the immediate removal of the suppuration in the ear and in the temporal bone must be undertaken. According to the kind and extent of this suppuration the simple opening of the mastoid cells, or, the antrum is chosen, or, the opening of all the middle ear cavities. Either one finds that the destruction of the bone extends already to the sinus, and one can examine the same, or if such a way is not prearranged by the disease, one opens, for purely diagnostic reasons, the posterior cranial fossa, at first in the fossa sigmoidea of the transversal sinus. In many instances, cases of sinus phlebitis have been cured by removal of the causative temporal bone disease with or without evacuations of an

extradural peri-sinus abscess, even those which were complicated by outspoken pyæmia. Whether it is permissible to do nothing more than to attack the original focus and possibly present peri-sinus abscess depends, above all, upon the findings when the sinus is uncovered. Also the general condition of the patient must be taken into consideration. If the exposed sinus is not changed, immediate further interference is only justified if pyæmia or sepsis exist. In such a case, the ligation of the jugularis and the subsequent incision of the sinus must be considered. The covering of the sinus with granulations is, as a rule, of not more importance than the covering of the dura with granulations. If a thrombus is found in the sinus in patients not suffering from fever, it must be uncovered by a free incision, and, if it is soft, it must be removed as far as it is soft. If, however, fever is present in a patient with such a finding, we are justified even if the fever is not of a pyæmic nature, to open and to evacuate the thrombosed sinus after the jugular vein has been tied. If the jugular is shown to be diseased, or, if pyæmic or septic fever exists without a demonstrable disease of the jugular vein, it is necessary to tie the internal jugular vein, and to evacute the sinus."

Philip D. Kerrison, Text-book, says, concerning the ligature and resection of the jugular vein in sinus thrombosis:

"In the above statement I have tried to present impartially the two sides of this question as one still subjudice. As to my personal belief, a review of the subject has forced me to the conclusion that in a majority of the cases in which the jugular vein has been resected, most of my own cases being included, the simpler operation of ligation would have fulfilled the surgical indications quite as well, with less danger to the patient in the considerable shock which occasionally results from jugular resection.

"As to the question of whether there is any class of cases in which ligation may be distinctly preferable, it seems to the writer that a positive indication for the simpler operation may be found in cases of great systemic exhaustion in which every minute saved from the anæsthetic and operative strain adds to the patient's chances of recovery.

"Before considering the operative treatment in detail, I wish also to say a word in regard to a question upon which otological literature

throws little light, viz., in what class of cases is the sinus operation alone, *i. e.,* without jugular ligation or resection indicated? Theoretically, this question is easily answered by the statement that it is indicated in cases in which the physical evidences on opening the sinus are of a circumscribed lesion situated well above the lower end of the vertical limb. But how are we to determine such limitation? Suppose, for example, that we operate on a case in which symptoms of periodic septic absorption have been present, and that on opening the sinus we have free bleeding from the direction of the bulb, and a demonstrable clot toward the torcular end.

'Such a case would seem to present ideal conditions for the sinus operation alone. But can we be sure either that a secondary infection at the bulb does not already exist, or that in the manipulation incident to the opening of the sinus, its compression below and the removal of a septic clot above, we have not sown the seed for septic thrombosis below? Or suppose that we find absolutely no physical evidences of a clot; can we from this conclude that a non-obstructive parietal clot does not exist in the bulb? Personally, I feel that when we have opened the sinus to the extent necessary to explore its lumen for the presence of a suspected clot, we have incurred the risk of producing a traumatic thrombus even though none has previously existed. For this reason, and those stated above, I believe that when we have assumed the responsibility of opening a sinus on account of symptoms of septic absorption, we should in every case further safeguard the patient by ligation or resection of the jugular vein.

"Ordinarily, I do not believe that it greatly matters which operation is performed first. When, however, the patient's condition is so profoundly septic and his vitality so greatly reduced that the addition of any fresh septic material to that already circulating in the blood might turn the scale unfavorably, I should say that ligation of the vein should precede the opening of the sinus.

"In any case, and whichever order of precedence is observed, the sinus should always be freely exposed and ready for exploration before the vein is operated upon."

This short review does not claim completeness. It only shows, with all its shortcomings, the largeness of the apparently simple subject matter (sinus thrombosis). The surgeon may encounter, at times,

cases which may be easily recognized and easily cured, at other times the diagnosis may be difficult and the quickness of perception and decision, and the skill of the surgeon may be taxed to the utmost.

In case of doubt, an exploratory operation is indicated.

David Whitney Bldg.

Otitic Meningitis without Suppuration in the Middle Ear.—Baldenweck and Roger refer to meningitis which appears as the first objective clinical manifestation of a non-suppurative otitis. The four different ways by which the infection can be transmitted are described, with two cases with necropsy, showing that this complication may occur even with an infection in the middle ear too mild to have attracted attention.—*Journal Amer. Med. Assn.*, June 23, 1917.

A REVIEW OF SOME CONDITIONS AFFECTING THE OPTIC TRACTS.*

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IN the domain of the optic nerve and retina in the past two or three years there has been little done along the line of original research. Most of the work has been in the form of experimental advances in operative surgery.

Dr. L. Webster Fox has recently called attention anew to the effect of dental caries, particularly pyorrhœa alveolaris. He has estimated that pyorrhœa is not only a source of trouble in diseases of the eye but that it is a source of various systemic diseases. "Most pyorrhœa pockets contain one or more pathogenic bacteria, staphylococci, streptococci, pneumococci, diplococci, etc. As for pus, one can obtain one or two drops from a pyorrhœa socket by massaging it, and after five or six hours a similar amount may be obtained. It is not a high estimate to say that at least four drops of pus can be secured from the average pyorrhœa pocket during the twenty-four hours. This would be an ounce in one hundred and twenty days, or three ounces in a year. We believe it to be a conservative estimate to say that the average tooth suppurates more than ten years before it is finally removed by pyorrhœa. Thus about one quart of pus would be produced for each tooth, and for all 32 teeth, about eight gallons. The disgusting part is, that all this is swallowed. It would be of no great surprise if the production and loss of this large amount of pus should have marked harmful influence on the health and perhaps the longevity of the individual."

These pathological germs have a marked effect in operations for cataract, glaucoma, as well as in surgical operations in other parts of the body. Dr. Fox states that many cases of slow iritis, chorioretinitis and vitreous opacities are due to endamœba bucallis in conjunction with the pus producing bacteria, especially the streptococcus.

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*Read before the American Ass'n for Clinical Research, Sept., 1916.

These cases are particularly found in elderly people. Dr. Lang before the Royal Society of Medicine, in London, said that out of 215 cases attributed to sepsis, which included cases of disease of the lachrymal sac, inflamed tonsils, appendicitis, colitis, and nephritis, 139 were due to pyorrhœa. Dr. Lang further stated that although there are many cases of pyorrhœa, little attention is paid to it, the objection being made that very bad cases are found in people who are enjoying the best of health and do not complain. He says that these objectors have forgotten that nature raises a protective barrier to the invading bacteria, and if the progress be slow the barrier is efficient as long as the patient is in fair health, but as soon as the general resistance is lowered by illness or traumatism the toxin will pass through the defending barriers and some tissue may become the seat of disease.

A study was made by a number of Philadelphia physicians of the pituitary body. Dr. de Schweinitz in speaking of the visual disturbances in diseases of the pituitary body mentions the cause as being compression of the optic chiasm, optic tracts and optic nerves and the effects vary from simple blurred sight to complete blindness, and the alterations in the optic nerve from partial or general pallor of the nerve end to partial or complete atrophy. Less frequently there may be optic neuritis. Alterations in the field for form and colors take place with various hallucinations, chromanoptias, photophobia and palsy of the exterior ocular muscles, nystagmus and exophthalmus. In the discussion of pituitary disorders it was said that the hypophysis was probably a link in the chain of the internal secreting glands in controlling the skeletal development and sexual life.

Dr. Frazier in advocating glandular feeding as a means of combatting various diseased conditions of the pituitary said that he did it with much hesitation for fear that it might become as serious in its effects as potassium iodide therapy in brain tumor. He says the latter is the "screen behind which we conceal our inability to make a diagnosis or to localize the growth, which has been responsible more than any one factor, for the numberless cases of optic atrophy when brain tumor cases come to the surgeon for relief."

In an article on retro-bulbar neuritis from intoxication from thyroidin, Dr. Miles Standish, of Boston, has recently called attention to the conditions resulting from the use of thyroid extract. He

says that the number of cases reported has been small considering the extensive use made of the drug in the past few years, but he thinks that the neuritis might have been overlooked in some of the cases. He finds eight cases of neuritis with central scotoma. Five cases were reported by Dr. H. Coppez—four women and a man between 30 and 40 years. Toxæmia developed after using the drug in large doses for months. They lost a large amount of weight and had general nervous disturbances. The vision in both eyes was reduced to one-tenth or less.

Hennicke reports a case of a man of 53 who had taken the thyroidin four years for myxœdema. Three years after he was first seen the vision was reduced from 6/30 in the right eye to movements of the hand and the right nerve was white and the arteries scarcely visible. The thyroidin was discontinued and iodide of potash was prescribed, and on November 31st, two months later, the vision in the right eye was again 6/30, and in the left 6/18.

Another case reported was a woman who had taken thyroid extract for three months to reduce her weight. Her vision was then reduced to 2/3 the normal, and the perimeter showed an oval central scotoma for red and green. The stopping of the thyroid extract and the giving of strychnine caused the scotoma to disappear. Another case of myxœdema has been reported treated with thyroid extract, which improved this condition but caused optic neuritis and atrophy. Dr. Standish reports a case of a woman who had had myxœdema treated with thyroidin for several years, and she was supposed to be cured. She had taken five grains of thyroidin tablets three times a day for fourteen years, and for five or six years had taken one tablet each day. On the discontinuance of the thyroidin the vision was improved but the myxœdema returned. She died very suddenly three months later. A man of 40 who had had a blur before his right eye for eight months, his vision was then reduced to one-tenth in the right and in the left eye to eight-tenths. He had had an operation for the removal of half the thyroid gland six years before and two years later the other half was removed on account of a fibrous tumor. Since the last operation he had had a pulse of 120. He was very excitable and had some uncertainty in walking. For four years he had taken one-half grain of thyroidin before each meal. The

ophthalmoscope did not show much change in the color of the nerve or the size of the fields. He had a central scotoma, however, for all colors except blue. A stout woman of thirty-three took, on the advice of some friend, a proprietary medicine which was probably desiccated thyroidin. She took thirty grains on two successive days and sixty grains on the third. Her vision was then so reduced that she could not read. The nerves were pale and the arteries small. The vision was reduced to one-tenth; her pulse 120. There was a central scotoma for all colors. Her vision returned to 6/15 in the right, and 6/22 in the left. The most startling thing in these cases, says Dr. Standish, is the wide difference in the susceptibility of the different individuals to the drug. It is apparent that thyroidin should not be prescribed indiscriminately or sold to the public for the purpose of reducing weight.

More and more it is becoming recognized that retro-bulbar neuritis is often due to conditions in the sphenoid or posterior ethmoid cells, and it would seem in most conditions that it would be wise in cases of neuritis, whether retro-bulbar or not, to have an X-ray examination and to thoroughly eliminate trouble in the sinuses before beginning treatment.

Dr. Bissell, of Rochester, has recently classified the data from a study of the literature of perimetry. He says that perimetry can reveal, first, the peripheral visual acuity if objects from 1 to 20 mm. in diameter are employed. The blind spot and scotomata and form fields can be distinctly outlined. It will also tell us much regarding the color sense, the area of the color fields and to a certain extent reveal the light sense by varying the illumination. He suggests that three instruments are necessary—a good perimeter, a stereoscope with Haitz's cards and some form of a campimeter. The doctor suggests that the methods are faulty because consideration is not given to retinal fatigue, quality of the light, size of the pupil, the error of refraction, the difficulties of fixation and the mental alertness of the patient. He suggests also that there is a lack of knowledge of what is physiological and pathological so that the examiner may know what to expect in a given case.

The diagnosis of the disease of the optic nerve has been improved by the development of the perimeter which has been greatly improved by the studies of Walker and Bjerrum. It is possible by special ap-

paratus to chart the size of the macula region as accurately as are the form and color fields of the retina.

Several additional cases of quinine amblyopia have been reported in the last two or three years from varying doses of the drug. It has long seemed to the writer that there was a great deal of carelessness in the administration of quinine and the attitude of physicians in instructing the public of the dangers to both the optic and the auditory nerves from the use of this drug. Everybody realizes that tinnitus and deafness may be caused by the small doses, but the statement made that it does not affect the hearing permanently is untenable for the reason that none of these cases have their hearing measured before or after they have taken the drug, so that any intelligent deduction can be made. Where such measurements have been taken it has been shown many times that the hearing, especially from small doses, is many times permanently lowered, and that the optic nerves are in danger of atrophy, developed probably from larger doses but with the same permanent effects, has been amply demonstrated.

A similar effect upon the optic nerve is produced by the methol alcohol either from ingestion, inhalation or absorption through the skin as in other poisons. There does not seem to be any relation between the amount of the alcohol and the damage to the eyes. As in thyroidin and other poisons there is a marked loss of vision with a central scotoma with evidence of optic neuritis. There may be nausea, vomiting and diarrhœa and oftentimes headache. If the alcohol can be eliminated, the vision will often return, but many times the damage is permanent.

The use of neo-salvarsan in the syphilitic conditions of the brain and nerve has been advocated very extensively by American ophthalmologists the past few years. Ehrlich originally cautioned against the use of salvarsan as being likely to cause atrophy of the optic nerve. Some reports from the use of this in Europe with disastrous results have been reported, but in America when a Wassermann is positive from the blood serum or even when it is negative there and there is a positive reaction from the cerebro-spinal fluid, neo-salvarsan is very largely advocated and many cures have been reported.

This is a very hasty review of some studies which have been made in diseases of a nerve about which a few years ago very little was

known. As I said in the beginning, it has very little relation to clinical research in the true sense, for which this Association ought to stand, and was presented at the instance of the secretary not because in the judgment of the writer it has added anything to the work of this organization.

75 Halsey St.

Dr. William Krusen, of Philadelphia, in his weekly health bulletin, points to the necessity of the examination of children's eyes in order that defective vision may be corrected before the ailment becomes incurable. The number of rejections for military service because of poor eyesight have shown that the average person has defective vision without being aware of the fact. The bulletin reads as follows: "The large number of men rejected for military service by reason of defective vision emphasizes the importance of early care of the eyesight with the view of improving the vision, or at least preventing its regression. It is a frequent experience of the examining medical officer to hear the rejected recruit remark that he never knew his vision to be below normal."—*National Committee for the Prevention of Blindness.* News Letter, June, 1917.

FACIAL PARALYSIS COMPLICATING ACUTE SUPPURATIVE OTITIS MEDIA.*

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THE advent of complete paralysis in a case of acute suppurative otitis media, which has been discharging only two or three weeks, is a serious complication, which usually demands prompt surgical treatment and a guarded prognosis. The paralysis which develops in a chronic suppurative otitis media will not be considered. Neither will the etiology and symptomatology of the suppurative process be, but rather the pathology of the paralysis and its treatment considered.

All authorities and text-books state that facial paralysis may develop into acute suppurative otitis media, but they state that it happens very rarely. Phillips says that cases which do not heal in five or six weeks go on to necrosis of the bone with formation of cholesteatoma. Lastly, facial paralysis, meningitis, or brain abscess, may develop. In the *New York Medical Record* of July 6, 1912, Dr. Amberg reported a case in which facial paralysis developed on the left side twenty-four hours after incision of the drum membrane, which was four days after the onset of the pain. Very few cases are recorded in the literature. However, I think it is much more common than is supposed. The family physician either does not consider the cases serious and they recover or else they go on to meningitis or brain abscess before the specialist is called.

How does paralysis of the 7th nerve take place during the early stage of an acute suppuration of the middle ear? This is the question which we, as specialists in the work, must try to answer, and having answered, devise ways and means to prevent.

Let us consider the tympanum as a six-sided box set in the temporal bone. The drum membrane forms the exernal wall. The anterior wall is really a convergence of inner and outer walls and the

*Read before the Detroit Oto-laryngological Society, Feb. 17, 1916.

orifice of the Eustachian tube. Above, the tympanic cavity merges into aditus ad antrum. The roof, called tegmen tympani, separates tympanum from the middle fossa. The floor is a thin lamella of bone which separates the jugular bulb from the tympanic cavity. The external wall of the antrum is the posterior wall of the external meatus. The upper inner end of posterior wall of bony meatus is the exterior wall of mastoid. The posterior wall of tympanum is the facial canal and pneumatic cells. The internal wall of tympanum presents the promontory of the horizontal canal, oval and round windows. Beneath the prominence of the horizontal canal is the horizontal part of the facial in the inner wall of the tympanum. The descending part of the facial is in the posterior wall of tympanum, a hard solid mass of bone. The facial enters petrous bone through internal auditory meatus, the cross part in petrous bone is covered only by a thin lamella of bone.

Dr. Bondy says, "Facial paralysis happens sometimes during acute suppurative otitis media because the facial canal has not become bony."

The horizontal portion of the facial lies below the horizontal prominence of the horizontal canal and oval window.

Paralysis affecting the 7th nerve may take place—(1) In the intracranial portion, (2) in Fallopian canal or inter-osseous part, (3) external to stylo-mastoid foramen.

In this consideration we are concerned most about the intracranial portion and the inner osseous portion. The former is affected by the exudation from meningitis, brain tumor, abscess or fracture at the base. The latter from exposure to cold, traumatism, arteriosclerosis and extension of middle ear diseases. The part of the nerve most liable to be attacked is the portion which has the least protection, namely, the horizontal portion, or that part which lies in the inner wall of the tympanic cavity. The descending portion, as you know, is well protected by a dense hard bone.

Dr. Amberg in reporting his case has looked up the literature upon facial paralysis in acute suppurative otitis media very thoroughly, and I quote his report very liberally. "Urbantschitsch remarks that swelling of the mucosa or exudates in the middle ear may cause pressure paresis or paralysis of the facial nerve, if there is a dehiscence present,

or if the canal has been opened by a suppurative process." The author says that even if the facial canal is closed, a strong hyperæmia of the tympanic cavity, or an incrased filling of the artery which is found in the facial canal, may cause a paresis of the facial nerve by pressure. He mentions that not infrequently a facial paralysis is cured by curetting of the carious necrotic mastoid process.

Politzer states that a middle ear suppuration may be complicated by a facial paralysis (Schwartze), or by a neuralgia of the nervus trigeminous caused by a simultaneous affection of the Gasserian ganglion, or, still less frequently, by a cervico-occipital neuralgia. Politzer treats at length the paresis of the facial nerve in his text-book. He mentions for prognostic purposes the importance of the differential diagnosis between rheumatic and otitis facial paralysis, because the rheumatic paralysis occurs in non-suppurative as well as in suppurative cases. In Politzer's clinic Neuman found that the rheumatic paralysis appears suddenly and engages all branches, especiaally the branch at the angle of the mouth, whereas in otitis paralysis the process gradually attacks branch after branch.

H. Oppenheim refers to the thin plate of bone which separates the nerve from the tympanic cavity and to Tomka's findings that among other factors the width of the facial canal, the thickness of the bone, and spontaneous dehiscence play a part. Oppenheim maintains that the rheumatic or refrigeratory facial paralysis has sometimes prodromes, especially pain, lasting for some days, even one or two weeks, before the paralysis appears. This pain must be referred to a simultaneous neuritis affection of sensitive nerve branches, especially of the trigeminus, occipital nerves and nerves of the neck. A slight swelling of the face, especially in front and below the ear, is also reported to be seen in the beginning of the affection, more rarely a diffuse swelling of the whole side of the face. He maintains that more recent observation makes it probable that an infection process takes place which causes a neuritis. Oppenheim also menions that a facial paralysis and an otitis may originate simultaneously from the same source.

I desire now to give briefly the history of four cases and their treatment.

Case No. 1.—G. L., 3 years old; called in consultation by Dr. J. N. Swartz, July 10, 1913.

Previous History.—Had pneumonia when three weeks old. No other disease until three weeks ago, when he had diphtheria, for which antitoxin was given. Both ears began to discharge following the attack of diphtheria. Twenty-four hours later swelling was noticed below the ear on the right side.

Examination.—Child semi-conscious and not easily aroused. Temp. 103 deg., pulse 100. Large fluctuating mass about the size of small hen's egg in posterior triangle of the neck below the mastoid tip. Right side of face completely paralyzed, which had been noticed for several days by the mother. When pressure was exerted over the mastoid tip, patient roused and cried, the only time he cried during the examination. The external canal was filled with foul pus, which, when wiped away, showed bulging downward of posterior canal, and intense bulging of drum membrane. Perforation was in the anterior inferior quadrant. Patient taken to hospital that night; operated on in the morning. (Simple mastoid operation.) When the incision was made through the skin and muscles, pus spurted out from the abscess, which had gravitated into the neck. The mastoid was found unusually large for a child of this age, containing several pneumatic cells, all of which were full of pus Lateral sinus was exposed, but no pus found upon its walls. Middle fossa was not opened, because the bone seemed firm and hard. In curetting the antrum in the usual way, the incus was found loosened and was by accident removed. The wound was loosely packed with iodoform gauze. Patient made a speedy and uneventful recovery.

The facial paralysis had all disappeared by Aug. 27, which was six weeks after the operation. There was still some foul discharge from the right ear. The mastoid wound had entirely healed. Examination showed that patient had some adenoids. These were removed Sept. 2d. This patient was seen again Nov. 2d, one year later, and is in good health with the exception of some discharge from the right ear which the mother says develops when the patient takes cold. The boy is in fine health otherwise, and his hearing in the right ear, despite the loss of incus, is about the same as that in the other ear, according to the watch test.

Case No. 2.—D. E. S., salesman, 32 years of age. Nov. 28, 1911.

Patient has had grip for three days. I was called to see him because of pain in left ear. Twelve hours later ear broke and patient has had less pain.

Examination.—Temp. 101.2 deg., pulse 80. No swelling or tenderness over the mastoid. External canal full of pulsating pus. Perforation of drum in anterior inferior quadrant. Irrigation of ear ordered. Aspirin given for temperature and "grip ache." Nov. 29th seen at home. No particular pain. Discharge profuse. Patient feeing comfortable. Temp. 100.6 deg., pulse 85. Dec. 1, 2, 4. Patient came to office for treatment. Ear discharging creamy, yellow pus. Dec. 5th I was called to the house and patient said that for the last twelve hours he had had deep boring pain in ear; feels nauseated and dizzy. Temp. 100.8, pulse 75.

Examination showed entire left side of face paralyzed. Mastoid tender on pressure and not much dicharge. Posterior superior wall bulging downward. The drum membrane not bulging and very little pus coming through the perforation. Advised him to go to the hospital for operation. This was refused. Dec. 8. Discharge much more profuse over external canal. Mastoid still tender and patient has deep boring pain which radiates over the parietal region. Was seen every day for the next week and the pain gradually diminished. Discharge continuing profuse. Facial paralysis remained. Dec. 18th. Seen at the office; discharge from the ear gone. Facial paralysis from the forehead and eye gone. Still present about the mouth.

Facial paralysis gradually disappeared and patient to-day is entirely well with no discharge and very slight diminution in the ear on that side.

Case No. 3.—F. L.. 24 years of age, blacksmith and wrestler. Sept. 28th.

Three weeks ago right ear began to pain. Was in constant pain for nine days when the drum membrane broke. Has had creamy discharge ever since. No relief from pain. Five days ago right side of face became paralyzed; paralysis extended to forehead, eye and corners of the mouth. Patient complains of dizziness, headache, sharp boring pain in the ear radiating over the side of the head. Says he had had chills and fever.

Examination.—Temp. 101 deg., pulse 95; facial paralysis is complete on the right side; no visible swelling over the mastoid; mastoid tip very tender on pressure, also tender on pressure over post-auricular vein, pupils equal, react to accommodation; no paralysis of ocular

muscles. Fistula test negative. Pulsating pus seen in the exterior canal. Posterior superior wall bulges downward. Drum membrane very much reddened and bulging in the posterior superior quadrant, the small perforation in the Shrapnell's membrane. Very little pus tinged with blood came through the paracentesis opening. The patient was advised to go to the hospital immediately for an operation, but did not go. The next day he came to the office again. Examination showed a little more discharge from the ear, but still painful. Some nausea and dizziness. Other symptoms about the same.

He entered the hospital that night and on Sept. 30th the mastoid operation was performed. Mastoid was pneumatic; all the cells filled with creamy pus, the culture of which showed the organism to be diplococci, the variety not evident from the culture. The lateral sinus was exposed, but no pus was found lying on its walls. The middle fossa was not exposed, because the bone seemed hard and there was not evidence of extension through this channel. The antrum was opened and freely curetted. Wound not closed and packed loosely with iodoform gauze.

October 3d.—Three days after the operation patient complained of headache at 4 o'clock in the afternoon; was sitting up in bed at the time; no temperature, pulse normal, no pain. This headache was confined to the frontal and parietal region of the right side. The pain increased in intensity so that two hours later he was given a hypo. of codein. Six hours later the pain was still very severe. Patient was becoming restless. He vomited at this time; temp. 102.6 deg, pulse 67. Ten hours from the beginning of the headache he became delirious, unconscious, and had to be tied in bed. Could not be roused and was continuously crying out and holding his head. I saw the patient Oct. 4th at noon; pupils were equal and active. There was no Kernig's sign; temp. 103, axilla, pulse 70. Dressings were removed from the wound with slight discharge on the dressings. Other ear drum looked all right. Patient catheterized; urine showed some albumen and casts. Lumber puncture was made and 10 c. c. of fluid was withdrawn; fluid cloudy, and examination showed diplococcus.

Patient seen in consultation with Dr. Sanderson at 1:30 P. M. Patient more quiet on account of sedatives given; unable to be roused. Pupils equal and active; still no Kernig's sign. Temp. 103.6, axilla,

pulse 70. Urotropin, grs. 15 q. 2 hrs. ordered. Seen again at 5 P. M. patient having convulsive attack when his head and legs would tend to come together, crying out with pain and making incoherent sounds. Patient died at 2 A. M.

Autopsy Findings.—When the brain was exposed there seemed to be an increase in the cerebral fluid, as the membranes were tense. Acute meningitis. All the vessels of the dura mater were intensely engorged. There was no sign of pus or exudate and no brain abscess.

Case No. 4.—Mrs. C., aged 38 years. March 20, 1915.

Referred by Dr. F. W. McAfee. Patient had tonsillitis ten days ago. Five days later had pain in the left ear, which discharged for two days, then stopped. Discharge described as being bloody, not much pus.

Examination.—At office, temp. 97.6. pulse 80. Drum membrane was congested and bulging into the posterior superior quadrant. The perforation was filled with a dark mass which looked like a blood clot. Paracentesis was done in the usual way, extending into the perforation. A small piece of mucous membrane came away on the knife. This evidently was what I had seen in the perforation. Patient was not seen for ten days. March 30th. The doctor called up and said that patient had been very well since I had seen her, that the ear had discharged pus for four or five days following paracentesis, that the left side of her face had been paralyzed since the morning following the paracentesis, but that it was much better now, and that he thought she was doing all right, but that the family was becoming a little worried because she was having so much pain in the head and face. I saw the patient at the house, in bed; temp. 97.8 deg., pulse 82, complete paralysis of the left side of face. Patient had some difficulty in saying some words; no paralysis of the 6th nerve, pupils equal, contract to light and accommodation, no bulging over the mastoid, some tenderness along the course of the branches of the 7th nerve, when slight pressure is used, no frontal headache, no nystagmus, fistula test negative. Advised patient to have leucocyte count taken and go to the hospital for observation. March 31st. Seen in consultation with Dr. P. J. Livingstone. Leucocyte count 7,400; reds normal in number; differential count showed 65 per cent. polymorphonuclear. Temp. 97.6 deg., pulse 85; no pain, no mastoid tenderness, drum membrane shows

signs of healing, no headache. As there was no evidence of severe infection, no evidence of pus in the mastoid, the treatment was expectant. The patient was seen daily for ten days and, at the present time, the facial paralysis is gradually improving. She has not had a recurrence of discharge nor any symptoms which can be attributed to the ear. The etiology of the facial paralysis in this case may either have been due to an effusion into the facial canal or a slight involvement by the pus producing germ which, in this case, I believe to be streptococcus. The mucous membrane which came away at the time of the paracentesis and a similar piece which the doctor described as coming away the day following may have been a slough of the mucous membrane covering the canal. I asked Dr. Livingstone in the discussion to give his opinion in regard to this case.

Of the four cases presented, three had without question, acute mastoiditis. Three of the four cases are living at the present time. No. 3 went on to meningitis. The accompanying specimen of bone in his case shows the extension of the process through the petrous portion.

This case was seen in Jan., 1917. She still has some paralysis in left facial which is improving slowly. Hearing in ear is normal.

Urbantschitsch says that facial paralysis is not infrequently cured by curetting of the carious necrotic mastoid process. This line of treatment certainly worked in case No. 1. It did not work, however, in case No. 3. No operation was permitted in case No. 2, and in case No. 4 opening of the mastoid was not indicated after we had gotten together all of the data.

It would seem to me that a conservative operation should be done following the pus as far as possible and establishing good free drainage. The lateral sinus need not necessarily be uncovered, there are symptoms which point to some involvement there. If meningitis is present then I think it would be better to open into the middle fossa. The meningitis may then be treated with intra-spinous infections of Electrargol.

Since this paper was written another case was seen with Dr. Harold Wilson. (I report it with his permission.)

Baby B., aged 4 months. The baby was taken with pain in the ear, membrane ruptured spontaneously. Drainage was good for a few days when mastoiditis developed and with it a complete paralysis

of the facial nerve on the affected side. Mother noticed the baby could cry only on one side and did not close both eyes a few days before. A mastoid operation was performed by Dr. Wilson. The recovery was uneventful and the paralysis subsided in about six months.

Grace Hospital.

He Was Careful.—A good many years ago, I, with many others, was waiting in a certain postoffice for the mail to be distributed. One of the group spoke of the dreadful disease of small-pox in a certain family in Newport:

"How do you know, John, that those people have it?"

"Oh, I get letters from them; awful disease."

"But do you know, John, that there is danger in getting letters from such sources? There is danger of contagion; you should be very careful."

"Gad, man, I take good care of that; I never answer any of them."
—*Medical Pickwick.*

A CASE OF PRONOUNCED ACIDOSIS.

William H. Phillips, M. D.,

Cleveland, O.

MRS. J., æt. 70; widow for many years.

Past History.—Been fairly well with the exception of so-called bilious vomiting spells lasting three or four days. Has always been able to read and sew and do her own housework. A week before coming to the hospital she developed some redness, swelling and acute pain in the left eye. This was accompanied by vomiting of a bilious character. The eye was seen at that time by her physician and evidently the condition diagnosed as acute conjunctivitis and argyrol prescribed. The vision in the affected eye rapidly diminished. Three days later she suddenly became totally blind in the right eye with continued vomiting. Four days later she was brought to the hospital.

At this time she was still vomiting several times in the twenty-four hours, a sour yellowish fluid, and with much nausea. There was not then nor had there been any severe headache. Patient was conscious and perfectly rational, although inclined to be a little drowsy. Temperature normal, pulse 120 to 130, small, and at times very irregular; tongue heavily coated; blood pressure 190-70; Wassermann negative; urine showed trace of albumen, no sugar, acetone and diacetic acid very positive. Reflexes normal.

Eye Examination.—O. S. very much injected; some chemosis; pupil partly dilated and immobile; cornea very hazy; fundus could not be seen; tension 120 mm. McClain; vision barely shadows. O. D. cornea clear; pupil medium, reacting slowly to light; vision practically nil. Fundus examination: Media clear; disc not distinguishable; much retinal swelling in the region of the disc; veins engorged and disappearing in the folds of the retina; numerous hemorrhages along the veins; arteries fairly normal; tension 28mm. McClain.

Diagnosis.—O. D., thrombosis of the central vein; O. S., acute glaucoma with possible thrombosis. General condition, pronounced acidosis.

Treatment.—The patient was given internally 20 gr. Sodii Citras in water every four hours together with two drams glucose. She managed to retain most of it within the next twenty-four hours with some relief and clearing of the tongue, and with lessening of acetone and disappearance of diacetic acid. At this time a scleral trephining was done on the left eye under cocaine, and she was given intravenously 50 micrograms radium. Following this she took gruels, milk and water fairly freely with only occasional vomiting. Two days later vomiting again became pronounced, the tongue badly coated, the breath sour. It had been impossible to get a good bowel movement except by enema, as she vomited any cathartic taken. The pulse reached 150, small and very irregular, and the patient appeared on the verge of collapse. Sodii Bicarb. was administered by drop method rectally, but was unsatisfactory because of the restlessness of the patient and her inability to retain it. Nat. sulph. 6x did not improve her condition nor did 20 drop doses of Digitalis prescribed by her general medical attendant, Dr. Aeberlie.

At the present time, three weeks after her entrance into the hospital, under continued rest and careful feeding, she shows a gradual improvement although some vomiting is present and the pulse is still small and irregular; blood pressure 160-70. The tension in the left eye varies from 30 to 40 mm., increasing when she physically is at her worst and improving with her general condition. The tension is highest when the diacetic acid test is positive. Vision is now, O. D., counts fingers at four feet. O. S., about the same. The left fundus can now be seen quite clearly. The disc is pale and cupped; the arteries scarcely perceptible; the veins away from the disc are of moderate size, but within two disc diameters of the disc dwindle to mere lines. In the right fundus the swelling has almost entirely subsided; the outlines of the disc are sharp; the veins present a chain-like appearance with alternate swellings and constrictions; the arteries smaller than normal. The hemorrhages have almost disappeared, but have left behind them pronounced retinal and chorodial changes, especially in the macular region.

Starvation, acidosis, high blood pressure, phlebitis, glaucoma, is the sequence which undoubtedly explains this woman's condition. She had lived alone for several years trying to do what she could, and take

care of herself, doing her own cooking, which meant none at all; living on tea and toast when she should have had substantial food. In the absence of any perceptible organic liver or stomach changes, her bilious spells were undoubtedly the symptoms of a chronic acidosis, and following in the trail of this came the increased circulatory tension, the dilated and weakened heart, a local phlebitis terminating in thrombosis of the central vein, and the acid edema producing an acute glaucoma in the left eye. She was examined carefully by Drs. Kimmel and Aeberlie to exclude malignant or obstructive changes in the abdomen, which might explain her persistent vomiting. Her condition has not, up to the present time, permitted any exhaustive tests, or the making of plates or screen examinations to exclude these local conditions. If found they only explain the cause of the starvation process and point the way to measures necessary for the relief.

1018-1020 Rose Bldg.

Friend.—What is the first thing you do when a man presents himself for consultation?

Doctor.—I ask him if he has a car.

Friend.—What do you learn from that?

Doctor.—If he has one, I know he is wealthy, and if he hasn't, I know he is healthy.—*Medical Pickwick.*

ETIOLOGY AND PATHOLOGY OF CHOLESTEATOMA.

HARRY E. KOONS, M. D.,

Indianapolis, Ind.

WHEN otorrhœa has passed that indefinite point where it ceases to be called acute and is entitled to be called chronic, a great number of complications may arise. One of the most dreaded and most dangerous of these is cholesteatoma. It is the direct result of an ingrowth of epidermis from the external auditory canal or the outer layers of the membrana tympani. The perforation in a case of chronic otorrhœa may be of any size from a very small pea to one which destroys the whole membrane except a small rim at its circumference. It may be central, or posterior, or anterior, or way up in Shrapnel's membrane. It is not likely to extend entirely to the floor of the auditory canal for in that case the drainage would probably have caused a spontaneous cure and it would not have become chronic. In those cases where the perforation is central or in Shrapnel's membrane and does not extend to the floor there is a very strong probability that a cholesteatoma will develop. In some cases the perforation is at the lower part of the membrane, but in that case the chronicity of the otorrhœa is caused by granulations in the tympanic cavity or by carious bone in the same locality.

In the case of a central perforation of long standing or one in Shrapnel's membrane the epidermis from the outer layer of the tympanic membrane creeps in over the edge of the perforation and gradually extends itself over the tympanic cavity. When the perforation is at the lower part of the membrane it extends itself more easily and more rapidly over the slight rim remaining and also spreads itself over the cavity of the tympanum. Here it engrafts itself upon the lining membrane until it finally, in many instances, covers the whole middle ear. If the base on which it grows is a healthy one and there is no carious bone and it limits itself to the tympanic cavity, it is a beneficent process and results in a dry ear with a fair amount of hear-

ing and is best left alone. But it does not usually stop here, because the underlying tissue is not healthy or because there is some carious bone, but it creeps on by slow stages into and finally through the aditus ad antrum and finally reaches the mastoid antrum where it finds a suitable soil and the confined space most suitable to the production of its greatest and most pernicious deviltry. Do not understand me to mean that this is a steady advance like Von Mackensen's sweep through Roumania, but it has been a series of advances and retreats like the incoming tide. It creeps forward for a mm. or two and then the base proving unstable and the tissue not being thoroughly organized it is cast off in large part, and this cast off epithelium goes to swell the discharge and imparts its characteristic odor to it. But not all has been cast off. A small gain has been recorded and a small part has been too firmly planted and organized to be routed. And it starts the same process over again. This it repeats endlessly until by these gradual gains it has reached the mastoid antrum. During its advance through the tympanic cavity and the aditus the particles of exfoliated epithelium have been able to find their way out through the auditory canal and the only discomfort to the patient has been the reduction in hearing and the odor, which speaks for itself in no uncertain terms. But now that it has reached the antrum and the lumen of the aditus, already small, has been reduced by this ingrowth of new tissue along or round it, it now becomes difficult if not impossible for the cast off particles to escape through this channel and the antrum offers a ready and easy place for lodgment. After a little while the pus in the antrum gets so full of these particles that it becomes semi-solid and thus begins the formation of the cholesteatomatous mass. This is constantly added to by the spread of the epidermization process and by the absorption of bone tissue and the disintegration of bone cells. The discharge of pus in these cases is not great, just enough to mix pretty well with the other elements and to cause any new particles to attach themselves to the mass already formed. Now begins that peculiar, but deadly, process of bone absorption by which it enlarges itself until it attains frequently a mass of such size as to become of great danger to the patient, through the danger of intracranial complications. This bone absorption differs from necrosis, in that, in the latter, the membranous covering of the bone is always destroyed first, while in the

former large pieces of bone may be destroyed, while still everywhere retaining a perfect covering membrane. It does not act by pressure alone, but its virulence is such that the bone is disintegrated and the particles find their way through the membrane and are added to the already large mass. In some cases there is no discharge through the meatus discernible by the patient, while in others there may be a considerable, though never a large, aural discharge. But in either case, what there is, if removed upon a cotton wound applicator, is so unbearably offensive that it constitutes a social barrier not easily gotten over.

Microscopically, this mass is found to contain cholesterin crystals, pus germs, usually streptococci, and quantities of epithelial and bone cells. The presence of cholesterin is considered pathognomonic, and is the most reliable of any of the findings. The epithelial cells are usually arranged in layers, concentrically, like the layers of an onion. The odor, however, by comparison, would make an onion smell like attar of roses. There is an unmistakable "putrid" smell which once enjoyed (?) makes all other stinks tame, and which would cause a skunk to die of a broken heart could he but smell it and see how far it outshone his noblest efforts in odoriferous "stunts."

The Penway.

In view of the ever-increasing number of eye cases reported, a fourth nurse has been added to the staff for Prevention of Blindness, Department of Public Welfare, Cleveland, Ohio. Three nurses are in charge of cases under three years of age, and one nurse devotes her time to adult cases. It is hoped that the work may be extended to reach every case of inflamed eyes, and that more time may be spent correcting strabismus and attending non-acute cases. The eye work is to be more closely allied with midwife investigations, which will prove a great factor in a greater saving of sight.—*The News Letter,* June, 1917.

TECHNIQUE OF EXAMINATION FOR CHOLESTERIN CRYSTALS.

Geo. W. Mackenzie, M. D.,

Philadelphia, Pa.

FOR the benefit of those who do not make a practice of examining systematically secretions from the middle ear, I wish to state that the technique of examination of cholesterin crystals is quite simple.

The ear should be cleansed with an ordinary syringe, or, better, with a Hartman's canula, directing the stream of water into the attic and antrum region and collecting the washings in a black basin. The black basin is better than the white basin, because we can spot the dirty, gray flakes of cholesteatomatous particles better on the black background than on the white. The particles are cleaned and put on a clean glass slide and covered with the ordinary cover glass and pressed down gently. Usually there is sufficient amount of water clinging to the mass to be examined, so that an extra amount of water need not be added. No staining is necessary. The specimen should be examined under the microscope, using a 1/5, 1/6 or 1/8 objective The usual secretion in chronic cases will show under the microscope the presence of leucocytes, large epithelium, some fairly well preserved, others degenerated into granular masses, motile cocci and bacilli in great numbers, and cholesterin crystals where cholesteatoma is present in the ear spaces. These crystals are flat, romboidal shaped, occasionally with corners broken off. They are usually found in clusters, rarely singly. Ordinarily they appear as colorless, and transparent occasionally, and in large groups they may present a very light lemon tint. If your specimens laid aside have become dry, the crystals can be restored by adding a drop of water under the edge of the cover slip.

The presence of cholesterin crystals is quite positive evidence of the presence of cholesteatoma. In 127 cases of cholesteatoma, in no cases did I find them absent. If a thousand cases had been examined, it is possible that a few cases may have failed to reveal the presence of crystals. Furthermore, it is possible that in acute cases with desquamated epidermis in the canal that rarely cholesterin crystals may be found.

THE CHARGING BATHROBE BRIGADE.

9 A. M.

(By Elsie Twyeffort.)

ANY doctor who has visited Albany and attended Dr. J. Ivimey Dowling's clinic at the Homœopathic Hospital will appreciate the following lines written by a patient whose enthusiasm led her to describe his clinic through a parody of "The Charge of the Light Brigade."

In explanation it might be said that in Dr. Dowling's clinic the method of nasal tampanodes is largely employed. Sneezing patients are in evidence, patients in bath robes numerous, and pus basins in common use. Words are not wasted in explanation but directions are given somewhat tersely. Reference to "Big Chief" is to Dr. Dowling, who is chief of staff of the Homœopathic Hospital, and reference to "Small Chief" is to Dr. A. C. Worth, who assists Dr. Dowling at his clinics.

This parody is published for the reason that it may interest some of Dr. Dowling's friends and remind them of the pleasant times spent in Albany.

I.

Half an inch, half an inch,
Half an inch onward,
Into the Big Chief's room
  Crept the Four Hundred.
"Forward, Bathrobe Brigade,
Each wait your turn," he said.
How the stern Big Chief's boom
  Volleyed and thundered.

II.

"Forward, Bathrobe Brigade,"
Was there a soul dismay'd?
Not one, each patient knew
  Big Chief ne'er blundered.

Theirs not to make reply,
Theirs not to reason why,
Theirs but to go and die,
Into the Big Chief's room
Strode the Four Hundred.

III.

Gauze piles to right of them,
Nose-trays in front of them,
Argyrol plugs in them,
Many bones sundered;
Sickened by ether smell,
Boldly they marched and well
Into the jaws of death,
Thus (gladly do I tell)
Strode the Four Hundred.

IV.

Flash'd all the steel tools bare,
Flash'd as they turn'd in air,
Slashing those brave ones there,
Carving an army, while
Every one wondered
When from the drug they awoke,
Found their poor voice and spoke,
Yankee and Prussian
Reel'd from the sharp steel stroke,
Shatter'd and sunder'd
Then they walked back, but not,
Not the Four Hundred.

V.

Nurses to the right of them,
Small chief to left of them,
Big Chief just back of them,
All their bones plunder'd:
"One drachm of enzymol,

Ten drops of alcohol,
Above all, argyrol,"
Back from the jaws of death,
Eyes, ears, nose, mouth made well,
All that was left of them,
Left of Four Hundred.

VI.

When will those brown spots fade?
Oh, what a muss they made,
Laundresses wondered.
(Oh, the wild charge they made)
Noble Bathrobe Brigade,
Suffering Four Hundred.

Due to the use of protective goggles, there has been a marked reduction in eye injuries in the plants of the American Locomotive Company. For the years 1910-1913 the average number of accidents requiring medical attention was 448. With the established use of safety goggles in 1914 the number was reduced to 86, and to 52 in 1915.—*The News Letter,* June, 1917.

SIALOLITHIASIS.

Joseph V. F. Clay, M. D.,

Philadelphia, Pa.

THIS interesting subject has been given but little attention in literature. Undoubtedly the occurrence of salivary calculi is not unusual and on account of the fact that the condition may exist for long periods without symptoms and that calculi may be ejected spontaneously, it is quite possible that the condition is frequently overlooked. They are found in Wharton's duct and the submaxillary glands more frequently than in the other salivary glands or ducts. Next in frequency is involvement of Sterno's duct and the parotid gland, and, lastly, the sublingual gland.

The condition is observed generally in middle life, males being affected more frequently than females. It does occur in child life, but that is rather rare. Burdell observed a case in a child three weeks of age.

It is generally believed that small particles of tartar and clumps of bacteria find entrance into the salivary duct and here act as a foreign body or nucleus for the formation of a stone. Undoubtedly changes in the composition of the salivary secretion play a part in the formation of a calculus. Inflammatory changes occur in the lining of the duct through the entrance of bacteria, producing swelling of the mucosa. Stasis of the outflow of saliva follows favoring the precipitation of the mineral salts. The bacteriological theory of formation of salivary stones is supported by the presence of bacteria in the interior of many of the concretions which have been removed. Upon chemical examination, salivary calculi are found to consist of phosphate and carbonate of calcium. They vary in size, color and number, but are usually single; and, if situated in the duct, are elongated; while those in the gland are irregular. Calculi may be present in the ducts or glands for years without presenting any annoying symptoms. Alexander reported a case of calculus in the submaxillary gland with a history existing over a period of thirteen or fourteen years. The history of one of the writer's cases extends over a period of three

years. As long as drainage from the salivary gland is possible and there is no infection, symptoms are not liable to present. The saliva may drain around the calculus or the stone may present a groove through which drainage is possible. Ranula may occur if drainage is completely obstructed and infection take place. The duct may ulcerate and a fistula be created. Abscess of the floor of the mouth may result with marked symptoms of pain and dysphagia, and there may be perforation beneath the jaw, externally. Cases presenting infiltration of the tissues of the floor of the mouth through inflammatory changes may offer difficulty in diagnosis until an X-ray is taken.

It can thus be seen that the clinical picture of salivary calculi is variable. Usually, however, there is pain and soreness in the floor of the mouth, which is aggravated by eating. This aggravation occurs because of the increased production of saliva during the ingestion of food and also because of the activity of the muscles of the floor of the mouth and the tongue. If the condition has taken on acute inflammatory activity, there will be difficulty in speech. Tumefaction occurs and by palpation with one finger, internally, supported by the other hand, externally, the condition can be recognized. At times pus will be seen escaping at the orifice of the duct, or, if fistula has occurred, drainage may be observed through this. In the case of Wharton's duct, probing may reveal the condition.

It is generally conceded that recurrence of salivary calculi is rare.

The first case we would report was referred by a medical student who, having suffered from the same condition, quickly recognized the case. J. W. R., age 50 years, male. For two weeks he has had a lump which developed slowly under the left side of the lower jaw. During the last week there was pain in the mouth and the tongue was very sore so that it is impossible to eat solids, while liquids are swallowed with considerable pain. There is a constant dribbling of saliva.

Status.—The left submaxillary gland is enlarged and tender, but does not fluctuate. The sublingual gland is large and tender; there is glossitis present with ulceration along the left side. A probe passes in the Wharton's duct readily and upon withdrawal a thin line of pus escaped; calculus not felt during probing. Incision made in the floor of the mouth over the swelling; this evacuated a quantity of thick brown offensive pus. Passing the probe into the cavity the stone could

be distinctly felt in the substance of the gland and was removed with forceps. This stone weighed .450 grams. After treatment consisted in maintaining cleanliness of the oral cavity. The wound healed in two weeks without fistula. This case occurred six years ago, and we have had many opportunities to examine this patient since and know that he has had no further trouble.

The second case was referred as a tumor of the mouth. W. K., age 53, male. Three years ago he injured the floor of the mouth on the right side with a lead pencil point. Several months later he noticed a lump under the tongue on the right side, and thought it was from smoking his pipe. He consulted a physician, who gave him proto iodide of mercury and advised against any operation lest a cancer result. The lump in the floor of the mouth increased in size until one week ago when he developed intolerable pain in the floor of the mouth and soreness of the tongue, salivation and inability to swallow.

Status.—Swelling in right submaxillary region, marked glossitis. Floor of mouth swollen; and palpation reveals a very firm swelling of the submaxillary gland with exquisite soreness. Probes pass into the Wharton's duct without difficulty. Incision made over swelling on the floor of the mouth; this evacuating a small quantity of thick pus. The stone was now readily located, but was large, and all attempts to deliver it were attended by such atrocious pain that patient was sent to hospital with the idea of giving him a general anæsthetic for the delivery of the stone. The patient was much relieved from the evacuation of the pus. The next morning very much to his delight the stone became dislodged and the patient expectorated it. The calculus presented a roughened surface and weighed 2.290 grams. The wound healed promptly without fistula.

2102 Chestuut St.

SINUS THROMBOSIS IN A CHILD OF TWELVE YEARS.

GILBERT J. PALEN, M. D.,

Philadelphia, Pa.

WHILE sinus thrombosis is by no means an uncommon condition, we feel that the following case is worthy of reporting because of certain unusual features.

M. C., female, age 12 years, referred to us March 21, 1916. As a child had measles and chicken-pox. Three years ago tonsils removed; five years ago severe earache lasting twenty-four hours with no discharge. Mother could not remember which ear it had affected.

Present condition: Pain in the right ear for the past nine days, which was markedly aggravated by blowing the nose. During this time temperature was as high as 101° F., and on one occasion rose to 104° F. On March 21st, had a chill but no sweating. There was no discharge from the ear nor had there been any during the illness. Because of the chill and the high temperature, the physician had become alarmed and referred the case to us.

STATUS.—Child presented a flushed face, was highly nervous and pulse extremely rapid. The right external auditory canal appeared normal but the membrana tympani was injected and bulging. There was no discharge present nor were there any subjective or objective mastoid symptoms. Incision of the ear drum was performed under chloroform anæsthesia and followed by an extremely profuse serous discharge. The temperature dropped from 104° F. gradually to 99° during the next twenty-four hours. During this time the patient complained of severe frontal headache, nausea and epigastric pain. The tongue was thickly coated with a white fur, except at the edges where it was clean. Four hours after opening the drum the discharge had changed from a serous to thick muco-purulent. On March 22d, temperature reached 105° F. axillary, pulse 120, respirations 24. The face was flushed and the patient was restless. She was operated at 10:20 P. M. The antrum contained granulations and a very small amount of pus. The distribution of the cells was mostly posterior to

the lateral sinus and here marked necrosis had taken place involving the inner plate. Upon removal of this a peri-sinus abscess was discovered. The wall of the sinus was whiter than normal and presented a circumscribed area of discoloration. Aspiration of the sinus failed to recover blood. The jugular vein was immediately ligated at the level of the cricoid cartilage; the lateral sinus was then freely incised and a large organized clot was removed resulting in free bleeding from both ends of the sinus. The wound was packed with iodoform gauze and the neck wound sutured.

The patient ran a septic temperature for a few days, ranging from 102° F. to 104° F. During this time there were no unusual symptoms other than on March 25th, when she developed a cough for which no apparent cause could be found, and which soon disappeared. Also on March 27th, she complained of being chilly and had one distinct chill which lasted for twenty-five minutes, during this day she coughed almost incessantly. Upon careful examination pus was discovered in the neck wound and the condition relieved. There was still no evidence of any chest condition to account for the cough, and after the opening of the neck wound the patient appreciably improved. From this time on she ran a low septic temperature ranging from 99° F. to 102° F. This gradually subsided and reached normal on April 17th at which time the patient was discharged from the hospital.

Unfortunately a blood culture was not taken prior to the operation, so that we have no knowledge as to whether a bacteremia existed or not, nor was there any blood count taken prior to the operation. On March 23d, the day after the operation, Dr. Sappington reported leucocytes 16,000, of which 85 per cent. were polynuclears, lymphocytes 9 per cent., transitional 4 per cent., and large mononuclears 2 per cent.

On March 24th a blood culture was taken by Dr. Sappington, which was found sterile.

This case points out one of the extreme complications which may occur during the course of acute otitis media and shows forcibly the necessity for early opening of the ear drum. Further, the occurrence of a sinus thrombosis before rupture of the ear drum had occurred and the lack of any local mastoid symptoms. It also draws the attention to the necessity for thorough examination of the patient when

unusual symptoms occur during the post-operative course of the case in order to prevent radical exploration for supposed intracranial complications. The chill which occurred in the post-operative course of this case was decidedly alarming, but the release of the retained pus in the neck wound brought about a marked change in the patient's condition.

The patient was last seen on January 12, 1917, at which time she was in good physical condition. She exhibited a spontaneous past pointing to the left with the right hand, and upon stimulation there was a slight falling off in the past pointing to the right with the right hand. We have seen this disturbance of the inward pointing center in other operated cases of sinus thrombosis.

2102 Chestnut Street.

IN a former issue of THE NEWS LETTER appeared notice of the regulations passed in October, 1916, by the State Board of Health in Minnesota. The regulations as originally passed by the Board made the use of a prophylactic for the prevention of blindness from inflammation of the eyes of the new-born compulsory on the part of physicians and midwives. The 1917 legislature modified the regulations to the extent of including a clause which makes it possible for parents to decide the question whether or not a prophylactic shall be used. In case they do not wish it used, a written notice to that effect must be given the attending physician. The solution is to be prepared by the State authorities and furnished to all physicians and midwives. Any person having knowledge of a case of inflammation of the eyes of the new-born is required to report the same forthwith to the nearest health officer.—*National Committee for the Prevention of Blindness.* News Letter, June, 1917.

NOMA OF THE AURICLE WITH REPORT OF A CASE.

GILBERT J. PALEN, M. D., AND JOSEPH V. F. CLAY, M. D.,

Philadelphia, Pa.

THAT noma of the auricle is a rare condition is evidenced by the sparcity of the literature upon this subject, and from the fact that no mention is made of this condition in the majority of the best works on otology. We have consulted twenty-five of these works and in only two (Barnhill and Wales and Milligan and Wingrave) is any definite description given. Politzer mentions it briefly, Phillips mentions it in relation to typhoid, and Gleason and Burnett give some description of gangrene of the auricle but do not mention noma as a distinct affection. Buller, in the Encyclopedia of Medicine, gives a short description of the condition, and in volume four of the same encyclopedia there is a good discussion of noma of the cheek and mouth and of the pudenda. On account of the scarcity of literature upon this subject we can be excused for quoting in full the articles from the above named authors.

Buller (Encyclopedia of Medicine): "A very infrequent affection and observed up to the present time only in illy nourished young children, especially after typhoid, the acute exanthemata or diphtheria, and mostly in association with otorrhœa. The diagnosis and prognosis are the same as for noma of the cheek."

Volume IV, Encyclopedia of Medicine (T. B. Hamilton): "A gangrene affecting the pudenda and cheeks of young children from the age of weaning to that of puberty. Nurslings seem to have an immunity."

"When confined to the cheeks and mouth it is variously termed gangrenous stomatitis, gangræna oris, cancrum oris, gangrenopsis stomato-necrosis, necrosis infantilis, buccal anthrax, water canker, sloughing phagedœma of the mouth, and by the Germans, noma and Wasser krebs; by the French, gangrene de la bauche.

"It has been known for a long time; first described by Carolus Battus, of Amsterdam. Von Sweeten (1699) recognized the disease as gangrene. Wiseman (1676) mentions it as noma, and describes

it as "a deep ulcer that eats and cuts without tumor but hath a rottenness and putrefaction joined with it."

"It is attended by great mortality, but as it comes on while the patient is suffering from some other affection, it is difficult to determine its relative fatality with precision."

"The affection, whether it appears on the cheek or vulva, is almost invariably unilateral; there is first inflammation with great exudation; then ulceration; the exudate dies and the general appearances of circumscribed gangrene due to obstruction of the arterioles are present. In the mouth it begins usually at the frenum of the lip but rarely on the outside of the cheek (Chelius), and as the œdematous inflammation extends, the ulcerative process is carried down to the bone and alongside of the nose and frequently involves the entire Schneiderian membrane; occasionally it begins on the gums at the alveolar border (Cohen). At the pudenda it usually commences at the labial margin and extends to the clitoris, nymphæ and hymen and sometimes to the urethra when pain on micturition is acute. The inflammation is rapid; tissues fall out by sloughing; the disease spreads to the perineum, anus, thigh and mons veneris; sloughing is deep and frequently extends to the bone."

"Sometimes, beginning at the mouth, it is later developed at the vulva, and frequently the noma is ushered in with constitutional symptoms, as rigors with fever, but more frequently its onset is marked by particular affection from which the child is suffering, but always in a later stage there is great prostration, with feeble pulse and chlorotic countenance. Cohen states that in noma of the mouth, pulmonary the gangrene occurs as a complication."

Politzer, speaking of noma of the auricle, gives reference to Hutchison (*Medical Times and Gazette,* 1881), usually starts in the cartilaginous meatus, cause is supposed to be an anerobic form of streptothrix (Hoffman, Z. F. O., Vol. 51).

Barnhill and Wales (Modern Otology, 1911): "Noma of the fibrocartilaginous canal, the auricle and the surrounding region is a form of gangrene of the ear similar to gangrene of the face and genitals, and occurs, as a rule, in poorly nourished children during infancy and early childhood. The disease is rare and begins in or around the ear. The ulceration rapidly spreads, attacking the parotid and mastoid

region often with destruction of the auricle." They then report a case of noma by Verhœff (*Journal of Boston Society of Medical Science,* Vol. 5, May, 1901), and show a photograph of Verhœff's case, with a description as follows: "Infant, aged five months, admitted January 16th, 1901. Family history unimportant. Previous history always well and strong until present illness. For five weeks prior to admission there was discharge from each ear. One week prior to admittance the parents noticed that on the right side the discharge was irritating the skin of the external auditory canal and lobule of the ear. On admission there was a purulent discharge from both ears, the tympanic membranes were practically destroyed and just in front of and below the lobule of the right ear, there was a deep round ulcer, 7 mm. in diameter with irregular base and slightly overhanging edges. The base of the ulcer was covered with pus. The surrounding parts were red and thickened. The left ear showed no ulceration, but on the helix there were two or three reddened spots. Despite treatment by the actual cautery and local applications of antiseptics, the ulcerative process on the right side rapidly spread, involving the cheek, and on the fifth day, after admission, there was also a definite ulcer just below the left auricle. On the seventh day it was also noticed that the left great toe and to a less extent the little finger of the right hand, were red and swollen. On succeeding days other points of the fingers and toes became affected in the same way. The appearance of some of the joints would vary greatly even during the course of one day, now appearing more and now less inflamed. The same thing was observed in the reddened area near the ulcer of the right ear, which for two days became almost invisible and then again reappeared as a much larger area with an ill defined border. There was diarrhœa and the child took its nourishment poorly. Both the local and general condition of the patient steadily became worse and the child finally passed into a semi-comatose condition and died on the seventeenth day after admission.

Autopsy by Dr. Verhœff, twelve hours after death. Diagnosis: Streptococcus otitis media and mastoiditis, streptococcus gangrenous ulceration of the auricles and cheeks, streptococcus synovitis, a streptococcus broncho-pneumonia, streptococcus septicæmia, croupous colitis.

Verhœff believed there was little question that the gangrenous ulceration of the auricles and cheeks was the result of the infection

from the purulent discharge from the ears. When it is considered that the streptococcus is frequently found in otitis media, it seems remarkable that such infection does not occur more often. In noma of the mouth there is usually a history of some previous disease, often one of the acute exanthemata, but in this case no such history could be obtained, thus rendering the infection less easy to explain on the grounds of lowered resistance. It is possible that the virulence of the organism is a more important factor than the lack of resistance of the patient. The streptococcus septicæmia, synovitis and pneumonia, while not, of course, alone sufficient to prove the nature of the infection in the local ulcers, nevertheless is highly confirmatory in this regard; and, in addition, indicate either that the patient possessed very little resistance toward the streptococcus, or that the latter was extremely virulent.

Verhœff was able to find thirteen cases of noma auris in the literature; most of them very incompletely reported. The ages varied from three weeks to four years; eight cases were associated with otitis media, while in the remaining cases no mention was made of this disease, although in some of them it was no doubt present. In three cases the affection was bilateral. Death resulted in all but one case, that of Hutchinson, who cauterized the ulcer with acid nitrate of mercury. None of the cases were investigated histologically, and but one of them bacteriologically. The latter was reported by G. M. Smith, who obtained from the ulcer of the auricle and from the longitudinal sinus cultures of a short non-motile bacillus with rounded ends often arranged in pairs of chains."

Barnhill and Wales further state that they had seen an exactly similar case in the service of J. E. Sheppard, in 1895. The child, under one year, was brought to the New York Polyclinic, following an attack of scarlet fever, in a dying condition. One entire auricle and the skin and deeper structures were gangrenous.

Milligan and Wingrave, 1911, Diseases of the Ear: "Noma is a form of gangrenous ulceration which attacks the auricle, the fibrocartilaginous meatus and the soft structures in the neighborhood of the external ear. It is met with, as a rule, in poorly nourished and cachectic children, runs a rapid course, and in almost all cases ends fatally.

The rapidly spreading ulceration may extend superficially or in-

vade the tissues deeply involving the mastoid process or the parotid gland and soft structures of the cheeks. In many cases infection is due to an already existing otitis media purulenta. The course of the disease is rapid and death results from acute septic intoxication or asthenia.

Pathology.—Noma commences as a greyish slough with indurated edges at or near the orifice of the meatus and associated with intense pain. At first is remains for several weeks as an indolent ulcer, with but slight discharge, somewhat resembling a slough following the application of an escharotic. It soon extends rapidly with brawny infiltration but with slight evidence of granulation, destroying the auricle and adjacent auricle and soft structures and exposing the bone which is grey and dry. The discharge is fetid and thin, containing large mono- and multi-nucleated leucocytes, a few lymphocytes and endothelial cells all showing marked granular degeneration with nuclear fragmentation. The infection is generally polymicrobic, such organisms as staphylococci, bacillus proteus vulgaris, bacillus pyocyaneus, spirochæta refringens, and bacillus smaaragdinus fœtidus being present. One special variety is well marked, viz., a large Gram diplo-bacillus which was readily isolated from agar cultures by the writer. It closely resembles the bacillus of Friedlander. It was non-mobile but its growth on agar was distinctly fœtid. Although its specificity has not been proved by the normal postulates, records of a bacillus having similar morphological and tinctorial characters have been reported in other cases.

As already mentioned, the essential character of the disease is a spreading gangrene or necrobiosis, but its course may be attended by the formation of granulation tissue, a protective measure which may for a time mask its true nature and suggest a tuberculomatous process. As a rule, the progress of the disease is rapid by extension to deep vessels causing septic thrombosis and death from profound septicæmia. Such occurred in the writer's case, that of a badly nourished man of forty-eight (a stable man), who was first thought to be suffering from glanders, as the nose was involved when first seen during the stage of quiescence. The disease lasted about eighteen months in all. The last feature was an extensive thrombosis of the jugular vein, apparently starting from the sigmoid sinus. The char-

acteristic bacilli were present during the whole period of observation (seven months), and were found in the thrombosed jugular after death. There was no history of syphilis but the patient, although young, was a confirmed alcoholic subject."

The following is the history of our own case. The patient did not come under our care until April 5, 1917, but we have been able to secure a good record, from the apparent period of onset of the condition, from the physicians who had attended the child over a period of two years. We are fortunate in that these colleagues were all keen observers.

Dorothy R., 2 years of age. On January 1, 1915, Dr. Clarence Clemmer first saw the patient. At this time the child was apparently dying of general asthenia. It weighed seventeen pounds, and was unable to retain food. The family history was negative. Personal history, as obtained from the parents: One year after birth the patient developed a papular rash with complete alopecia; otherwise no history obtainable. Dr. Clemmer found the patient exceedingly emaciated and covered with a macular, papular, pustular rash without sloughs. The lesions covered large irregular areas on both sides of the face, scalp, ears, shoulders, forearms, hands and buttocks. There was no bronzing associated with these lesions. There was an epiphora and marked excoriation with fissures at the external canthi. The child was unable to open its eyes and was kept in a dark room. The mouth and gums were covered with sordes; the child had a full set of primary teeth. The tongue was normal. There were no mucous patches in the mouth or pharynx. The chest presented diffuse large rales; the heart action was very feeble; the abdomen presented a pot-bellied appearance; there were six and eight bowel evacuations a day.

The child was placed on proto-iodide of mercury and Mellin's food. Externally, calamine zinc oxide ointment was applied. In two months, under this treatment, the rash had entirely cleared up and the child gained ten pounds, but the eyes showed no improvement. Mercurial treatment was stopped for six weeks and the case was then brought to Hahnemann Hospital where Doctor Sappington made two Wassermann tests. Although both were negative he gave a third of a tube of neosalvarsan. At this time Dr. Frank Nagle examined the eyes and made a diagnosis of interstitial keratitis. Two months later

the skin lesions reappeared, first about the face, then upon the hands and lastly upon the buttocks, but were not severe. Potassium iodide was given in addition to the yellow iodide of mercury, and this treatment seemed to produce a stationary state of affairs; the general nutrition improved and the child was fairly well for the next three or four months. During this period the proto-iodide was discontinued and mercurial ointment (1 dram inunctions) was given every forty-eight hours, with a mercurial abdominal binder to remain in situ. The child gradually improved; the skin cleared and hair again appeared on the scalp. Several weeks later skin lesions again appeared and the potassium iodide mercurial and external applications were stopped and sodium cacodylate (three grains) was injected every three days. Under this treatment the skin lesions again cleared up and remained absent for several weeks but then recurred in the order as before named.

The case was then seen by Dr. Ralph Bernstein who diagnosed congenital syphilis and advised continuing antispecific treatment. The condition remaining stationary the patient was admitted to the Hahnemann Hospital on February 15, 1917, under the service of Dr. Benjamin Fletcher, whose report is as follows:

The patient presented pustulo-crusty skin lesions about the mouth, nose, around both ears and eyes, upon the dorsum and palmar surfaces of the hands, the buttocks and extending down to the thighs on one side to the knee. These lesions were surrounded by an inflammatory areolar and appeared as impetiginous lesions. There was no bronzing or copper coloring. Both ears were discharging from the external canals. Mercurial inunctions were given and one week later the condition was markedly aggravated. The inunctions were stopped and the lesions were then treated with ammoniated mercury ointment, 5 per cent. Under this therapy the skin lesions rapidly disappeared except those about the ears. The child was able to open the eyes and improved generally. A culture was made from the aural lesions, this yielded a pure yellow staphylococcus. An autogenous vaccine was made and administered. The child constantly fingered the lesions about the ears. The hands became infected, and wherever the child touched itself the same pustular crusty lesion appeared. All efforts to prevent this auto-infection resulting from the patient's hands were ex-

erted, the hands being encased in perforated aluminum cases. The child, however, rubbed the ears with these and continued spreading the infection until, finally, it was necessary to tie the hands as a preventive. There was no further spreading of the lesions, but the aural condition continued to extend. It was on account of the persistent aural discharge that we were asked to see the case. Our first examination was made on April 6th, at which time the child presented pustular crusty lesions upon and also anterior and posterior to the auricle. There was a fetid muco-purulent discharge from both canals, more profuse in the right. The integument covering the concha was absent, the conchal cartilage being exposed to view; the entire inferior cartilagenous wall of the external auditory canal was absent so that a probe could be passed into a large cavity below. The conchal cartilage, together with the posterior cartilaginous canal wall, appeared to be one large slough almost ready to be thrown off. The drum and its landmarks were not discernible. The left ear presented a muco-purulent discharge, the canal walls thickened but no sloughs were present; it was impossible to find the drum or landmarks. One week later the child developed a complete right facial paralysis with some tumefaction over the right mastoid region. Post-auricular incision was made, the large sloughing mass removed and cavity thoroughly curetted. The gangrenous process had involved the entire concha, the cartilaginous portion of the external auditory canal and all the bony structures surrounding the canal so that it was possible to pass a probe anteriorly into the cheek and against the condyle of the lower jaw.

Bacteriological investigation failed to reveal anything but the yellow staphylococcus, which was the original organism found in the skin lesion and the discharge from the ears.

The child gradually lost ground and died seventeen days after the operation. Autopsy was refused.

In the accompanying Plate 1 the amount of sloughing which took place subsequent to the operation on the right ear can be very well seen, also that portion of the concha which had sloughed and was removed at the time of the operation. The dark lesions seen upon the auricle were all deep sloughs through which a probe could be readily passed until bone was reached. The odor accompanying the condi-

tion was exceedingly fetid and unpleasant, necessitating isolation of the patient.

The reason for operative interference in this case was the occurrence of facial paralysis, which we feared might be the forerunner of an intracranial condition. We believe, however, that after the operative interference the sloughing went on more rapidly than it had done before.

Fig. I.

In the picture of the left ear (Plate 2) the large superficial ulcer well defined, can be seen extending over the concha and lobule. The walls of the external auditory canal were beginning to show changes which undoubtedly would have resulted in the same gangrenous process as found in the right ear.

The lesions seen upon the face were entirely superficial and of a squamous crusty variety. Around the nose and mouth the lesions were taking on the ulcerative character, and those about the mouth were darkened in color and tended toward deeper invasion of the tissues, but not of the same type as the gangrenous lesions of the

auricle. We have looked upon all of these lesions of the face, around the lips and nose and scalp as being due to auto-infection, although on account of the depth of the lesions about the mouth and nose we are inclined to believe that these would ultimately have developed the same gangrenous condition as the lesion of the auricle.

Noting as we did in this case the tendency to auto-infection it is possible that cases in which noma existed on the pudenda and the mouth at the same time or on the auricle, are cases in which the infection had been carried by the individual himself.

FIG. II.

It is evident in this case that there was no underlying disease other than the general asthenia.

The fact of improvement under murcurial treatment is not positive evidence of specific origin as has been pointed out by None.

The course of the entire condition was afebrile and the child died from starvation, having refused nourishment for many days.

2102 Chestnut St.

CORRESPONDENCE.

THE following communication was sent to the editor by F. A. Swartwout, M. D., Secretary Southern Homœopathic Medical Association:

Dear Sir:

For the Southern Homœopathic Medical Association, Bureau Chairmen have been appointed as follows:

Materia Medica—Dr. Eldridge C. Price, 1012 Madison Avenue, Baltimore, Md.

Surgery—Dr. W. A. Boies, Knoxville, Tennessee.

Obstetrics—Dr. Garnette W. Johnson, Danville, Virginia.

Ophthalmology, Otology, Laryngology—Dr. Burton Haseltine, 122 South Michigan Boulevard, Chicago, Ill.

Pedology—Dr. Martha C. Burritt, 1855 Calvert Street, Washington, D. C.

Homœopathy and Propagandism—Dr. J. L. Jennings, Danville, Virginia.

Local Committees—

Reports from Bureau Chairmen indicate much interest concerning the annual meeting of the Association which will be held in Washington, D. C., October 24, 25 and 26. A number of papers illustrated by lantern slides or otherwise demonstrated have been promised. Some important matters related to the medical profession and of great moment to the country at this juncture will be discussed by men experienced in those affairs. Arrangements are being made for clinics to be held before the Society.

Washington is usually very attractive as a place for gathering conventional bodies, but Washington in war time is more than ever interesting. A record attendance is expected at this meeting and a special effort is being made to bring out a full quota of southern physicians.

The great need for an increased number of homœopathic physicians in the South will receive especial attention at this meeting. The Executive Committee is gathering data concerning this need and

formulating a plan whereby continued and increasing effort may be made to bring more southeren men to homœopathic colleges for their education, expecting, thereby, to increase the number who will practice Homœopathy south of Mason and Dixon's line. As a part of this plan it is desired by active members of the Association to hold the annual meeting of 1918 in the heart of the South. An effort is being made to have available at the next meeting invitations from several southern cities.

Secretary Southern Medical Association.

SOUTHERN HOMŒOPATHIC MEDICAL SOCIETY MEETING.

Hotel Shoreham. October 24, 25, 26, 1917.

Local Committee on Arrangements—Richard Kingsman, Chairman; G. C. Birdsall, Secretary-Treasurer; L. B. Swormsted, Wm. R. King, F. A. Swartwout, L. D. Wilson, J. B. G. Custis, E. F. Sappington.

Finance—Wm. R. King, Chairman; T. L. Macdonald, Ralph Jenkins, I. W. Dennison, Henry Krogstad, G. W. N. Custis, M. Crichton, L. A. Rauterberg, Z. B. Babbitt.

Badges—L. B. Swormsted, Chairman; H. C. King, J H. Branson, E. S. Lothrop, H. E. Dunne, D. H. Riggs.

Entertainment—J. B. G. Custis, Chairman; Wm. R. Buchanan, M. A. Custis, L. R. LeKites, C. F. Warner.

Hotel and Accommodation—E. F. Sappington, Chairman; F. B. Cogswell, Cora King, M. E. Twogood, H. W: Woodward, Edgar Spieden.

Printing—L. D. Wilson, Chairman; J. R. Sharp, F. A. Swartwout, H. H. Hawxhurst, J. S. Stearns, C. L. Bliss, Geo. Lewis.

Information—M. A. Brosius, Chairman; M. C. Burritt, F. B. Pedrick, L. Y. Baker, A. H. Taylor, Louise Ross, W. H. Heron, C. H. Wright, D. B. Holloway.

Exhibits and Lantern—G. C. Birdsall.

Ladies' Committee to Entertain Visiting Ladies—To be announced later. Will consist of wives and daughters of society members.

REVIEW.

Operative Surgery of the Nose, Throat and Ear. Edited by Hanau W. Loeb, A. M., M. D., in collaboration with Drs. Joseph C. Beck, George W. Crile, William H. Haskin, Robert Levy, Harris P. Mosher, George L. Richards, Geoerge E. Shambaugh, and George B. Wood. Volume II contains 427 pages, including 22 pages of Index. The four hundred and seventy-six illustrations have been well prepared and afford a short route to the understanding of the various operations. Publishers, C. V. Mosby Company, St. Louis, Mo. Price, $7.00.

The book has been prepared for Laryngologists, Rhinologists, Otologists and Surgeons. The efforts of the author have been to include a description of all operations of recognized worth performed on the nose, throat and ear. The choice of the operative method to be employed in any particular case is left to the discretion of the reader. It is the nearest approach to a complete work on the subject in English.

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Journal of Ophthalmology
Otology and Laryngology

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Editorial

WELFARE WORK IN THE UNITED STATES.

THAT there should be so much done in the way of welfare work in the United States, speaks for both good and evil. For good, in that self-sacrificing individuals are willing to undertake the task of improving conditions among the poor and afflicted. For evil, in that we should have so much poverty and affliction in a country that prides itself upon the progress it has made.

To those who do welfare work, the so-called social workers who in many instances take college courses to fit them for this work, great credit is due for their splendid achievements thus far. May they continue their worthy efforts in the future, until the last afflicted child and widowed mother are given healthful employment and are taught how to look after themselves without assistance.

The Government has shamefully neglected its duty, not alone in not properly caring for its charges, but in allowing conditions to exist that can only result in increasing the number of these charges. With a single stroke, by the elimination of alcohol in any form as a beverage, a great deal could be done to cut down the suffering of the yet unborn. By improving economic conditions generally, by improving the Child Labor Laws, by enforcing the use of Safety Devices, by passing laws fixing a minimum wage to female workers, and by improving housing conditions in the crowded districts of large cities, the Government could do a great deal to prevent poverty and sickness, and thereby lessen the labors of the welfare workers; to all of which the physician should subscribe. He, above all, should both preach and vote these reforms. Every physician worthy to practice should be a Social Economist and Humanitarian, especially in a free country like this, where he has by his vote a voice in the Government.

G. W. M.

AN UNIQUE ORGANIZATION.

A PAPER of peculiar interest to social workers and especially to otologists is the one in this issue of the Journal, by Miss Gertrude Torrey, of Chicago, on the Chicago League for the Hard of Hearing. This society has followed rather closely the plan of the one in New York of a similar type, but apparently with an even broader scope.

If the Chicago League can attain to the success already achieved by the one in New York it will surely have great possibilities for good. The ideas put forth by Miss Torrey are not those of a sentimental dreamer, but are the result of a large, practical experience. Miss Torrey is one of the most successful teachers of the art of lip reading in this country and her success is largely due to her peculiar sympathy with her pupils and understanding of their needs.

Her shrewd suggestion as to why the deaf receive less sympathy than the blind is the first sensible explanation yet offered for this curious fact. In spite of the unflattering implication we are obliged to admit that her reason is probably the most potent, namely, that the deaf person simply causes us more trouble than the blind one, therefore we offer him less sympathy.

Whether any sort of "League" can modify this attitude is a question, but a more general understanding of the problem of the deaf cannot fail to be of benefit. Socially and educationally the work of the League is not to be despised, but probably its greatest usefulness is in the industrial field. Several of Chicago's great and progressive commercial concerns along with other welfare work are aiding in this and so much has already been done that we may now say that no capable person in Chicago need lack for suitable employment because of impaired hearing.

This is in line with our nation-wide effort to utilize to the fullest the ability of every citizen and to place every one in that position where he can render the best service.

Greater publicity should be given to the work of this League. It should have larger support and be made available to far greater

numbers. It is timely both in war and in peace. It fits into our scheme to "organize for victory." but, best of all, it is worthy a place in our larger scheme of preparedness for better social conditions.

B. H.

THE SACREDNESS OF STATISTICS.

THE deadly dullness of the medical essayist with his canned statistics, as well as the sterility of his output, is well known to all who attend medical societies. We have long had a feeling that the medical statistician was perhaps the most asinine of the species, but there are evidences that in other professions he has attained some growth. The most cleverly satirical bit yet produced in his honor comes from an eminent jurist, Mr. Justice Porter, of the Kansas Supreme Court, and is quoted by Dr. Geo. F. Butler, in the April *Journal of Clinical Medicine.*

It would be wrong to mutilate such a gem and we therefore quote in full:

"Some years ago my attention was called to the remarkable similarity in the gastronomic tastes of criminals condemned to suffer the death-penalty; and, in order to satisfy my curiosity, I made a diligent effort to discover the facts and, if possible, the cause. For years thereafter, I never 'passed up' an opportunity to read the newspaper accounts of the last hours of condemned persons. In doing this, I had a single purpose in view. The description of the last interview with the family of the condemned, the manner in which he received the consolations of his spiritual adviser, the hours he passed in troubled or peaceful slumber while the death-watch hovered over him, his demeanor as he walked to the scaffold, what he said when the black cap was about to be drawn and limbs bound, his declaration of religious faith and hopes of salvation, his protestations of innocence, his confession and advice to young men; not one of these, nor the gruesome details of his contortions and wigglings as he swung into eternity, made upon me the slightest impression. I read the accounts intent upon discovering the menu of the last meal the executed man ate, the choice of victuals that he made, as, according to immemorial usage, the person condemned to be put to death is

granted the privilege of selecting what he will have to eat at his last meal.

"I had observed that in very many instances where the condemned was an ordinary, common murderer, the choice was the same—ham and eggs, coffee, ice-cream, and tobacco in some form. To be exact, the figures compiled from information gained by correspondence with prison-officials throughout the United States showed that, out of 1,127 who suffered the death-penalty during a period of one hundred and forty-six years, 1,039 called for ham and eggs; a few, presumably colored gentlemen, asked for catfish. Coffee and tobacco in some form were included in almost every one of these meals ordered. Only 36 of the whole lot ordered a boiled dinner. I have always felt morally certain that every one of these 36 was an innocent man. Possibly my belief in this respect may have been influenced to some extent by the knowledge that under similar circumstances I should have made the same selection.

"During these investigations, I succeeded in interesting a number of professors of sociology and criminology in the subject, men who had devoted a great deal of thought and investigation to similar inquiries, and I carried on for several years a large correspondence with them, exchanging views, facts, and figures. For a time, I had fond hopes of being able to give to the world a table of statistics that might have been of vast benefit to persons seeking information along these lines. But, I was obliged to abandon the enterprise, for the reason that I found the preparation of the tables of statistics an interminable and an intolerable nuisance. One professor, for instance, wrote that in his opinion the statistics would be of little value, unless I were able to show what proportion of the criminals choosing ham and eggs had committed murder through avarice and what proportion has been actuated by other motives. Another thought that there should be a separate column stating what percentage of those choosing particular dishes had murdered old people as compared with those whose victims were children. He was equally positive that I should indicate the number of cases in which the crime was committed in the daytime as compared with those that were committed at night; that some consideration should be given to the question of whether the criminal was a chronic or a first offender, and also whether his

parents were illiterate or otherwise. Others of my correspondents offered similar or yet other suggestions.

"If all these suggestions had been followed, the plan would have figured out something like this: A certain percentage of male criminals convicted of murdering young children in the nighttime, actuated solely by motives of revenge, are shown to have chosen for their last meal ham and eggs with ice-cream, coffee and tobacco. Again, where the condemned man was shown to be able to read and write and the victim was an elderly person and the motive was mercenary, as I now recall, 32.5 per cent. would have appeared to have ordered ham and eggs and coffee, without ice-cream; and something like 27 per cent. of the same class, where the conditions were further modified by the fact that the criminals were born of illiterate and cross-eyed parents in the dark of the moon, added tobacco to their list. I have never taken to mathematics; and statistics, while often quite entertaining to me at the beginning of a discussion, very soon become tedious, stale, and unprofitable. An array of figures disheartens me; I like them not. That two and two makes four, I will concede, not so much because I have demonstrated it, but because others who are adept at figures have so assured me time and time again.

"I have never been able to understand how the several amounts of the checks I draw each month always come so dangerously near wiping out my balance at the banker's. Once a month, for many years, I have gone over the figures, confident that some careless bank clerk has committed an egregious blunder, which, once detected, would call for an apology from my friend, the banker, an apology which I have always held myself in readiness to grant without the slightest trace of hesitation. But, my labors have been in vain."

B. H.

THE INDUSTRIAL PHYSICIAN.

IT is possible that the reproach that formerly accrued to the "Company Doctor" was a just one. If one gave his services, at a reduced rate, just to be assured of a fixed income, the chances are that the opinion of his patients coincided with his opinion of himself.

However, out of that chaos of "First Aid," and of dispensary prescribing, has come the Industrial Physician and Surgeon, whose standing in the medical world is recognized. The immediate care of the sick and injured is so small a part of his work, that it is almost negligible, except as a part of a great whole.

Consider, for a moment, the health problems of a Mail-Order House. Suppose that contagious disease were present, but unrecognized, among the thousands of employees. Suppose that one girl, with desquamating hands, was packing goods to be sent to far-away customers, was opening letters with enclosed checks, that must be banked; suppose that one, tuberculous, was coughing at his work, while he was packing groceries, or was spitting about a room, where many workers were crowded together; suppose a man, with eczematous or syphilitic hands, was doing any work, no matter how remote from the individual customer, would not the latter think that he had been betrayed, no matter if harm never came to him? Suppose, as was the case during Christmas week, when scarlet fever and diphtheria were more epidemic in Chicago than they had ever been before, that every employee was free of these diseases; what might not be his condition, with thousands of customers, from every walk of life, crowding the aisles, and handling the goods? If you are inclined to think that the Industrial Physician has no problem on his hands, in carrying this grave responsibility of practically a nation's health on his shoulders, then you are entitled to another guess.

How is this great work accomplished? If details interest you, it may please you to know how eight thousand employees were protected during those trying weeks, to say nothing of a million families. Workers must come to business on street cars. Granted that they were well when they left home, they had every opportunity to be exposed to contagious disease before they reached their work. Our largest item of medical expense, for the four or five weeks of our winter's epidemic, which was so grave that even physicians felt their helplessness, was for preventive care. As all physicians know, scarlet fever, which is the disease most dreaded by workers, because of the long quarantine, begins most often with sore-throat. Every employee, man and woman, had the throat inspected before he was

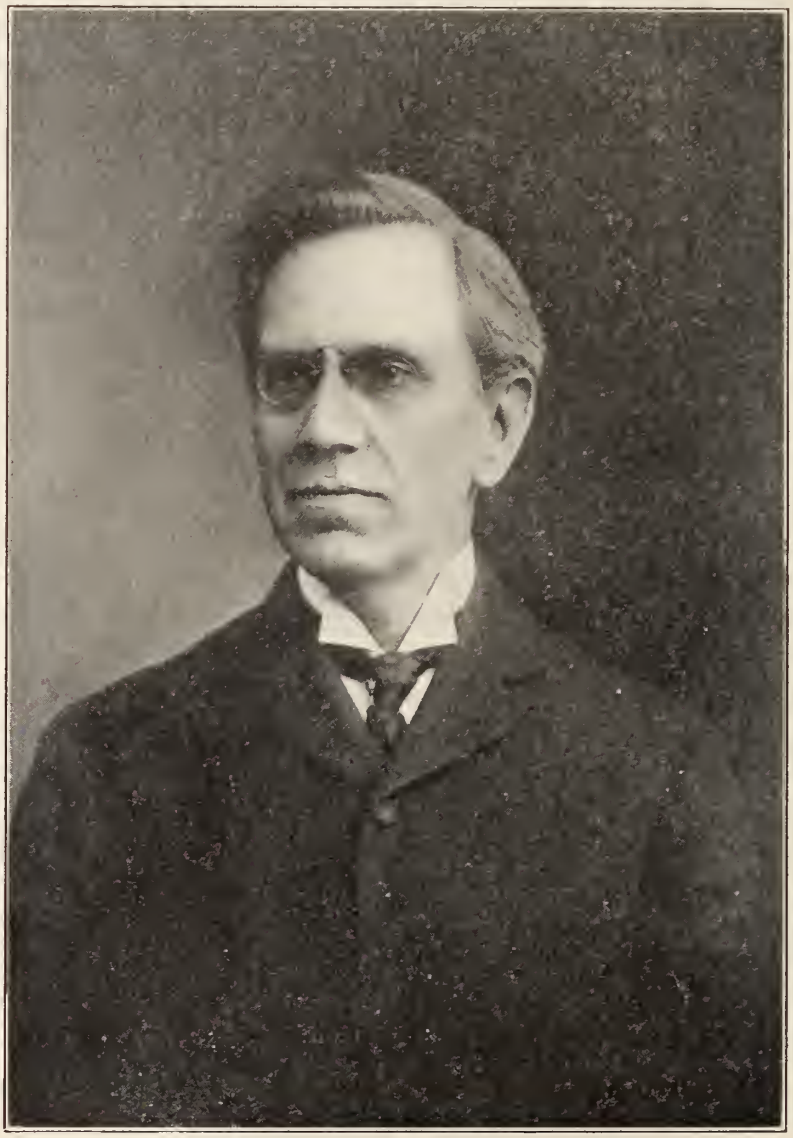
allowed to work. If his throat was sore, he was sent home, at full pay, for one week. If a girl or boy developed scarlet fever, his immediate associates were sent home, at full pay, for nine days. The patient's desk was washed with bichloride solution, and the whole department fumigated that night, with formaldehyde. Extra Visiting Nurses were employed to make follow-up calls; extra physicians were hired to aid in the examinations. The result was that not only the State Board of Health, but also the City Health Department, both of which had us under constant observation, gave us a clean bill of health, at a time when the closing of the plant would have meant millions of loss to the firm. All of this had to be done quietly and with no front, to obviate the hysteria which so quickly develops in any large body of workers.

Let us look at this from another angle. Suppose the firm were short sighted; that it regarded the immediate expense as the vital one, and blocked all these precautions; suppose, in a firm like this, the Medical Department were handicapped, and had to wait the approval of those in authority? Can't you see the business tragedy that might result? Suppose that this one firm had been closed, for just one week, because of contagious disease? It might as well have remained closed forever. Eight thousand people would have been without work, during a trying winter; a million customers would have been disappointed in their purchases; and in the minds of all of them would have been planted the suspicion that the goods were not sanitary, and a million customers might have been forever lost.

This is part of the work that the Industrial Physician is doing, day after day; and if the American Medical Association gives, at the national meeting, each year, the first day of the sessions to these physicians and surgeons who have these industrial health problems on their hands, it is only giving recognition to a great work.

FRANK WIELAND.

A MINUTE PREPARED BY REQUEST AND SPREAD UPON THE MINUTES OF THE HOMŒOPATHIC MEDICAL SOCIETY OF THE COUNTY OF KINGS.



JOHN LITTLE MOFFAT, B. S., M. D., O. ET A. CHIR.

IN the passing from this life on February 18th, 1917, of John Little Moffat, the Homœopathic Medical Society of the County of Kings and Homœopathy throughout the world has lost a sincere believer in the Law of Similars and one who was its sturdy champion

on all occasions. Born and reared in this community and educated by one of the early practitioners of our school who made the name of Homœopathy known and respected in Brooklyn, he never deported from a belief that filled every fibre of his nature.

Dr. Moffat had a critic's eye for anything that did not tend to advance the cause of Homœopathy, and he was our severest censor of any departure from the path of duty towards our school, always championing the support of institutions under its care.

The doctor's love and mastery of detail made him an ideal secretary. His work in that office for this society for many years and in the State organization over a longer period was marked by a fidelity and conscientious devotion that few men have shown. His editorship of the New York State Transactions added much to their value and accuracy. His editorial work for our oldest medical journal and for the special journals devoted to diseases of the eye, ear, nose and throat were characterized by industry, care and devotion to every detail whether as a department editor or chief. He always stood for accuracy in every statement. One of the fine traits of his character was his enthusiasm for his work and the promptness with which he executed all his public duties, for he was always glad and ready to help all projects that tended to advance the interest or standing of the profession or protect the public.

He had a mind of wide scope enriched by a college training before entering medical college, which ever kept him in the front rank of debaters in our societies. Dr. Moffat always had some new thought or some new way of expressing an old idea at all our meetings, and his absence has made a wide breach in the discussions upon our papers. Although he was a strong partisan and a keen debater, no one ever heard the personal tone enter into Dr. Moffat's discussions and debates. His kindly sympathy led him ever to excuse the foibles and mistakes of others, and to deal with the broadest aspects of the case and show broad consideration in all his relations with his brother practitioners. The writer knew Dr. Moffat intimately for over thirty years and during much of that time enjoyed his close friendship, but in all that period he can never recall an unkind word or caustic criticism of one of his fellows from Dr. Moffat's big heart.

His cheerfulness during his years of suffering and his kindly

consideration of those about him marked him as a true Christian gentleman and a man of the highest type as a husband, father and citizen. He was a loyal believer in his friends, and any cause that he espoused had in him an earnest and ardent champion whether he was on the popular side or doomed to defeat. The loss of such a kindly spirit, genial companion and optimist of the very best kind is one that cannot be filled, and our sympathy goes out the deeper to his widow and children in their bereavement. The remembrance of a man so kind and lovable in all his personal relations, and whose strongly marked character impressed itself upon his acquaintances, must be a blessed heritage to those dear ones that he has left, as well as to those of us who were privileged to know John Little Moffat intimately and well.

Herbert D. Schenck, M. D.

Epidemic Poliomyelitis in Its Nasopharyngeal Aspects.—W. S. Bryant says: "It should be emphasized that during epidemic poliomyelitis the significance of nasopharyngitis is enormously enhanced." Bryant had observed in a previous epidemic (1910) that all patients had nasopharyngitis of varying degrees of severity; also that those associated with the manifest cases had the same condition, and he believed these had poliomyelitis in varying degree. He advised proper treatment, such as cleansing measures, in all cases, and in persons exposed.—*Practical Medicine Series,* 1917.

WELFARE WORK OF MONTGOMERY WARD & COMPANY.

JOHN R. BENTLEY,

Chicago, Ill.

WELFARE work is simply an understanding of human nature applied to the relation of employer and employee. The employer who does not recognize his duty to his employees, aside from mere wage payment, is not only losing opportunities to do good which have been placed within his reach, but is missing a good deal of joy and profit of business life as well.

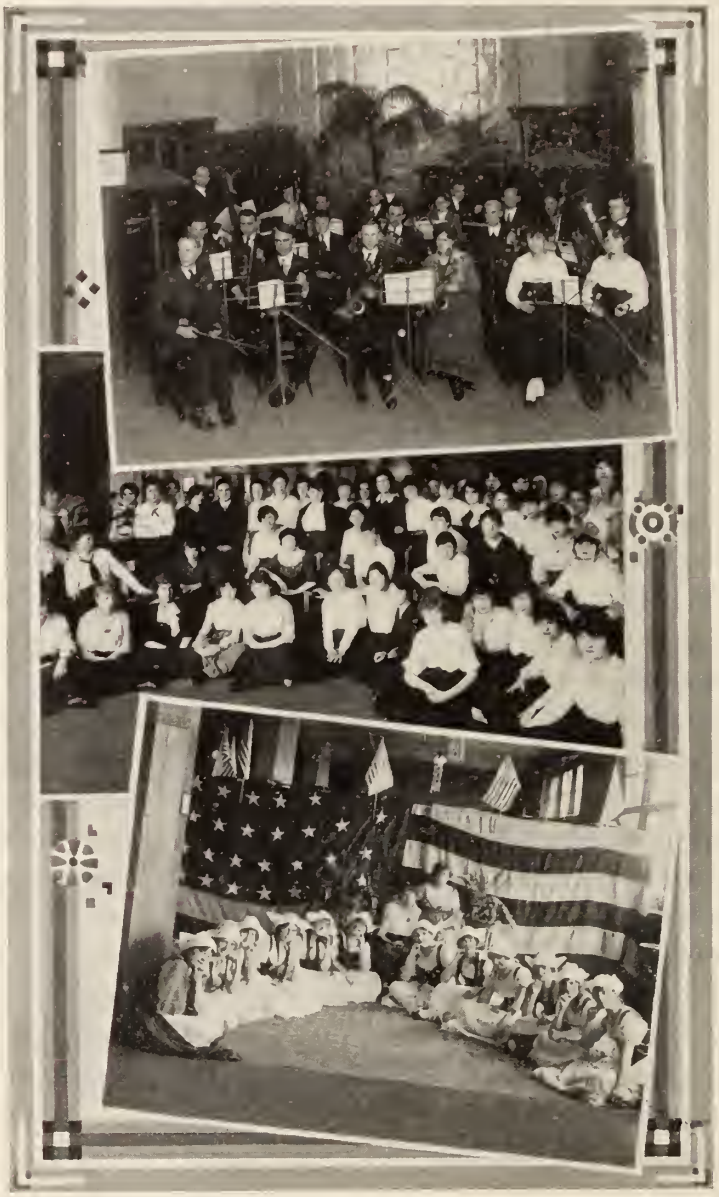
That employees who are well treated do better work is axiomatic.

In the old days of master and apprentice, the apprentice enjoyed the protection and care of the master's home. He associated with, and was treated as one of the employer's children. He shared their food and care, in sickness as in health. He profited by the close personal contact that the home relation gave him with the one to whom he was looking for his training for the work of life.

Modern conditions have removed none of the essentials of this relation, but have merely changed the form in which they are to be applied. Obviously, the employer can not extend his personal acquaintance to every employee, and is, therefore, obliged to depend upon assistants to give the personal touch to employment; but regardless of how it is given, the need exists and must be met, or the consequences suffered.

The apprentice of to-day, removed from the wholesome influence of the master's home, and in many cases having no substitute worthy of the name, requires care and attention beyond that dreamed of by the most progressive employer of a few decades ago. As the apprentice system in its original form was crowded out of business relations, there was a time when it was not replaced by any organized effort, and during that time it is evident that many employers lost much that they did not recognize as loss, and failed in many cases where they might have made success.

The apprentice of to-day appreciates the thoughtful care and consideration, the kindly human understanding, of a good employer



The Employees' Orchestra.
Educational Class Group.
Amateur Dramatics.

as much as he did a century ago. His need for this help is just as great, but to-day it must be met by organized Welfare work, and

any employer who has failed to see this has blinded himself to one of the greatest opportunities for helping others, and, at the same time, helping himself, that the business world of to-day provides.

All this is proven by the growing interest in this subject that is manifested on every side. Practically every large employer to-day engages in some form of Welfare work, and everyone who has experimented with it—even to the slightest degree—has brightened his knowledge of human nature, and unquestionably increased the effectiveness of his organization, perhaps beyond his own knowledge.

A spirit of sympathetic understanding and tolerance is a necessary prelude and accompaniment to every practical Welfare effort, and these features are, at the same time, the natural result of every such effort. As in everything else, we learn to do by doing.

Study of home environment, social needs, natural tendencies, and personal bents, are some of the fields most readily opened to those of an investigating trend of mind who feel the need, and see the advantage, of engaging in work of this kind. Putting ourselves in the place of the humblest worker is one of the hardest but, at the same time, the most effective means of determining what that humble worker needs.

A case in point is that of a boy who is tempted to steal something of trifling value. Mere Workhouse correction in a case of this kind —except where it has proved incorrigible—is the least effective way of surmounting the difficulty. Undoubtedly, it is necessary in some cases to be severe to the point of invoking the power of the law, but, as a rule, the application of a kindly human interest and sympathy will accomplish wonders and, perhaps, save the person from progress on the downward path that the harsher methods would only serve to bring nearer.

The employer who refuses to engage an applicant because of some black mark in his past record is only helping to beat him down and turn him into paths of crime, which are attractive enough when one is on the downward way without being pushed into them. On the other hand, hundreds of cases have proven that a kindly human interest, taken at the right time, has saved many a boy or girl from a life of crime.

With Montgomery Ward & Company the need for Welfare

work was seen many years ago. It was met largely by personal efforts on the part of members of the firm and a few of the older employees, and, probably, this is the custom in many houses where or-

The Dental Office.
A Young Men's Club.
An Employees' Lunch Room.

ganized Welfare work has not been founded. It was early seen that one of the most frequent needs, not provided for by the employee himself, and for which organized effort was apparently required, was that of making some provision for a rainy day and for old age.

Months were consumed in 1910-11 in the perfecting of a plan of Insurance; at once the broadest scheme of health, accident, old age, and death benefit, that has ever been devised. On July 1st, 1912, this was adopted, and although since modified, as experience has made necessary, it now provides protection for a large proportion of our employees in New York, Chicago, and Kansas City.

Membership in this Insurance is of two kinds, Limited and Insurance. Each year, on July 1st, all employees then on the books, who have been engaged since the previous July 1st, automatically become Limited members. The benefits of the Limited members are Medical and Surgical attention, Ambulance service, Hospital care, Nursing, Medicines and Surgical appliances, all free without limit, regardless of cost, cause, or duration. That is, a man might be injured in an accident outside the store, on the street; in his home; and so injured that he might live for many years and still be wholly incapacitated for work. During that entire time, he would receive all of the benefits above enumerated that his case required.

As each employee completes his first five years of employment he or she automatically becomes an Insurance member. The benefits of Insurance members are as above, together with the added features of $100 funeral expenses in the event of death, and an Old Age pension upon attaining the age of 70, varying from 25 to 45% of the last wage, according to the number of years of employment. In the event of death of an Insurance member the widow receives a pension for life, or until her re-marriage. This pension is 25% of the employee's last wage, with an added 20% if one child under 16 survives, or 25% if two or more children under 16 survive. In the event of re-marriage, the widow forfeits her pension, but receives in lieu thereof a lump sum equivalent to two years' payments. All of these features are provided free of cost to the employee.

The original plan, as adopted in 1912, also includes the withholding of 3% of the wages of all employees after the first six months of service with the company. The benefits were the same

as outlined before, with the addition that during any impairment half wage was paid, regardless of cause or duration; for example, a per-

Welfare Office.
Girls' Recreation Room.
Wand Drill.

son made an invalid by any cause whatsoever, resulting in complete impairment for life, would receive half wage as long as he lived.

Many employees, however, especially those who were robust and who did not see any opportunity to profit by the arrangement, felt that the 3% burden was heavier than they could afford, and it was finally decided to abandon that feature of the plan, so that the company now bears all the expense, but the wage payments during impairment are omitted, and the probationary period for the Insurance and Pension features is extended to five years instead of six months.

At the present time, our Insurance Division requires the service of a Medical Director, one Physician for outside calls, two Physicians in the store, two Surgical Nurses, one Nurse for the Girls' Rest Room, a Visiting Nurse, and a Telephone Operator in the Doctor's office.

In addition to the requirements of our Insurance division, a Medical department is conducted on the broad policy of tolerance and humanity, recognizing that health and efficiency are inseparable.

The Workmen's Compensation Act stipulates that any workman injured in the performance of his duties, must be compensated by certain specified sums, and in the event of such accidental death, an amount based upon his actual earning must be paid to his beneficiaries by his employer.

Since the work in our plants includes very little high power machinery, accidents are rare and seldom serious. Although the Compensation Act serves an excellent purpose in some plants, it is seldom applicable in our case, but the physical ills of human kind we always have with us, and so we have voluntarily applied many of the provisions of this law to the conducting of our Medical department, which has come to be an indispensable feature of our Welfare work.

One of the branches of our Medical Department, most far reaching in its result, has been that of the Malted Milk service. To those who are found to be poorly nourished, or who need building up, this service is provided. The monthly consumption of Malted Milk has been over one thousand pounds for several years, and it is popularly believed among the employees, that the aggregate increase in weight on the part of the consumers is somewhere about the same figure. For example, one of the clerks weighed ninety-two pounds, and in two months, increased to one hundred and ten. In 1916, 80,100

glasses of double strength Malted Milk were served. That this increased efficiency reduces illness, improves the attendance, can be readily determined by interviewing any of the Department Man-

Public Library Branch.
Standard Typists' Tables.
Standard Bookkeeping Desks.
(Note the legs and foot-rests of one inch iron pipe fittings—strong and clean.)

agers who have had clerks recommended for this service. Of course, no charge is made.

Applicants for employment are being given a very thorough medical examination. Those unfit for the class of work in which they are engaged are either rejected or recommended for some more suitable form of work. During 1916, of the 16,797 applicants examined, between five and six per cent.—950—were rejected.

The success of the Medical Department encouraged the trial of a Dental Department as well. The poor work of cheap dentists, and the high prices of good dentists, seemed to leave but little chance of the dental sort in the way of the wage earner. This, together with the fact that care of the teeth is part of personal hygiene, very readily lending itself to negligence and procrastination. We found that others who had attempted Welfare work along the Dental line had limited themselves to inspection and recommendation, but had not attempted actual operations. We decided, however, to abandon their advice, and equipped an up-to-date office of two chairs, together with the other necessary paraphernalia, and engaged two experienced Dentists, with a young woman assistant, who also answered the telephone and made appointments.

That the need was a real one was shown by the fact that applications for more work were received in the first week than could possibly be done in three months, consequently more chairs were installed and more Dentists were employed. Now, five chairs are busy practically all the time, and still we do not keep up with the demand.

The work of the Medical Department is all free, but the Dental work is charged for, ostensibly at cost, but actually the Department has never paid expenses, nor do we expect it to; in fact, if it showed a profit prices would be reduced. We find that the prices are about the same as those charged by the cheap Dentists, but we are using every care to be sure that the work is of the highest possible grade and thoroughness.

The Medical and Dental offices co-operate most heartily. It has frequently been found that a constant visitor to the Doctor's office, having an ailment here to-day and there to-morrow, when placed under the X-ray, is found to have the source of trouble in the teeth,

whereas, without this diagnosis, the Medical Department might attempt to reduce the difficulty without success.

The spirit of Welfare and Co-operation has so thoroughly per-

The Kansas City Building with its Artificial Pond and the Tennis Courts adjoining. These are utilized during the noon hour and before and after work.

vaded the entire institution that the employees themselves have organized a number of Welfare features of their own, among them, the Mutual Benefit Society, by which sick benefits of from $5.00 to $10.00 per week are paid to those who are members on small monthly dues of from 25 cents to 60 cents. The Chicago store alone has about 1,000 members.

Another important organization of the employees among themselves is that of the Employees' Savings and Loan Association. This is a new feature, organized in January of the present year. It now has some 2,000 members saving weekly amounts in multiples of 25 cents. The average deposit figures about $1.40 and, at the present time, something over $50,000 is being held by its officers for re-distribution at the end of the year. This organization also includes a loan plan, whereby small amounts are loaned to members at an interest of about one per cent. per month. These amounts are generally repaid in weekly instalments, and prove an immense convenience to the individual, as well as serving to keep them out of the hands of the Loan Shark. Something over $8,000 of the above $50,000 is loaned back to members in this way. This organization, of course, has as its prime purpose the fostering of the saving spirit, and is unquestionably doing an immense amount of good in this direction.

Another co-operative feature is a small orchestra of about twenty pieces, maintained under the leadership of one of the employees who is a good conductor and organizer. Occasionally, concerts are given in the Recreation room at noon, the program usually covering some two hours, so that the employees may visit the room successively during their several lunch periods.

If you should happen into one of our plants between 7:30 and 8:00 o'clock in the morning you would see a steady stream of employees coming through the wide entrance doors, and thronging the elevators. Work begins at 8:00 and ends at 5:00. On Saturdays the plant closes at 12:00 in summer and 3:00 in winter. During rush seasons occasional overtime work is required, for which extra pay is given. More than one hour of overtime for women is not permitted.

Most of the work for women is clerical. We have accordingly provided conveniently adjusted tables and chairs. In some of the

work, which is necessarily steady and continuous, ten minute rest periods are given, during both forenoon and afternoon. A lunch period of forty minutes is allowed each employee; and all of the women are sent from the building ten minutes before closing time, thus avoiding the crowds of men who depart on the hour.

In all three of our larger plants luncheon is served in the building, the divisions being scheduled to go at various times, to avoid congestion. In the Chicago plant over 2,000 are fed daily without disagreeable crowding. Some prefer to bring luncheon from home, in which case they may eat them in the lunch room, with the addition of a cup of coffee if they wish, or without making any purchase if they prefer.

The restaurants are all run upon a non-profit basis, and palatable and attractive lunches are served at a very low cost.

In wet or stormy weather shoes, stockings, and other clothing are loaned to women employees while their own are being dried. Umbrellas are provided for loan to the employees when they are required by storm at closing time.

A branch of the Chicago Public Library is maintained, adjacent to two large recreation rooms, one of which is provided with a dancing floor and piano, the other with magazine tables and a phonograph. These rooms are freely used by the girls and women of the house during their lunch and rest periods and, frequently, evening parties are given, to which outsiders may be invited, and which are often attended by the managers and other men of the house.

Among the features designed to maintain the co-operation of employees at large is that of the Store News. This is a little magazine which is issued "frequently;" actually it appears about two or three times every month, and in the event of any particular need runs a special edition. This is in no sense a house organ, but simply a booklet of information and interest to the entire organization.

A vacation with pay is given to every employee enrolled prior to November first of the preceding year.

Promotions to positions of responsibility are made from the ranks wherever possible. A Mail Order business is unique in its requirements, and in order to instruct young men in the systems and policies

of the business we have found it desirable to organize a training plan under the direction of the Educational division.

Under this plan young men are given a course of experience training through the house on a fixed schedule, spending from one day to four weeks on the several activities included. Thus in six months—the time this course requires—they obtain a thorough knowledge of the working system and the interests and ideals of the business. At the same time opportunity is given of judging their ability before they are placed in positions of trust. Every man thus trained represents a direct investment of several hundred dollars, but it has been found that the investment brings good returns.

Our effort to place persons in positions to which they are naturally adapted is not confined to those being trained for positions of authority. In a business of this kind no employee is insignificant. It is just as essential that the newly acquired order filler be suited to his place as it is that his supervisor be capable of properly training and instructing him.

We sometimes find that employees who fail in one kind of work, succeed admirably in another, and for many years we, in common with most business houses, have left this matter of placement largely to chance and circumstance. During the last year, however, we have established our Vocational Selection Department,

This department gives various mental and physical tests to prospective employees, with the view of determining their natural fitness for the position to be filled. These tests are also applied to those older employees who appear to be unfitted for the positions they are occupying.

The results of this have been gratifying; for example, we have found color blind persons among applicants for positions in the Wall Paper, Notions and Dry Goods divisions, where a keen color sense is requisite.

Applications as typists are received from girls who, upon test, are shown to lack digital dexterity and co-ordination naturally required in such work. Such applicants frequently possess qualities making them desirable in other lines of work. These tests, together with the psychological tests given applicants for executive positions, have been of great help in selecting the right man for the right place

and have often been the means of discovering persons of unusual ability.

The Educational Department meets all new employees before they are sent to the departments for which they are selected. They are instructed briefly regarding attire, conduct, personal hygiene, and business ethics. The nature of the business, the firm's ideals of service to its customers, and the employee's responsibility to the house and to each other is explained pleasantly and at some length. Men and women are handled separately in this way.

One of the most interesting features of the Educational Department is that of its Evening Classes. Many of the boys and girls are employed at the age of sixteen to eighteen years of age—the formative period, when most of us learn most readily. Most of these are grammar school graduates, some have completed from one to four years of high school. The natural tendency, however, when beginning work, is to forget promptly any former training they have had. With a desire to conserve their education, as well as to give opportunity for acquiring new technique, our Evening Classes have been established. They are open to all our employees.

Classes are held on two evenings each week, from 5:30 until 8:00 o'clock. After supper, which is served in the restaurant at a charge of ten cents, the several classes convene for the study of English, Comptometer work, Typewriting, Dictaphone work, Shorthand, and Sewing. There is also a class in Social Dancing.

The teachers of these Evening Classes are older employees who have had experience in teaching. They take a keen personal interest in the individuals in their classes, and secure their promotion where special ability is noted, or where the employee appears to be misplaced in his present work.

A very natural result of the Evening Classes is the number of pleasant and profitable acquaintances formed among the employees, adding just that much to the already broad spirit of co-operation throughout the plant.

Although we have not made the progress in Athletics for employees that we desire, what has been done has been very satisfactory and leads us to wish for more. Among our Athletic efforts is that of the Basket Ball Team—a squad of sixteen experienced men whom we

found to be of championship caliber. During the season games were played with similar teams from Hull House, First National Bank and the Charles H. Besly Company, of Beloit.

A Base Ball League has been organized with twelve teams, chosen from the employees. This plan has the advantage, over that of merely being represented by one team in the City League, for example, that it brings into actual play and responsibility a much larger number. Something over 250 are thus occupied each week. Of course, a schedule of games is in operation, which opened on May 5th.

All of the base ball paraphernalia is furnished by the company. Trophies are hung up for the winning teams, and at the end of the season a presentation dinner will be arranged for all of the members of the League.

Tennis courts were located last year, and are to be used again this year, on vacant property several miles from the building, on which an annual tournament is held. Four cups, donated by our President, Robert J. Thorne, are presented to the winners in the several classes. Employees are given the free use of these courts at any time they wish to play.

A Bowling League has been conducted for the past two years, the one of the past winter being especially successful. The interest aroused throughout the house was by no means its least valuable result.

At the close of the year 1916 approximately six per cent. of the net profits of the business were divided among the employees as a bonus based on the present salaries and length of service, but every person on the payroll was included. At the present time plans are being considered for the scientific distribution of a certain percentage of profits in excess of reasonable dividends.

Each employee of ten or more years' continuous service is given the privilege of subscribing for a certain allotment of Common Stock at a very low price. The number of shares allowed depends upon the importance of the position and the earning power of the employee. If preferred, this stock can be taken on an instalment basis. All employees who complete 25 years of continuous service, and

whose salaries are less than $2,500 per annum, receive five shares of Common Stock as a gift, outright.

Since the beginning of the war a Red Cross Auxiliary has been organized, which meets twice weekly to make hospital supplies. Materials are provided by the company for the making of comforts for the soldiers and for hospital accessories.

We also have an enrollment of women for three First Aid units, one of which is already receiving expert instruction. This is the Standard First Aid course, with equipment and tuition provided by the company, the lectures being delivered by the head of our own medical staff, Dr. Frank Wieland.

A recent Red Cross "drive" resulted in over 3,000 members among the employees.

A Sanitary Training Unit of sixty-one men has been organized and is being equipped for service.

The Kansas City house has furnished one complete company of infantry, with officers, for the Missouri National Guard. This was used during the recent mobilization in Texas, and is now in active duty in the Federal service.

From the Chicago house fourteen men have been accepted into the Officers' Reserve, now in training in Fort Sheridan, while large numbers are enlisting in the National Guard or other branches of the service.

Welfare work is frequently criticised by those not fully familiar with it, and we sometimes hear the assertion made that "all of this foolishness had best be abandoned and the money that it costs put into the pay envelope." A few figures along this line may be illuminating: For the year 1914 our Welfare cost figured $7.14 per employee; in 1915, $8.44; in 1916, $8.97; three cents per day. We submit to the good judgment of our readers whether even a small percentage of our employees would, or could, have furnished themselves as much as they have received at so small an expense if we had given each of them this amount instead of spending it as we have.

This entire matter of Welfare and all its branches resolves itself into a matter of reciprocation. The employees are encouraged to give their best service to the firm, and the firm, in appreciation thereof, gives every possible convenience conducive to health con-

servation, mental improvement, and economic well being. As a consequence, throughout the entire business there exists a spirit of loyalty and solidarity that could be effected in no other way.

PHYSICIANS WHO ARE CONSCRIPTED.

Some weeks ago we estimated that approximately 20,000 physicians would be subject to conscription. A large number at this time find themselves subject to the first call. Evidently there is considerable anxiety on the part of many of these physicians as to what disposition will be made of them. Judging from the letters we receive some think they will be put into the "line." Just what position they will occupy in the Medical Corps we have not been informed, but they certainly will not be put into the "line." Presumably they will be detailed to the Medical Department of the Army. In fact, it is generally understood that physicians who are accepted by the Exemption Board on the call will be placed at the disposal of the Surgeon General's office. It has been suggested by those in authority that physicians who are called, or who are subject to call, should make application for membership in the Reserve Corps. It will be merely repetition if we again urge that all who are of conscription age, unless they are subject to exemption under the law, should offer themselves as members of the Medical Reserve Corps. In this group of men—we may again repeat—come those who are eligible for membership in the Medical Corps which still needs some seven or eight hundred officers.—*Current Comment, Jour. of the Amer. Med. Assn,* July 28, 1917.

THE CHICAGO LEAGUE FOR THE HARD OF HEARING.

GERTRUDE TORREY,

Chicago, Ill.

IN order to tell about the Chicago League for the Hard of Hearing, Inc., it is necessary to go back a few years and explain the beginning of the movement.

About five years ago the Nitchie Service League was organized by the alumni of the New York School for the Hard of Hearing, for the purpose of giving aid to the deaf. For a year the work was carried on in connection with this school, but it became evident that the League was strong enough to become an independent organization, and as such could accomplish more good; so the name was changed to the New York League for the Hard of Hearing, and it moved to rooms of its own. It is now situated at 37 West 39th Street, New York, and has become an organization of some five hundred members working together to help the hard of hearing socially, economically and educationally.

The president, Dr. Harold Hays, says in his report of January, 1917:

"During the year our Secretary has recorded over 4,000 visitors to the rooms, every one of whom has had to be interviewed; a number of positions have been found for the unemployed; various firms have been visited, who now signify their willingness to employ some of our applicants; we have maintained a handwork shop in which are sold varied articles made by hard-of-hearing consignors (last year the shop took in over $1,400); we have given numerous entertainments to our members, and have maintained social classes in the evening; one of our members has given lectures during the year at the Metropolitan Museum of Art; and, lastly, we have managed to raise the funds necessary to carry on this work."

This gives some idea of the growth and work of the New York League, and the record is proof of the need of this work. Feeling

that the same need exists in Chicago, the Chicago League for the Hard of Hearing, 101 Auditorium Building, was organized in January, 1916, by a group of the hard of hearing and teachers of the deaf. Since that time other leagues have been organized in Boston, San Francisco, Los Angeles and Mobile.

The objects of the Chicago League are:

1. To assist the deaf and hard of hearing in the matter of procuring and retaining employment.
2. To encourage the study of lip reading.
3. To alleviate the social isolation of the deaf and hard of hearing, and assist them in every possible way.

You may ask why we emphasize work for the hard of hearing, and why we do not include everyone who is deaf. Until the New York League was organized, no work had been done for the hard of hearing, as a class. The congenitally deaf have various organizations which give aid. They have their own churches and their own social life. Individuals who have become more or less deaf after acquiring speech, and, in most cases, after education has been completed, do not fit into the organization of the congenitally deaf. They are also shut off from a great deal which makes up the life of a normal man or woman. In this way they become a class by themselves, and the object of the League is to help this class. As it is impossible to do everything, it has seemed necessary to limit our work to some extent and to send applicants who do not have speech to organizations which have better facilities for their care.

We are sometimes asked why it is necessary to work for the hard of hearing at all. We are told that there are all kinds of organizations in Chicago which should be able to care for the hard of hearing while caring for those with normal hearing; that there are hundreds of employment offices, and asked why we should have to find work for the deaf; that there are many social centers and other organizations which will supply social activities, and asked why we should try to develop this side of the work for the deaf?

It is true that these various organizations would not intentionally discriminate against the hard of hearing; but the fact remains that they do not supply the needs of this class, for men and women come to us who have been out of work for months, and sometimes

years, simply because they have lost their hearing. Others come to us who have been living lives of complete social isolation and are fairly hungry for companionship and interest and encouragement. The League is trying to do what these other organizations have failed to do.

The most difficult and most important part of our work is finding employment for applicants. Many men and women are thrown out of work when their hearing becomes defective, and many are incapacitated for work in lines in which they have been trained. It is almost impossible for them to find work in the usual way. The employment departments of many firms have orders not to employ the handicapped and a deaf man is usually refused work. In most cases the League has found it possible to go to someone higher up who can use his own judgment about who shall be employed and a little personal interest often results in an opportunity for work.

For the past four months, the employment work of the League has been in charge of Miss Valeria McDermott, an experienced social worker. She has interviewed many employers and has found a small percentage willing to give employment to the hard of hearing.

By invitation, she made a report on the work of the League at a meeting of the Chicago Mail Advertising Association, which passed a resolution suggesting that members of the Association coöperate with the League by calling upon the League for services of typists and addressers.

One typewriting training school has offered to give free instruction to those whom the League recommends. A printing company will take men for certain positions. An addressing company will give work. A firm of book-binders are willing to employ our applicants, and a seed company has offered labeling and packing positions. Other firms have offered to try the deaf in other lines of work which seem suitable, while the Illinois Free Employment Agency and the Federal Employment Office are calling the League when they have positions open which can be filled by the deaf.

These offers show what can be accomplished by obtaining the personal interest of an individual. The result is shown in the case of a man of education who had lost a good office position because of deafness, and who had been unable to find work for months.

Through personal interest, the League secured work requiring no hearing in a large firm which makes it a rule to employ no one who is handicapped. The man made good and showed that all he had lacked had been an opportunity to try. A woman wanting factory work was refused by the employment department; but an interview between a foreman and a League representative resulted in coöperative interest and a position for the woman, which she has filled satisfactorily.

Many different types have applied for aid. A woman, at one time the editor of a magazine, has been reduced to such straits that she is grateful for factory work, while we are trying to find something better. In her case, total deafness and inability to use an instrument or read the lips has made the problem of finding employment particularly difficult. Two women with university degrees are on our list. An optician, a trained nurse, a music teacher, a governess, a bookkeeper, a bill clerk and a woman compositor have recently applied for aid in finding employment. This will give some idea of the ground which must be covered in placing applicants.

The second thing which the League tries to do is to give help in lip reading. In New York, free and part scholarships in lip-reading schools are awarded, and free lessons are given at the League. In Chicago this has not seemed necessary. During the past year the public schools have had four free evening classes in lip-reading for adults, which many League members attend. But the League has three free practice classes each week, which are a great help to lip-reading students.

The third aim of the League is to supply social activities. An entertainment is given once a month, at which the attendance has been large. The League Room is open every afternoon, and may be used by the members for cards, lip-reading practice or for a social hour. Tea is served at a nominal sum once a week. The room is open in the evening once a week, and evening entertainments are given occasionally. The average monthly attendance at the room is about 200, and the special entertainments, average from 75 to 100.

From a social standpoint we have many classes in the League and, as a result, there are problems which are still unsolved. But the common bond of deafness has brought a feeling of great friendli-

ness and good-fellowship, which is good for all. And the League offers avenues of service for one's fellow men which has brought new interest and enjoyment into the lives of many League members who have been unable to work in other organizations.

We all know that the blind are given more sympathy than the deaf. I think that this is because blindness seldom causes annoyance to anyone but the victim, while deafness causes inconvenience to all with whom the deaf come in contact. In the League, where all have the same handicap, each one is willing to help the others. The result is that many have said that the League is the only place in which they are not conscious of their deafness. At the League everyone is willing to repeat as often as necessary without impatience; to talk into a tube or an instrument; or to write out what is said. One old gentleman says that it is the only place where anyone has taken the trouble to talk to him for twenty-five years.

The membership of the League is about 150, most of whom are hard of hearing. The membership dues are from $1.00 for a regular member to $1,000 for a life membership, which, so far, has not been taken. The League is not a charitable or philanthropic agency, and solicits no funds. It is maintained by the membership dues and interested friends.

The League is still new and there are many things which it needs—a larger membership, which will extend its field of service; publicity along all lines of work and coöperation in finding work for the deaf. Anyone to whom the problems of deafness are of interest can help the League. By talking of the work to those who can give employment and by making them realize that a deaf man or woman can do many kinds of work satisfactorily, the way may be opened to a position for someone handicapped by deafness.

The League hopes some time to be able to do constructive work of great value by giving the deaf an opportunity for training in lines of work which are especially adapted to their needs. Printing, book-binding, various kinds of hand work for those having skill, typewriting, and some of the trades can be learned advantageously. The majority of applicants who come to the League have specialized in nothing or have been thrown out of work because hearing was necessary in their particular line of work. The result is that they

have to take uncertain and low-grade work at barely a living wage, when training in some special line would give them a fair living for a long time to come. The League will have to become a stronger organization before it can finance vocational training, but the results will be worth great effort.

In conclusion, I would like to say that we hope that some form of coöperation may develop between the League and the medical profession, particularly the otologists. We are all working to help the deaf: you physically, and we materially and spiritually. We are often working with the same people, for almost all who come to us have consulted specialists. We know that there are many things which we have not done and many things which we have not thought of in this work, and we should be very glad to receive suggestions which might lead to fuller usefulness.

102 Auditorium Building.

One of the unexpected happenings in the war is the extreme rarity of sympathetic ophthalmia, notwithstanding the great frequency of war wounds of the eyes. In a personal experience Weekers has encountered only one instance of it among 800 cases of war injury of oae eye. He recalls that during the Franco-Prussian war of 1870 fully 55 per cent. of the wounds of one eye were followed by sympathetic ophthalmia, and even during peace times it averages 11.6 per cent., according to Hobby's statistics, and 21 per cent. after unsuccessful cataract operations, according to Steffen. He has found only a very few cases mentioned in accessible literature during the war, while many comment on the rarity of the sympathetic involvement of the other eye. These facts justify conservative treatment of the wounded eye, unless one's hand is forced by irritation and pain. He is inclined to ascribe the rarity of sympathetic ophthalmia nowadays to the asepsis and antisepsis which are now so generalized.—*News and Notes, The Ophthalmic Record,* July, 1917.

WHAT THE SPEECH-ENGINEER CAN DO FOR THE BUSINESS MAN.

JOHN MANTLE CLAPP,

The Ronald Press, New York.

THE world, after the war, will be a place of wider and more intense competition. To do his best, and hold his own, the worker must mobilize his whole personality. There are a number of "powers," or, rather, sources of power, which hitherto have been taken note of and utilized only by the so-called exceptionally gifted man, but which exist potentially in all normal persons and may be brought into effective use by anyone of reasonable intelligence and patience.

Among these is the power of speech. Adequate command of the mechanism of speech and the process of talk, is a large factor in personal efficiency. Business men are waking up to the importance of the use of language in letter-writing. They are beginning to consider also the use of language in talk, but with no very clear understanding, as yet, either of the problem or the possibilities. My purpose is to point out some ways in which command of the mechanism of speech, the process of talk, definitely increases a man's commercial efficiency, and to suggest some methods by which he can develop his powers, especially if wisely advised.

Hitherto Americans have been careless of speech. They have regarded the talk of ordinary life as something automatic, something to be learned almost without effort in childhood and used without thinking thereafter. They have regarded such matter as tone, articulation, varied cadence, grace of phrasing, etc., etc., as ornaments, not elements of utility, as matters with which only the speech-specialist —the actor or the public speaker—was concerned. By "Good Speech" most Americans have understood the more or less ornate oratorical or theatrical speech which they like to listen to, now and then, as an entertainment, but which they would never think of using themselves in the daily conduct of business, even if they had the specialized skill.

But speech is essentially a matter of utility, a practical means of communication. Good Speech is really that which conveys a man's thought, whatever it may be, fully, effectively, and easily, in the ordinary occasions of everyday life. That sort of speech is learned, always; you don't pick it up unawares. But it *can* be learned, as surely as walking, or swimming, or any other muscular coördination. We do not realize the fact because the art of the good speaker, like all art, conceals itself. He produces powerful effects with slight means, once he knows how, means which pass almost unnoticed by a listener. A clear, pleasant tone, crisp articulation, varied cadence, well-picked and deftly arranged words, do not usually attract notice to themselves; they just mirror, express the thought.

For the business man, whose success depends largely on his skill in *trading* with other people, making them believe that he is straightforward, sensible, intelligent, the effective command of his speech-apparatus, which is his principal means of communication, is an extremely important matter. European business men realize that and prepare themselves.

Now the fact that speech, and talk, are so largely matters of right habits is reassuring. Anyone who so desires can train himself with surprising little difficulty. He can make great progress within a year or less, if he goes at it in the right way. He must have some intelligence—but any man who can hold a job with a good house must have intelligence—and he must have both persistence and patience. He can do the work mostly by himself; indeed, he *must* do it by himself, in connection with his regular occupation, though he can be aided in essential points by the coaching or advice of a teacher or acquaintance.

He has to pay attention to little things, to learn to watch himself in various ways, while talking, while thinking of what he wants to say, of the man he is talking with, etc., etc. This double-consciousness is, at first, hard to develop. That is the chief difficulty. Once you learn to listen to your voice, to feel how your tongue-muscles are moving, etc., while thinking hard in a business conversation, you are started on the road. Then it is only a matter of time. If you do not grow tired of trying before you have the right muscle-habits

started, after a few months the new habits become automatic, and then you go on improving, hardly aware of it.

Good command of the mechanism of speech and the process of talk increases a man's efficiency in business intercourse in three ways: through the articulation, or utterance, through the tone, and through the language. In the case of each of these there is both a direct and an indirect effect, the indirect being the more powerful because the less obvious.

Distinct articulation conveys your words to the listener's ear accurately, quickly, easily. Few of us Americans, however, articulate distinctly. The good people of the North sometimes think that the good people of the South are lax in this matter, but the Southerners have no monopoly. There is as much slurring of sounds, and of entire syllables, North as South; the Southerner is apt to slur the final syllable; but the Northerner telescopes those in the middle. All of us make our *t*, and *p*, and *s*, and *k*, and *l*, and hard *g*, too light in weight, to mention only a few of the consonants. All of us, besides, are careless about the exact discrimination of our vowels. When a New Yorker asks a telephone operator for "John 2400" and gets "Bryant 2400" the fault is very probably with himself. Try it, and you will be surprised to hear how easily you can make one of those words sound like the other, if you press the consonants lightly and fail to differentiate the vowels.

This habit of indistinct articulation is one of the three serious faults of American speech. It is not due to climate nor to anything but a nation-wide carelessness in the use of our articulating-muscles. It is not in the least due to our talking faster than other peoples, because, in fact, we talk slower. Listen to a group of Frenchmen, Italians, or Englishmen. We speak indistinctly although we drawl.

What a pleasure it is, when we meet someone whose utterance is crisp and accurate; how easily and quickly we catch his meaning! How much time we should save, at the telephone, in the store, in all the petty transactions of life, (as well as in the important conversations when we do not like to be *asking over* all the time, and when we do not want our attention to be strained merely to catch the words) if everybody habitually and automatically talked as clearly as the telephone-girls, for instance. The business man, young or old, who talks distinctly increases his selling-effectiveness directly.

And indirectly. Clear-cut articulation someway implies clear thinking and predisposes the listener to respectful attention. The business man whose words come with quiet, easy precision *may* be a fool, of course, but he gets the benefit of the doubt in that important first moment, which is so often the last moment from a busy man or woman.

Now distinct utterance is wholly a matter of muscle-action. Partly the muscles of the lips and cheeks, chiefly those of the tongue. Anyone can train the tongue to make with entire precision every sound in the language. You can train the tongue-muscles as a pianist trains his fingers, by watching and experimenting a little—perhaps reading any of several simple books on phonetics—and then being careful. You can acquire distinct utterance—unless you have a foreign accent, which will require longer to eliminate—in a few months, if you will analyze your own muscle-movements, and watch yourself always when you are talking. Here are a few suggestions, which anyone can apply:

1. Press all consonants *longer,* and more *tightly,* than has been your custom. That of itself will keep you from getting "Bryant" when you ask for "John," and it will strengthen the tongue-muscles so that they will act more vigorously all the time.

2. When you have a group of consonants—like the *nts* of that last word—squeeze them all. Dam up the breath with the *n,* the *t,* and hiss sharply on the *s,* and you can make that last syllable perfectly clear with little more effort than you have been throwing away, hitherto. So many of us Americans slur the first *n* in *government* that many good people insist it doesn't belong there at all. But if you will press the tip of your tongue—the front eighth-of-an-inch—tight against the roof of the mouth just back of the front teeth you can say the whole word, crisply and quickly. And that is comparatively a hard word, because of the *r* before the *n.* Treat bunched consonants as we used to be told in our primers to treat the proverbial "nettle;" squeeze them tight, and they will make no trouble. Instead they will help to bring out the other sounds that follow them, with the spring of the released muscles.

3. Cultivate that front eighth-of-an-inch of your tongue. For *t, d, l, n, s,* and *z,* and all their compounds, that tip is veritably the es-

sential point. Narrow it, like a blunt pencil-point, and stick it tight up there just back of the teeth, and you can make every one of those sounds, precisely and quickly. If you leave the tongue broad, like a spade, and then try to swing it up and down quickly, you cannot do it, of course, and so you omit some of your sounds. Get command of that tip, and even if you do little else, you will have a much improved articulation.

4. For *th* put the tongue tight against the teeth, perhaps against the under-edge of the upper teeth, and hold it a trifle longer than you have been doing; then it is bound to be distinct. For *m* and *n*, which are resonant sounds, press them longer than you have been doing, and they will help the sounds which follow them. For *s*, remember that is a sound which makes far more noise inside your own head than outside; don't be afraid of hissing it; most people fail to sound it at all. Hold the tongue-tip just between the upper and lower teeth, and hiss sharply, but quickly.

5. For *p, b, w, v, m, all* lip sounds, try to feel them right on the middle of the lips; that will make you bring the lips together, which many people fail to do; many people don't use their upper lip at all in articulation.

6. Narrow the lips somewhat, in most of your talking. Many people talk with lips too wide so that they don't get the use either of the lips or of the cheek-muscles in framing their sounds, either vowels or consonants. Look at the people you meet, and you will see. The old practice-phrase, "Prunes and Prisms," had a genuine utility. Try it before a mirror and you will see, and feel, what I mean.

7. The vowels need more care than the consonants; problems of tongue-positions, which there is not space here to treat, must be considered; any book on phonetics will help you. But make your long *e*—as in *eat,* or *see*—thinner than you have been making it; differentiate it from short *i* in *it;* make it with the tongue as near the top of your mouth as you can. And shape your *aw, o,* and *u* (*oo*) with your lips; pucker the lips more or less for them all.

8. Finally, *se-par-ate syl-lables* when you talk; not too much, of course, but more than you have been doing. It will help a great deal.

Good tone is the second thing to consider. Good tone, pleasant,

sweet, vibrating, melodious, helps directly in speech, in that it aids articulation, makes your words *carry* easily. If the tone is rightly *placed,* as the singers express it; if it is so made that you feel a vibration constantly in the bones of the face—the upper jaw above the lips, the nose, the front of the cheeks—it will go further. It will *carry* even in the Subway, or a noisy conveyance, or a crowd, better than a much louder tone, produced with much effort but not well *placed.* And it can be controlled, so that you can talk to one person, and not a whole carful.

But the indirect effect of good tone is far more potent. A pleasant voice, sweet, clear, vibrating, well-modulated, pleases the ear absolutely—as a ripe apple pleases the sense of taste. Everybody likes it. It wins at least momentary attention, especially in this land of harsh voices. We are told sometimes to *smile* when we talk to people, and the advice is good. But Anglo-Saxons do not like too much smiling; in a business talk it may easily approach a smirk, may seem affected, disingenuous. The "Voice with a Smile" though, as the telephone-advertising puts it, provokes no unpleasant reaction, is always a help. We Americans have a bad eminence for our harsh voices, our throaty or "nasal" tones. The trouble is that we "put too much beef" into our tones. We strain the muscles around the base of the tongue; set them pulling against each other, and produce a growling, or a sharp and penetrating tone which is wearing alike to the throat of the speaker and the ear of the listener. The Southerners have softer voices than we of the North, but even they are not perfect. Let those soft Southern voices get excited, and they do not always emit sounds of beauty.

The best way to improve one's tone is to go to a good teacher of singing and take a few lessons just in the production of the singing-tone. Tell the teacher what you are after, and just try to identify the sensation of "placing" your tones. Once get that—whether you have any "ear for music" or not, and you will be able to work out some sort of salvation for yourself, in the tones of your speech.

If you cannot do that, just use your "telephone-voice" all day long. Many persons who use the telephone much learn to talk into it with a softer, gentler, yet more precise and *better-placed* tone than at other times. Time and again when I chance to be talking with a

business man whose usual tone is harsh and unpleasant, the buzzer on his desk will sound, he takes up the instrument and "coos" down into it as softly and clearly as a singer, and then puts down the receiver and resumes his talk with me in the same harsh and ineffective tone he used before. Use your telephone-voice all day long—(the dictaphone will help you, too)—and even if you do nothing but that, you will have increased your business efficiency very notably.

The harsh tone, remember, irritates; the pleasant voice soothes and pleases. You can learn to make your ordinary business talk as melodious and charming as song, if you will put your *business mind* on it, as you do on any other business problem. You can transform your voice, your conversational voice I mean, within a year, if you will watch yourself, especially if you will get the assistance of some instructor or friend who will watch *you*, and keep at you for a while until you learn to listen to yourself.

You may think this soft tone will not be business-like, will seem too gentle, or somewhat affected. Not if it is accompanied by crisp articulation. That gives the edge, the sharp framework for your utterance. Besides, it is largely a matter of intonation. If you use the cadences, the inflections, of ordinary matter-of-fact life—major intervals, rather narrow range of pitch, but as much discrimination as you please within those limits of, say, a musical "fifth," your talk will be as real and business-like as anybody's. This is, to a large degree, the secret of Mr. "Billy" Sunday's appeal—as regards his utterance. His voice is in many respects, anything but what it should be, but his intonations are entirely and absolutely the intervals of ordinary matter-of-fact conversation. He might be talking of the weather, or of any business proposition. The old-time evangelists whined, or moaned, or roared. Billy sometimes roars, but mostly he just talks in downright matter-of-fact major cadences. You listen and you feel, "This man is entirely in his ordinary state of mind. He is not in any ecstasy, not excited, not putting on. There must be something in it."

Attention to the cadence, the melody of speech, comes of itself, once your tone is freer, better-*placed*. We Americans talk on a monotone, as compared with Europeans. To some extent this is well enough; their modulations seem extreme to us. But our talk is rela-

tively much less expressive. Once our tones are right, the voice will play up and down more freely and delicately, and we shall be able to say things with quicker, lighter emphasis—more efficiently.

The third source of efficiency, in good talk, is the language. I have not space to say much of this here, only to point out how verbose we are, most of us, most of the time, in our talk. We waste words. Talk should have somewhat the qualities of good advertising *copy*. When you pay for every word you learn to choose them, and arrange them, so that they say what you mean swiftly and fully—and easily. You can learn to talk in the same way. Not quite so tersely as in your written *copy;* talk is always somewhat looser; but in that general way.

Here, too, the indirect result is perhaps greater than the direct. A man who talks easily, smoothly, but firmly, picking his words, making every one count—rifle-firing, not shot-gun work—*holds* the attention which clear articulation and a well-managed voice have won.

This also can be learned. Look ahead, as you talk. Don't begin a sentence till you know how you will end it—till you have in mind the word to end it with, if possible. That will eliminate a lot of false starts, corrections, and "err-ing." Choose simple, common words —except that now and then a single well-chosen word of more striking kind will catch attention, like a flash of fancy or humor in a quiet passage. With easy automatic command of the apparatus of speech: articulation, tone, etc., you can give your attention entirely to thinking what to say, how to arrange it to suit the man you are addressing, to playing the game, that is, and feel sure that every item will be clear and agreeable.

Any man can develop himself in this way, in articulation, tone, and language. What is equally important, *every sales-manager* or *superintendent,* who has to direct the activities of other men, can develop *them.* Not by putting a selling-talk into their mouths, to be repeated parrot-like. Not by means of any formal course in public speaking, from himself or from an instructor; what they need is unobstrusive, simple private-speaking. Not by merely nagging them with "Dont's." But by the steady pressure of suggestion, through a series of conferences, either with individuals or small groups as convenience may decide. Every salesman who can hold a job with

a good house has some strong "points" of personal manner and of talk. He is earnest, or plausible, or incisive, or entertaining, or dynamic. His faults, which often get in his way, are probably merely an overplus of some good qualities. What he needs is deft suggestion, which he can apply directly to his own daily work. The sales-manager, who knows the business, is the proper person to give such aid and direction.

But the sales-manager very probably needs some counsel at the beginning, and now and then afterwards, from some one who *knows speech*—as well as business conditions, who is, you might say, a Speech Engineer. Whether the advice of this counsellor is given directly to the salesmen, or to the manager, is of comparatively little importance. After a little experience the manager will be able to look after this matter as he does others relating to business tactics, once he puts his *business mind* on the problem of helping his men to make their ordinary talk effective for the house.

European houses see to it that their representatives are trained in the command of their powers of speech, as otherwise. When the war is over we shall have need of all the skill we can develop, in every way, if our commercial representatives are to hold their own, either abroad or here at home.

ALCOHOL AND PNEUMONIA.

The United States Public Health Service brands strong drink as the most efficient ally of pneumonia. It declares that alcohol is the handmaiden of the disease which produces 10 per cent. of the deaths in the United States. This is no exaggeration. We have known for a long time that indulgence in alcoholic liquors lowers the individual vitality, and that the man who drinks is peculiarly susceptible to pneumonia. The United States Public Health Service is a conservative body. It does not engage in alarmist propaganda. In following out the line of its official duties it has brought forcefully to the general public a fact which will bear endless repetition. The liberal and continuous user of alcoholic drinks will do well to heed this warning, particularly at this season of the year when the gruesome death toll from pneumonia is being doubled.—*Journal of the Med. Soc. of N. J.*

OUR SECOND LINE.

HARRIET E. VITTUM,

Chicago, Ill.

THE war crisis which the country faces today presents many problems besides those of recruiting and equipping an army and getting it into the field. At the beginning of the war, nearly three years ago, the countries then involved saw but one necessity—that of a fighting army—and every resource was drained in an effort to supply the needs of that army.

All social and philanthropic agencies were neglected, progressive legislation programs abandoned, and the every day problem of social and industrial conditions forgotten.

All of those countries are regretting their mistakes today and are facing about and rebuilding at great cost the social fortifications they thoughtlessly permitted to be demolished.

In the industrial field alone the lesson is a far-reaching one, which we in America should take seriously to heart. We who are not called upon to go to the front with either guns or bandages should dedicate ourselves to the cause of maintaining right standards of living and working at home against the days of reconstruction when perhaps more than at any time in the country's history, she will need stalwart men and women with high motives and stern purpose. The type of citizenship can not come from a manhood or womanhood or childhood depleted by over-work or low standards of living.

England's experience alone furnishes a lesson that America will do well to heed. At the beginning of the war the one great need in addition to men was for munitions and men and women were put in the munitions factories at long hours and under great strain. Mr. James H. Thomas, Member of Parliament and General Secretary of the National Union of Railway Men of Great Britain and Ireland and Member of the British Labor Commission, recently visiting the United States, made the following statement a few days ago: "One of the mistakes that we made was to forget the human side. At the beginning of the war some of our people worked 100, 110 or even

120 hours a week. They worked seven days a week, too, with never a day of rest. Then they began to get worn out and conditions became alarming." And England has enacted and is now enforcing more drastic labor laws than she has ever known.

In America, State after State has fought a long fight to free childhood from industrial danger, at least to the age of 14. Last year that fight was crowned with success when Congress passed a Federal Child Labor Law intended to set free the children of the whole country. But already rumblings are heard which indicate that the enemies of child labor legislation are endeavoring to defer the enforcement of that law until after the war.

If such protection was ever needed for the nation's boys and girls, it is needed now.

Labor laws for men and women have been built slowly and painfully in State after State, and then in the excitement of the first weeks of war, bills were introduced into the Legislatures of both New York and Iowa, which, if passed, would make inoperable, during the term of the war, at the discretion of Governor all labor laws effecting men, women and children.

In New York the bill passed both Houses, but was vetoed by the Governor. In Iowa it passed but one House in the Legislature. Every citizen of America should constitute himself or herself a vigilance committee to defend in every State, laws that mean so much to the safety of the people and the future of the country.

Infant Welfare work the country over has been enlarged from the experiment of the Strauss Milk Stations in New York to a nation-wide movement in which Doctors, Nurses, Social Workers and Public Health Boards have co-operated. The infant death rate of the country has steadily decreased and childhood has been given a better chance. Records of the last weeks indicate that with the interest of the people diverted from Infant Welfare work at home to the battle front in France, the infant death is beginning to climb again.

Surely the men who don the khaki and go to France for the nation and the nation's children have a right to feel that Uncle Sam will have a careful eye for the babies left at home.

All kinds of Juvenile Protective work in the warring countries was neglected during 1915 and 1916 and both of those countries are facing a problem of juvenile delinquency so appalling that they are

fairly stunned. War has always brought hideous pictures of adult delinquency and we shall have that problem, too, to face; let us then minimize the danger of an increased juvenile delinquency by keeping strong every form of protective work that in the last few years we have thrown about our boys and girls.

Every day articles appear in the newspapers urging only the best housing facilities for the mobilization and training camps. If good housing is so necessary for efficiency in the army by the same tokens —tokens of the need of light, and air and sanitation—good housing is necessary for the efficiency, we shall want in a citizenship of to-morrow. While the men are at the front let the people at home resolutely set to work to build (through legislation) such houses as will demonstrate to the men when they return that the democracy they fought to save is hereafter to be expressed in terms of *common wealth,* commonwealth of air, of light, of *decent opportunity* for all.

In every municipality in America the cheap political force that of late have been put to rout by an awakening citizenship, will be ready to take advantage of the national strife and struggle and sorrow to again assert their power.

Never did the responsibilities of citizenship rest so heavily upon those at home as now when men are going to die that our free country may live. Our job is to "keep house" at home. May we so guard our local ballot boxes as to make certain that the lowest as well as the highest governmental expression of democracy may be worthy the battle raging in democracy's name.

Modern warfare is teaching us many things; it is teaching us that back of each front line must be the second line of defense, who, when the first line goes "over the top," will move up to take its place. When our front line embarks for "somewhere in France" may the men in that line know that back of them we are lined up, a second line of defense, ready to take their place at home. May they know that in our hands their interests are safe—their homes, their families their business, their cities—all they are leaving behind them when they courageously answer the call to the colors.

So, and only so, shall we have a right to a share in the glory of the victory won when the battle is over. Then we may salute our flag anew knowing that in very fact she "waves over the land of the free and the home of the brave."

THE SCOPE OF INDUSTRIAL MEDICINE AND SURGERY.

C. G. Farnum, M. D.,

Chief Surgeon Avery Company,

Peoria, Ill.

THE history of Industrial Medicine and Surgery, in its modern sense, is very brief. In point of time, the Dark Ages are but a little way removed. The days of the old first aid kit, of workmen digging foreign bodies from eyes with a knife, of cuts covered with shellac and electricians' tape, of bruises and contusions wrapped up with a quid of tobacco, of hemorrhage controlled by a mass of cobwebs and a filthy rag, are within the memory of all of us.

In those days death, injury and disease were looked upon as inseparable from industry and were to be accepted as a part of the unremedial hazard of the work.

Then came the prophets and the pioneers, the men of foresight. These men of broad, keen, penetrating vision recognized the injustice and the economic waste of it all. Their reasoning was simplicity itself for they stood on the fundamental principle of the value of the human—a value above property, above institutions. They realized that to kill them or incapacitate them by disease is to destroy the basic, elemental units that make up our whole scheme of civilization. And since it is the industries that employ these humans, these men of vision saw that the conservation of them was an industrial issue. Thus the Safety Movement came into being.

In the beginning Safety Work was largely mechanical. It seemed to those with less vision that safety devices were the solution of the problem. So these devices were installed, and it was believed that the problem was solved. Such was not the case. Accidents still occurred with distressing regularity. Something more was necessary and then came the period of efforts toward education and coöperation in the hope that these would meet the need. Campaigns were insti-

tuted and every imaginable form of propaganda was utilized. Bulletins, letters, talks, lectures, moving pictures, committees, inspectors, etc., ad infinitum, were called into play and then, and only then, did real, tangible, worth-while results begin to show. It then began to dawn upon us that safety is not mechanical or legislative, but is the equation of the man, mentally and physically, to the work he is doing, and that in order to have a safe shop we must have safe men.

Some recognized early the necessity for safe men, and with their safety work instituted a department of Medical Supervision, recognizing that the two are inseparable and neither can reach its plane of highest service without the other.

A prominent factor in the work of Medical Supervision was the physical examination of employees. In the beginning of this work, it is probable that it was done more with the idea in mind that since compensation laws held employers responsible for injuries received in the course of their employment, it was eminently just that these employers should have a record of the man's condition prior to his injury. This has provided valuable data, but it is insignificant compared with what it has done in giving the workman valuable information and advice as to his condition and in fitting him to work that he is physically and temperamentally capable of doing and doing safely. Since but a small part of the workers are physically perfect, we cannot hope to do more than a small part of the world's work with physically perfect men, and since it is undeniable that impaired physical condition constitutes an extra hazard to the working man, it was to this work of the Medical Department that we have looked for the greatest gains in accident prevention. Nor have we looked in vain, for some of us have indisputable statistics showing that in certain groups of our physical defectives, we have a distinctly lower accident incidence than in the plant as a whole, even though the total number of our accidents has been materially reduced.

Thus Medical Supervision, with its attendant physical examinations, has found its place and is now a fixture. The acid test of any new departure in industry is the ratio of expense to results achieved. Medical Supervision has stood this test and has paid dividends. It has proved that it is not charity, that it is not mere social uplift, that it is not sentimental altruism. It is good hard-headed business; it is

based on sound economic principles and its results show in the balance sheet. The Physical Examination of Employees has demonstrated itself to be a part of this work so fundamental and so necessary that no system of supervision deserves the name if that part of its foundation is omitted.

The Scope of Industrial Medicine and Surgery up to the present time may be summarized as follows:

We care for our men when they are injured; advise them when they are sick; confer with them as to their health and habits; examine them periodically; fit them to jobs compatible with their condition; combat occupational disease; supervise the general sanitation and working conditions of the plant in the matter of water supply, heat, light, ventilation, bath and toilet facilities, rest rooms, and hospital, and one of our most important functions is our coöperative work with the Safety and Employment Departments in accident prevention, by the proper selection and placing of men. In fact, the work of these departments is so intricately interwoven that they cannot be separated.

The work we are doing is a splendid work! The things we have accomplished bear the stamp of greatness! The rule under which we are working acts both ways. It works to the material advantage of the employer and even more to the advantage of the workmen. We are adding to the out-put of our plants and we are adding to the number of productive years of the workers. We are reducing labor turn-over and increasing efficiency. Our work shows on the balance sheet and in the pay envelope.

It would seem that we might be justified in a feeling of contentment, but I am sure that no man in this field of work is satisfied. That is because the men of accomplishment are men of vision and men of vision turn their faces to the future.

What then is our vision of the future? In what direction will our advancement be? The answer to these questions is individual. What seems to be the crying need in one organization may be of secondary importance in another. There are certain things, however, that I believe I can foresee.

The surgical responsibility of workmen injured in the course of their employment now rests legally with the employer in most of our

States. Instead of being a burden, these compensation laws have proved themselves to be greatly advantageous to the employer as well as the men.

High grade, instead of inferior surgeons, now have charge of the cases, better results are obtained, there is less lost time, friction is eliminated and the ultimate cost is less. Is it not logical that the medical responsibility of the workmen will be accepted voluntarily by the employer as an investment? I do not mean the mere professional advice that we are in the habit of giving the men after their physical examination—I mean the complete medical care, attendance and treatment of sick workmen. I fancy I can see what it would mean in the reduction of lost time and labor turn-over, in increased efficiency and contented workmen! It is good business! It will pay dividends! It is coming! In fact, steps have already been taken in this direction in many places.

Another thing I foresee is the broadening of the scope of our work until no such title as Medical and Surgical Supervision of Employees will in any way cover its multitudinous activities and the breadth of its field. Our labors cannot be confined to the mere detection or prevention or amelioration of disease and the prevention and treatment of accidental injuries. It is much more than merely good lights, good water, proper ventilation and heating, shower-baths, rest rooms, dispensaries and hospitals. The field of our labor is bigger than all that. It embraces all these, it is true, and they are fundamental, but we cannot stop there. We must go further. We must make our work a study of our workmen individually and collectively. We must take up not merely his physical condition and the job he is to do, but must go into individual temperament, disposition, nationality, education, habits, recreation, environment, and even inheritance. We must have a Social Survey as a basis for this wider field.

Some of us are attempting this sort of thing, and we are not content to call our work that of Medical and Surgical Supervision. We call it the Department of Personal Supervision of the Workmen, or the Department of Human Maintenance.

For brevity's sake, let us take up but one or two of the suggested phases of this broader field of work. Let us consider the matter of

the habits of the workmen. This alone is a large field. As an example of this class, there is the matter of the use of alcoholics.

Why do men in a given plant or department drink? How much lost time is due to drink? How much spoiled material is it the cause of? How much is it reducing efficiency? What is it doing to general health? How much is it slowing up the keenness of intellects? How much is it adding to accident hazards? How can drinking be reduced or abolished? What are we doing toward that end? These are questions that demand consideration. The question of booze is not a question of sentiment. It is an economic problem. It is an industrial issue, and one of the biggest issues that industry confronts. Nor is it a hopeless task. On the contrary, it offers opportunities for betterment that are most encouraging.

In my opinion no group of men is doing as much toward the solution of this big industrial problem as the men of Industrial Medicine, and they can do it for they exert an influence and their work commands a respect among workmen that is not approached by any other group of men.

The matter of recreation, of housing and home environments brings immediately to your mind a multitude of ways by which conditions could be improved to the furtherance of efficiency and the mutual advantage of employer and employee.

I could go through the list and you would agree with me, I think, that until we take up seriously and conscientiously this broader interpretation of the work of Industrial Medicine and Surgery, we are falling a long way short of our possibilities and are sadly neglecting our opportunities.

Each one of us is responsible for the health and safety, for the habits and development, of a group of human beings. That responsibility is stupendous, for these men and women in our care are the most valuable things in the world—valuable above property, above institutions. It makes us links in the chain of human institutions which minister to mankind.

INTRA-NASAL PATHOLOGY FREQUENTLY OVERLOOKED BY THE GENERAL PRACTITIONER.*

ALVA SOWERS, M. D.,

Chicago, Ill.

IT is my purpose in this paper to recall to your attention some of the constitutional ailments which are dependent on intra-nasal pathology or in which nasal disease is a contributing cause. The title includes more points of interest than can be covered in one discussion and therefore I will confine my remarks especially to the nasal septum and ethmoid bone.

Perhaps the most frequent malformation of the nose is found in the septum. The deviated septum which bows to one side or the other produces obstruction in one nostril and often too much space in the other. More frequently, however, the deviated septum will form an S shaped obstruction closing the nares anteriorly on one side and posteriorly on the other. Among the symptoms produced by the deviated septum are mouth breathing, hypersecretion of mucus, usually called "catarrh," acute attacks of rhinitis, eustachian catarrh, which, in turn, brings about progressive deafness, gastro-intestinal disturbances, and anemia. This does not include the entire list of conditions which may result from septal deformity, but it is sufficient to remind us of the importance of this one nasal structure.

Mouth-breathing is an abnormality which should be corrected in every case when possible. A comparatively small number of patients are mouth-breathers solely as a result of deviated septa. The majority develop the habit in childhood when their adenoids formed the obstruction to nasal breathing. During this early period of growth the upper jaw failed to develop normally and, as a consequence of faulty breathing, the incisor teeth protrude and a very high arch of the hard palate is produced. This condition can be avoided if the adenoids are removed before the sixth year. After the second teeth erupt there is still hope for correction at the hands of the ortho-

*Read before the Riverview Homœopathic Medical Society, April 26, 1917.

dontist. I have seen some very beautiful results in young people up to the age of 20. Those patients who have acquired the habit of mouth-breathing after the age of puberty are usually suffering from nasal obstruction and can generally be relieved by sub-mucous resection of the septum.

Deformed septa of traumatic origin are the most frequent cause of nasal obstruction which manifests itself after the age of puberty. I assume this is true from the number of patients we see who have been athletes and have engaged in such sports as boxing, foot ball, basket ball, etc.

"Everybody in this climate has catarrh," is a very popular expression and it is more or less true, but the word "catarrh" in this sense means anything from a slight mucous reaction to a very disgusting foul smelling ozena. Now if the quantity of secretion is sufficient to cause any annoyance there is almost certainly a cause for it found somewhere in the intra-nasal structure, such as deviated septum, spurs on the septum, or hypertrophied turbinates.

We find certain individuals who catch cold very readily. They seem especially susceptible to grippal infection. The patient with only partial nasal ventilation is apt to come under this class and *proper* correction of the deformity will render him immune from such attacks.

Much of the deafness of today could have been avoided if we had recognized the relationship of this affliction to nasal disease many years ago, when the patient was young, before inflammatory destruction of the middle ear had taken place. Tinnitus of recent origin is relieved with proper treatment directed to the nose.

Indigestion, nausea, and constipation all have been traced to nasal infection. I recall one young woman in whom there was such a quantity of mucus from the nose and accessory sinuses that she was nauseated almost constantly. Her trouble subsided very promptly after operation on the septum.

A reduction of hemoglobin is often present in patients with nasal obstruction. The function of the nose is primarily respiratory and it is within the nose that the air is properly tempered, moistened and filtered before it reaches the lung. If the air reaches the alveola by way of the mouth, preparation is not properly made and, as a conse-

quence, only partial oxidation takes place. It is not an unusual experience for the rhinologist to note several pounds' gain in weight and a decided improvement in color of his patient after a sub-mucous resection of the septum has been performed.

The ethmoid labyrinth is one of the most vicious structures in the whole physical economy. This is true because of the faulty drainage from the many cells which make up the lateral lobes. The ethmoid labyrinth is composed of two groups of cells numbering in all from four to eight. The groups are designated as anterior and posterior. The posterior group seems to be most often the seat of trouble. Infection of these cells manifests itself by post-nasal discharge. The patient will complain of a large accumulation of mucus in the throat and pharynx in the morning. There is an annoying irritation of the larynx causing the patient to clear the throat. In long standing cases of ethmoid disease we are apt to find a polypoid degeneration.

Ethmoid infection may produce such conditions as loss of taste and smell, headache, hacking cough, bronchial irritation, ocular disturbance, rheumatism, asthma and even anemia.

This anatomical structure rivals the tonsil as a location for focal infection. However, it is not so generally understood by the profession and, as a result, attention is usually called to it by the rhinologist. Again operation on the ethmoid is not so popular as tonsil surgery for the reason that radical work in this region is attended with more or less danger. The proximity of this structure to the meninges leads us to attack it with caution.

The disturbance of the gustatory sense is most noticeable in the morning and due to the stagnation of the secretion and the invasion of saprophitic bacteria during the night. In some chronic cases the olfactory sense is completely lost and may not be restored.

The headache is localized at the bridge of the nose and radiates to the temple. This symptom differs from the headaches of the frontal sinus origin in respect to its periodicity. It is generally observed that headache due to inflammation of the frontal sinus is more intense during certain hours of the forenoon and may entirely subside in the afternoon. In ethmoiditis the pain is more or less constant at all hours of the day.

A bronchial cough which does not yield to ordinary measures will many times disappear after appropriate treatment of the ethmoid. The infective discharge drips down the pharyngeal wall finding its way into the larynx, trachea, and bronchi, and continues to keep up the irritation until the original focus of infection is removed. This is not an unusual observation, but is seen daily in the practice of every rhinologist.

The eye symptoms concomitant with ethmoiditis are conjunctivitis, iritis, loss of muscle balance and retinitis. Skillern mentions "tenderness of the bulb, pain on rotating epiphora, orbital neuralgia on reading or otherwise concentrating the gaze," as being the prominent ocular disturbances.

Rheumatism is now generally considered a disease having origin in some infection. The ethmoid is not infrequently the site for focal infection. Drainage of the ethmoid cells is very readily interfered with and retention of septic material is accompanied by a toxic absorption producing arthritis and endocarditis.

A discussion of ethmoiditis would not be complete without mentioning its relationship to asthma. There has not been a definite proof that degeneration of the ethmoid produces asthma, but the frequent association of polypi in asthma cases has been recognized for some time. More interesting yet is the fact that treatment of the ethmoid relieves a large number of asthmatics. In asthma it is often necessary to do very complete or radical work to achieve any cure. The ethmoid is, as a rule, quite extensively diseased in these patients.

The treatment of ethmoiditis may be either local applications or surgery. Many will respond to local cleaning followed by the argyrol tampon after the Dowling method. Should local applications fail, surgery may be necessary. The surgical measures necessary may vary in extent from simple turbinectomy to complete exenteration of the ethmoid labyrinth.

122 S. Michigan Ave.

REPORT OF ONE OF THE COMMITTEE TO INVESTIGATE THE EFFICACY OF APIS MELLIFICA IN CATARACT.

CHARLES H. HELFRICH, M. D.,
New York, N. Y.

DURING the past year Apis mellifica was prescribed for all cases of immature cataract seen in my private practice. Careful records of the vision with the correcting lenses were kept, together with a sketch of the opacity as seen with the ophthalmoscope, the pupils being dilated.

Comparatively few of these cases returned for subsequent observation so that the number who remained under the treatment for a sufficient length of time to make a fair test of the remedy was very limited. It would be manifestly unfair to judge any case that was not under constant treatment for at least three months. Cases observed for this length of time or longer, numbered but nine, and the number of eyes involved twelve. These twelve eyes presented various forms of opacities, *i. e.*, central, diffuse, the common "spokes," and combinations of the same. They were all of the uncomplicated senile variety, and vision varied from 20/20 to 20/70. The length of time they were under observation varied from three months in one, to ten months in the rest.

Judged by the resultant vision obtained, one showed slight improvement, eight remained unchanged and three were worse. Judged by the ophthalmoscopic examination none showed any lessening of the opacity, the opacity either remaining the same or becoming worse.

The one eye which showed slight improvement was of the "spokes" opacity variety, the vision improving from 20/20 to 20/15 with difficulty. Of the eight eyes in which the vision remained unchanged the ophthalmoscope showed slight increase in the opacity in four. In the three eyes in which the vision became worse, one dropped from 20/30 to 20/50, one from 20/40 to 20/50, and the other from a full 20/30 to 20/30 with difficulty, the opacity having increased in all three.

The remedy was prescribed in either the 1x or 3x dilution on pellets and no other form of treatment was used.

Despite the few cases observed the conclusion of the writer (bearing in mind the well known course of immature cataract) is that Apis mellifica was without value, and that the twelve eyes would have acted precisely the same without it.

542 Fifth Avenue.

CORRESPONDENCE.

The following communication was sent to the Editor by the Chairman of the Alumni Committee, Base Hospital, Hahnemann Medical College and Hospital:

The Board of Trustees of the Hahnemann Medical College and Hospital of Philadelphia, has organized a campaign to equip a Base Hospital of the Hahnemann Medical College and Hospital, to be offered to the United States Government for service in Europe in the present conflict.

You no doubt, fully realize the supreme importance and conviction that in this, the most colossal war in history, medical men must sacrifice themselves for patriotism, and for humanity. It is our privilege, furthermore, as Alumni of the Hahnemann Medical College and Hospital, to unite in placing in a most commendable manner, by a Hahnemann Unit, the orange and blue standard of our Alma Mater, side by side, in equal recognition with those of other Universities, College and Hospitals, not only of the United States, but of the world. It is an opportunity, a duty, a matter of professional pride, and one we shall regret, should we fail to meet the call and do our share abroad.

In the medical personnel of the Base Hospital, Six Physicians, Six Surgeons, a Pathologist, Neurologist, Eye, Ear, Nose and Throat Specialists are required, making altogether a corps of twenty-one men.

The men for this service must combine physical fitness for any task and endurance required by military expediency, with professional

qualification and mature hospital experience in the special line in which the volunteer desires appointment.

Will you respond to the call of your Alma Mater, and volunteer for the Base Hospital service?

Your application will be handed to Dr. William W. Van Baun, 1404 Spruce Street, head of the medical organization of the Base Hospital, who, with the Faculty Committee will consider the fitness of applicants, make recommendations to the General Faculty, and will report to the Board of Trustees for final action.

Fraternally yours,

Desiderio Román.

Chairman of the Alumni Committee, Base Hospital Hahnemann Medical College and Hospital.

CONSCRIPTED MEDICAL STUDENTS.

We regret to say that up to this time no definite arrangement has been made regarding the disposal of medical students who may be drafted and ordered into active service. There is no doubt, however, that a ruling will be made whereby they will be enabled to complete their medical education. It is important, in presenting the matter to the Government for action, that definite information shall be at hand as to the actual number of medical students who are included in the first call, as well as the total number of medical students registered under the selective conscription act. It is requested, therefore, that every undergraduate medical student who is subject to conscription, now or in the future, send in his name, the name of the medical college he attended during 1916-1917, the class in which he was enrolled, his age, etc., including his serial and the numerical order of his draft. This information should be sent to the Council on Medical Education of the American Medical Association, 535 North Dearborn Street, Chicago, *at once*. Physicians are asked to co-operate by bringing the matter to the attention of medical students with whom they may be in contact. Immediate action is imperative.—*Current Comment, Jour. of the Amer. Med. Assn.*, July 28, 1917.

REVIEWS.

Cancer, Its Cause and Treatment. By L. Duncan Bulkley, A. M., M. D. Senior Physician to the New York Skin and Cancer Hospital, etc. Vol. II is a revision of Vol. I, which appeared two years ago. Contains 282 pages, including index. Published by Paul B. Hoeber, New York. Price, $1.50.

In this second volume the author has added considerably to the first without in any way contradicting his former theories upon the etiology which holds to the systemic rather than local. He cites a mass of statistics to show that cancer is steadily increasing and that the increase is commensurate with the increase in meat consumption. At the same time he argues that other factors play an important role, such as habitual constipation, deficient elimination of solids in the urine, insufficient exercise, mental anxiety and factors generally that tend to produce rheumatism and gout. As further proof of that, over-indulgence in animal proteid diet combined with deficient catabolism and elimination, he finds that the correction of the faulty diet combined with carefully selected internal medication, mainly elimination, has resulted in a far larger percentage of cures than is conceded by the surgeon in the case that have been treated purely surgical by ablation with the knife.

Among other things which he strongly urges is the liberal use of potassium salts, internally preferably, in the form of potassium acetate.

The results, according to his report of cases, in some inoperable cases of cancer have been truly wonderful.

The theory advanced by Dr. Bulkley is worth serious consideration and further study and corroboration and the treatment outlined by him is well worth trying out in any case. However, it is feared that many surgeons have not a sufficient amount of courage to make the try, feeling that they would prefer to operate early, dependent upon it alone. Even in those cases no harm can come to the patients by keeping them under observation and have them carry out the simple diet outlined by Dr. Bulkley.

The book should be in the possession of all surgeons and physicians, who are likely to be called upon to treat cancer patients.

Eye, Ear, Nose and Throat. A Manual for Students and Practitioners. By Howard Charles Ballenger, M. D., and A. G. Wippern, M. D. New Second Edition, thoroughly revised. Dr. Ballenger treats of the ear, nose and throat, while Dr. Wippern treats of the eye. Illustrated with 180 engravings and 8 colored plates. 524 pages, including 19 pages of index. Publishers, Lea & Febiger, Philadelphia and New York. Price, $3.50.

The book is well prepared and illustrated. It covers the entire field in a brief, but concise way. It is thoroughly up to date, but is not so exhaustive as some of the larger text books. On the other hand, some of the larger text books incorporate many things obsolete along with those things which are more modern, so that there is room for smaller books well pruned of the things that is well for us to forget. For instance, we find text books of recent date containing pages devoted to the Watson, Gleason and Asch operations for septal deflections with illustrations which at this day help to add to the cost of production of a volume without adding anything of value. May Ballenger and Wippern continue revising their books until they succeed in giving the reader just what is needed and no more. The book should find a ready sale among students and practitioners.

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Editorial

THE AMERICAN PHYSICIAN AND THE WORLD WAR.

AMONG the many important problems that confront the Government at this time is the one concerning the raising of a Medical Corps sufficient to meet the needs of the Army and Navy. It has been estimated that something more than 20,000 doctors will be required to meet the demand, while thus far but 6,000 have volunteered. It has been suggested that if the remaining number do not come forward promptly, the Government will be compelled to resort to a draft. To the average layman the necessity for a draft might be construed as an indication that doctors as a class are shirkers.

That so few doctors have volunteered up to this time has prompted me to look into the subject and to inquire of my friends in the profession as to why there has not been a more generous response to the call. The reasons offered are many. Some, I am sorry to say, are fictitious, while others are obvious. Among the many replies there has been found most frequently mentioned, "I am too old; there are plenty of young fellows to take the place of us older men;" "I have been years in building up my practice and I don't purpose sacrificing it for a salary that will hardly pay my office rent while away;" "I have a wife and several children to support and the pay in the Army after deducting expenses for clothes and rations will not leave enough to support the family at home."

These are quite palpable reasons and no doubt the Government will consider them when the time comes for a draft, if a draft is found necessary. Nevertheless, the uncertainty as to just what the Government will do with a man after he has once enlisted has de-

terred many from entering the service. Everyone knows full well that when he enters the service of the United States he is compelled to do exactly what his superior officer commands, or suffer the consequences of insubordination. There is no denying the fact this is what it should be and no one would mind it at all if the superior officer is a man of superior knowledge and ability, but there is no guarantee that it will be so.

There has been so much politics in everything else that the fellow who abhors politics hesitates to enter the service. There is a large body of patriotic medical men who have read the exchange of notes between Col. Roosevelt and Secretary of War Baker that appeared in the *Cosmopolitan,* who cannot convince themselves that politics did not guide the Government in turning down Col. Roosevelt's patriotic offer.

What guarantee does the medical department offer against a condition such as that of an ear specialist of national reputation serving as a first lieutenant being compelled to ask his superior officer, perhaps a recent graduate, whether he may or may not syringe the ear of a wounded soldier. This is a question less far fetched than it may seem. I know of at least one capable ear specialist serving in the Army as a first lieutenant, and his patriotism cannot be denied, for he left a wife and six children at home. Next, there are no doubt many less experienced men serving as captains. That there will be many ruptured tympanic membranes as the result of concussion from the firing of heavy cannon no one can deny. In all such cases a careful examination and accurate diagnosis is necessary. Where ignorance holds forth many of these ears are going to be syringed with bad results, which could have been prevented by putting the question up to the man who knows rather than leaving it to the one of rank.

No more certain evidence of the inefficiency of some officers in high command can be produced than that which is published in the Philadelphia *Evening Bulletin* under date of August 1st under a photographic reproduction of a scene showing exhausted soldiers; there appears the legend:

"Scores Fall Prostrated in Engineers' Drill."

"More than 100 men of the Nineteenth Regiment Engineers (Railway) were stricken by the heat yesterday after-

noon during a review on Belmont Plateau, Fairmount Park. General William S. Black, Chief of Engineers of the United States Army, was reviewing the regiment which is slated soon to go to France for reclamation work on the railroads of that republic. The soldiers were equipped in full marching order, and after marching the three and one-half miles from their headquarters—the Commercial Museum—to the plateau, they were near exhaustion. Then when they were marched in the blazing sun, they began to drop like flies," etc.

The temperature ranged around 100 degrees, the hottest July 31st for forty years. The Philadelphia *North American*, a next reliable newspaper, placed the number of exhaustion cases at 200. Nothing affords us clearer evidence of the fact that some one had erred and erred sadly, and that the party responsible for this parade was not fitted for office. Many of the men who suffered exhaustion will probably never be as fit again to stand the heat and strain as they were prior to July 31st.

This war must be won by the Allies with the United States included. In the early part of the war the Central Powers were outnumbered but they had organization and efficiency which the Allies lack and history has recorded the result. All other things being equal, the war is going to be won by the side possessing the best organization (team work) and efficiency. Let every one available offer his services to the Government and let us pray that the Government will learn quickly the wisdom of placing every man in that position to which he can render the best service.

G. W. M.

BASE HOSPITAL UNITS.

FOLLOWING the action of the Institute endorsing the recommendation of the Trustees, President Van Baun appointed as Base Hospital Committee, Dr. Charles E. Sawyer, Chairman; Dr. Wm. B. Van Lennep, Dr. Charles E. Kahlke, Dr. Frederick M. Dearborn, and Dr. Scott Parsons. Committees in Philadelphia, Chicago and New York set at work to raise three base hospitals for Government service. The Secretary-Treasurer immediately sent out a questionnaire to more than 9,000 names of homœopathic physicians

whose names are on file at the Institute offices. Sixteen hundred replies have already come in. Many are ready to serve and within the age of active service. The Philadelphia unit is the first to approach completion. In a campaign of six days in Philadelphia, Dr. Van Baun reports, "$41,000 in money and pledges, and more coming." The work in New York is well in hand. The Middle West unit, which will include Chicago, Illinois, and adjoining States, reports $13,000 already subscribed, "all the men and nurses in sight," and an active campaign is in progress. Under the chairmanship of Dr. Florence N. Ward, of San Francisco, the medical women of the Institute are pushing a campaign for a base hospital to work from the home unit of the New York Hospital for Women. When this fund is raised it also will be offered to the Government for such service as may be needed.—*S. M. H.*

THE CONFERENCE AT WASHINGTON.

DIRECTLY after the Institute session the Executive Committee, represented by Dr. Sawyer and Dr. Dearborn, had a conference with Col. J. R. Keen at Washington. As a result of this action, Dr. Franklin Martin, Director of the Medical Department of the Council of National Defense, called a Conference of Homœopathic Physicians in Washington, July 27th, to meet representatives from the Army and Navy and to appoint a committee for further conference with executive officers on Sunday, July 29th. Invitations to this Conference were issued to the officers of the Institute, to representatives from each State society and to representatives of the profession at large. More than one hundred physicians from thirty-one States assembled in response to this call. From Maine to California, from Minnesota to Florida, the State societies, the colleges, the profession at large and the trustees were well represented.

Dr. Franklin Martin, in his address of welcome, presented "the paramount need,—more medical men and women,"—the urgent need to fill up the necessary quota in the Medical Officers' Reserve Corps. Dr. Martin made the definite announcement that a committee is now at work to find a place in the Reserve Corps for the work of medical women. Major Noble reiterated the need of a more generous enlistment of medical men to augment the Reserve Corps. Less than 10,-

000 are enrolled, 20,000 are needed. Col. T. H. Goodwin, of the British Army, presented the opportunity for medical service in France, Africa, Mesopotamia and Salonika; also, particularly, the civil need in England where communities of 5,000 to 6,000 have only one physician. Dr. Sawyer reported the definite offer of three Homœopathic Base Hospitals to be placed where the need is greatest.

Dr. Van Baun, as presiding officer, appointed three committees, one to the Red Cross, one to report to Major Noble on equipment, one to obtain from Dr. Martin further details of the plan to utilize the work of medical women. There was a conference of the Trustees of the Institute, Deans of Medical Colleges and the Directors of the Base Hospitals. The Trustees held a special meeting, according to call, and endorsed unanimously the work of its Executive Committee in behalf of war service.

Saturday morning, Surgeon General Gorgas and Senator Harding, of Ohio, addressed the Conference. Surgeon General Gorgas again emphasized the war peril and the imperative call for medical service. Following the Surgeon General's address, Dr. Sawyer gave the most significant report of progress. Since war necessities change from day to day *base hospitals will be presented henceforth directly to the War Department*, eliminating the routine formality by way of the Red Cross. Dr. Sawyer's message to the assembled physicians was—to go on assembling the hospital personnel, hold the money, and await orders. The hospital service will be at the call of the Government, subject to direct Army supervision.

The Conference, by rising vote, gave unanimous endorsement to the work done by the Executive Committee. As the *Journal* goes to press, the latest word from the Conference is that the War Department rules that the personnel be presented direct to that Department and stand for Army examination.—*S. M. H.*

NATIONAL SERVICE OF THE MEDICAL PRESS.

THE American Medical Editors' Association, at the annual meeting in June, went on record in behalf of war service by the adoption of resolutions to aid the country in securing the full complement of medical officers. The need of every endorsement is evident when it is recalled that there will be a call

for twenty thousand, and that less than one-half that number are enrolled. Commissions are accorded in the Medical Reserve Corps on the basis of First Lieutenant, $2,000 a year; Captain, $2,400, and Major, $3,000. The salary is recognized as in no respect a compensation for the work done. The service is essentially volunteer service because the wounded soldiers must be taken care of. Medical service is a matter of patriotism. The formal resolutions and the application for appointment are published elsewhere. Medical journals have an opportunity for patriotic service which should not be overlooked. It is easy to find fault, and we are so busy with our own affairs that we sometimes forget to praise even when we know good work has been done. The present time, until the end of the war, is an opportunity for the medical editor to give his patriotic service where it will be even more effective than in the trenches or in base hospitals.—*S. M. H.*

WAR SERVICE OF MEDICAL WOMEN.

ANNOUNCEMENT BY THE CHAIRMAN, DR. FLORENCE N. WARD.

AT the annual meeting of the Institute Fraternity held during the session of the American Institute of Homœopathy, June 20, 1917, at Rochester, N. Y., with the full realization of the need of organization of the medical profession for service during the stress of this great war, action was taken to unite all the homœopathic women of the United States into a body ready for service. For that purpose a committee was appointed by the president:

Dr. Florence N. Ward, of San Francisco.

Dr. Cornelia Chase Brant, of New York City.

Dr. Cora Smith King, of Washington, D. C.

Dr. Julia A. Strawn, of Chicago, Ill.

Dr. Margaret Hassler, of Reading, Pa.

The committee immediately organized and decided that the best form for the work to assume was to create a base hospital unit. Organization is being rapidly pushed forward and when the necessary funds are gathered and the unit complete, it will be ready for service for the Government.

There is enough fine material among the medical women of the Institute to make a working body alike creditable to the Institute and to our traditions.

INTRODUCTION TO EYE, EAR, NOSE AND THROAT SYMPOSIUM.

GILBERT J. PALEN, M. D.,

Philadelphia, Penna.

IT is a common error to look upon the specialist as one whose horizon lies no further away than the limits of his special field. If in the early days of specialism this was so, to-day conditions are quite different, for the specialist of to-day is one who realizes thoroughly the bearing which remote conditions may have upon the organs which he treats; he understands that he must have a good knowledge of these conditions and so his studies lead him far beyond the confines of his special subjects, in his efforts to understand the special diseased conditions he is called upon to treat. In this way, while excelling in his own specialty, he gains a broad general knowledge of medical and surgical conditions and, through careful study, he is often enabled to differentiate the special conditions having their origin from general disease, and those which in turn are the primary cause of some general conditions. As the first evidences of many general conditions are found within the organs he is studying, so it falls within his province to ofttime diagnose the beginning of many general conditions, because of the characteristic changes in function, or in the tissues of these organs. His findings supply, in many conditions, the link necessary to assure a diagnosis. Were it not that there have been those who have devoted their lives to special work, little advance would have been made in medicine and surgery.

Gould, in his Biographic Clinics, says: "The unity of the organism and the inter-dependence of all functions is the dominating and moulding truth of medicine, the monism of physiology, the evolution principle of medical science and practice. No organ lives to itself alone. There is no function that does not influence every other. This is the truth which disallows narrow specialism, prevents the exaggerator from becoming an extremist, and forbids the extremist to become a hobby rider. In obedience to it the specialist must al-

ways be on the sharp lookout for all lines of cause and effect which may subtly run back and forth, either way, between the diseases of his chosen field of study and those of all the other specialists. We are in truth, all of us specialists, nowadays, the general physician fully as much as any other. While knowing profoundly our own specialty it is our common duty to maintain a keen lookout over the work of others and preserve a large sanity of mind and a genuine sympathy of feeling with our colaborers in other fields. We should all choose out and emphasize the relation running between our specialties and those of others, between our science and other sciences. We are to bind into a unity, or preferably to discover the number and the nature of the existing bonds which make the organism and its parts interdependent and which resolve all organisms into a universe."

Surely the trend of medical science is to-day along these lines; we are learning that co-operation is just as necessary for success in medicine as it is in other lines of work. We are realizing more fully our dependence upon our colaborers, we are learning the value of the assistance of those in other specialties, we are studying carefully their work and discovering its relation to our own. To-day there is a tendency to a greater unity; we find the internist, the specialist, the laboratory workers working in greater harmony along the lines of cause and effect and through the co-operative work of many such groups great advances have been made in medical science; much that heretofore was vague and uncertain has been rendered clear. The evolution of this co-operative principle is an interesting study and the evidence of even greater, more thorough co-operation in the future promises further great additions to our knowledge of many as yet elusive and obscure conditions.

Among the great results of co-operative medicine has been the proving of foci of infection as causative factors in systemic disturbances and of special interest it is to note that these foci are found in a large percentage of cases in some portion of the head, the sinuses, the teeth, the tonsils, the ears. Thus a great impetus has been given to these specialties, and as a result great advances have been made in our understanding of the diseases of the eye, ear, nose and throat, because of the more thorough study of the diseased conditions of

these structures and because the importance of this work is now thoroughly recognized.

Through this added study, the changes occurring in tissues have been more minutely observed, and in this way much has been added to our knowledge concerning the changes in tissue and functions which occur during various systemic disturbances. Thus has been demonstrated the value of examination of the eye, ear, nose and throat in the recognition of many systemic conditions.

2102 Chestnut St.

Novocaine Anesthesia in Exenteration and Enucleation of the Eyeball.—H. Illig reports seventy operations performed under this local anesthetic. He says that it is superfluous to add to the injections of the ciliary ganglion subconjunctival, parabulbar or intra-bulbar injections; 0.3 per cent. novocaine is sufficient, in combination with potassium sulphate, *i. e.*, novocaine 0.0125, sulphate of potash 0.02, suprarenine (1:1,000), 2 drops, solution of sodium chloride (0.9:100) 5.00. Forty-five minutes before the operation a subcutaneous injection of scopolamine or morphine is made in very excitable persons; 15 minutes before a drop of a 5 per cent. solution of cocaine is instilled into the conjunctival sac, and 12 minutes before the operation 1.50c.c. of the 0.3 per cent. solution of novocaine with sulphate of potash is injected from the temporal and nasal sides of the conjunctival sac behind the eyeball. There was no deleterious effect from the injections either before or after the operations.—*Practical Medicine Series. 1917.*

EYE EXAMINATION AS AN AID TO GENERAL DIAGNOSIS.

Geo. W. Mackenzie, M. D.,

Philadelphia, Penna.

THE subject is so large and important that the writer finds it impossible to do it justice in a single brief paper. Many things worth considering must necessarily be omitted for lack of space. He will limit himself, therefore, to a consideration of those conditions about which the ophthalmologists generally feel most certain.

In the first place, the eyeball is made up of as great a variety of tissues as any organ in the body. We find (a) epithelium; secreting pigmented neural; (b) connective tissue; loose and compact, opaque and transparent; (c) elastic tissue; (d) muscles; voluntary and involuntary; (e) blood vessels; including arteries, veins and capillaries; (f) two varieties of humor besides the lymph which flows in the spaces of the corneal stroma; (g) sensory and motor nerves and in addition an important special sense nerve.

In the second place, practically all of these tissues can be inspected directly or their functions studied, something that is not possible to the same degree with any other organ. It can readily be appreciated, therefore, the advantage that the ophthalmologist has over the internist and other specialists. His exceptional opportunity to study tissue changes directly has led him to recognize general disease conditions and pathologic states in distant organs, or, at least, to supply the missing link in the chain evidence pointing to one of these conditions.

The tendency of a great many of the so-called general diseases is to select a definite variety of tissue and attack that tissue wherever it may be found in the body. For instance, eczema selects epidermal tissue and manifests itself in the eye in the form of keratitis eczematoza (Fuchs), a better term than the more popular one of phlyctenular keratitis.

Tuberculosis and syphilis, although they may affect any tissue,

tends rather to select connective tissue. Alcohol and mineral poisons in large doses, select nerve tissue, while the same poisons in smaller doses, taken over a more extended period, select the vascular system. Bearing these facts in mind when a definite tissue in the eye is affected, the first thought to arise in the mind of the observer is, to what extent is the like kind of tissue affected in the other organs. For instance, in the case of pathologic thickening of the retinal vessels the ophthalmologist recognizes the probability of pathologic changes in the blood vessels elsewhere and, accordingly, makes his report to the internist, who is prompted to make further search to determine the extent of the cardio-vascular sclerosis and its probable causes.

Again there are other diseases, although originating in some distant and apparently unrelated organ that manifest themselves in the eye either by perverting a function or producing actual structural changes. For instance, valvular disease of the heart in the form of aortic insufficiency may cause pulsation of the central artery of the retina, something which never happens under normal conditions. Pulsation of the central artery may also occur in profound general anemia and Basedow's disease. Again a small fragment of a vegetation from a diseased valve may be swept into the general circulation and find lodgment in the central artery or one of its branches, cutting off the nutrition of the retina with consequent atrophy and loss of vision.

It is a far reach from the kidney to the eye; notwithstanding, the changes wrought in the optic nerve and retina by nephritis are so characteristic as to have earned for themselves a distinctive name—retinitis albuminurica.

Let us consider briefly some of the changes found in the eye that speak for disease elsewhere in the body.

About the eyelids there are but few indications of general disease other than might be found elsewhere on the surface. There are, however, two conditions worth mentioning. The first is the characteristic puffiness, or edema, that is found in nephritis. This edema about the lids is found much earlier than it is elsewhere, due largely to the looseness of the connective tissue in this region. The second condition is the marked pigmentation of the skin about the eyes found in any disease of the suprarenal glands that produces a hypo-function, as

in the case of Addison's Disease; eventually, however, the whole surface becomes bronzed. Puffiness about one eye with crepitation is an evidence of emphysema, and is found in injury of the inner wall of the orbit—lamina paparacea.

The behavior of the eyelids, for instance, infrequent blinking, enlarged palpebral aperture and diminution of the excursion of the eyelid downward when the eyeball is rotated downward speaks for exophthalmic goitre, or hyperthyrodia.

Loss of eye lashes is noted frequently in general alopecia. This condition, however, as well as other skin affections, hardly belongs to our subject. On the other hand, they deserve a mere mention from the fact that the face, and especially the skin and hair about the eyes, afford at first glance enough suggestive evidence at times to prompt a more searching examination of the covered parts of the surface.

Ptosis, that is, excessive drooping of the eyelids from weakness of the levator palpebral muscles is, when acquired, of pathologic significance and suggests syphilis. The location of the syphilitic process must be determined by further study of the case. In some cases the condition occurs unilaterally and in others bilaterally. It sometimes occurs as a single phenomena, at other times it is associated with weakness or paralysis of other extra-ocular muscles. When it occurs congenitally and is moderate in degree, it may be a purely local problem. When it occurs after an injury it may be of local importance only. Occurring after a head injury, associated with other eye muscle paralyses and subconjunctival hemorrhage, it speaks for a basal fracture.

Paresis or paralysis of the orbicularis may result from either a peripheral seventh nerve lesion or a central condition. If it is of peripheral origin, the reaction of degeneration is present. If of central origin the electrical reactions remain normal.

In any case it is necessary after having satisfied oneself as to the existence of a weakness or paralysis of a motor nerve to proceed further, using careful technique to determine the condition of the remaining cranial nerves.

The mobility of the eyes when normal is merely negative evidence. Abnormal mobility, on the other hand, is positive evidence of something wrong. If the ophthalmologist finds a heterophoria or hetero-

tropia in the vast majority of cases it resolves itself down to a problem for him alone to solve and correct. In some instances the problem is not purely a local one, for there are cases that need general treatment as well as local. In fact, the writer believes that all such cases should be studied from every possible angle and the treatment regulated according to the findings.

In the case of eye muscle paresis and paralysis, the first problem to settle is whether it is one of paresis or paralysis. In the case of paresis the function is diminished but not entirely lost and the condition points rather to a local or peripheral lesion. Paralysis, on the other hand, is a complete loss of function and may be due to a local, peripheral nerve or central lesion. The writer will not discuss the details employed in making a differential diagnosis, for that is a problem that belongs to the skilled ophthalmologist, while the paper is written for the general man. The determination of the particular eye muscles at fault in any case requires careful technique and considerable study at times.

Intracranial conditions, such as tumors including cysts, gummas and tubercles, abscesses, hemorrhages, areas of scleroses, meningitis, skull fractures, etc., are prone to produce loss of function in one or more of the extra ocular eye muscles with resulting strabismus. The strabismus may be quite evident to the general practitioner, but to the ophthalmologist is left the responsibility of determining the exact muscles involved, and with this information supplied, together with whatever else he is able to collect in the way of findings, the neurologist localizes the lesion and determines its character. In the diagnosis of intracranial conditions the neurologist is helpless without the aid of the ophthalmologist. In a fair number of cases the ophthalmologist recognizes in an eye muscle weakness or paralysis, the first evidence of a grave neurological condition.

Individual eye muscle paresis is very suggestive of syphilis in one or the other of its various manifestations.

Weakness of the interni of one side together with pain and redness of the eyeball is strongly suggestive of accessory sinus disease. The characteristic ophthalmological picture of accessory sinus disease includes many other findings, which may be learned from any of the more recent text books on eye diseases. In determining the sinus

responsible for the eye condition the Roentgenologist is able to render very valuable assistance.

Disturbances in the movements of the eyes in attempt at fixation may be due to poor central vision or to pathologic conditions in other parts. The writer refers to a to and fro movement of the eyes, termed nystagmus. These movements may occur in any plane. They may be oscillatory in that the movement in one direction occurs with the same speed as does that in the opposite direction, like the pendulum movements of a clock; or they may be rhythmic in that the movements occur with unequal speed, that is, quicker in one direction than in the other. In other words, the movements appear jerky in one direction. This jerky or rhythmic nystagmus is observed most characteristically in disturbances of the vestibular branch of the eighth nerve. However, it may be observed in any lesion of the internal ear that affects the function of the semi-circular canals, in diseases affecting the nerve stem, its nuclei, or the tracts that connect the vestibular nucleus with the nuclei of the iii, iv and vi nerves.

A great deal could be written on this subject alone; in fact, a volume could be filled without exhausting it.

In passing, two things deserve mention. First, that a weakness of an eye muscle can be responsible for rhythmic nystagmus, and secondly, that oscillatory nystagmus becomes rhythmic when the patient looks to either side.

In the cornea we recognize a condition referred to as interstitial keratitis, wherein the deeper layers are invaded with inflammatory infiltrate that does not break down and suppurate, as is the case with ulcers of the cornea. Although the condition may result from tuberculosis, it is generally conceded that in the vast majority of cases it is the result of congenital syphilis. This condition leaves permanent haziness of the corneal stroma. The patient is thus marked for life as a syphilitic. The recognition of these deep opacities from inherited syphilis is aided by the presence of characteristic brush-like lines extending from the periphery toward the center. They are the remnants of the deep vessels which took part in the healing process, but which have since atrophied.

In many questionable cases of nerve deafness or other neurological conditions a study of the eyes for these remains will often

settle definitely the diagnosis and suggest the form of treatment to be employed.

Eczematous keratitis has already been referred to as an eye manifestation of eczema. Eczema, whether it shows on the skin surface or on the cornea, is perhaps a local manifestation of a tuberculous process elsewhere on the body. The opinion of the best authors lean to the belief that the elimination of some toxic substance produced by tuberculous lesions elsewhere is the responsible agent and not the tubercle bacillus itself. If this is so, the presence of eczematous keratitis in a patient should prompt the ophthalmologist to refer the patient to a competent internist for a general examination and treatment.

Scleritis and episcleritis indicate a disturbance elsewhere. There is still some confusion in the minds of some of us as to whether they are the same condition of varying intensities or separate processes. Formerly tuberculosis and syphilis, especially the former, was held to be responsible; lately we have been leaning somewhat toward the theory of focal infection. At all events resistant and recurrent scleritis should not be looked upon as a purely local condition, but one that has its origin in some general disturbance or focal infection elsewhere.

In the iris we find inflammation and granulamatous infiltration which rarely, if ever, are primary in origin. Inflammation of the iris or iritis is rarely, if ever, a circumscribed process; for the ciliary body is more or less involved with it. In some cases the ciliary body is more involved than the iris itself. Several years ago when a case was diagnosed as iritis, the examiner thought of syphilis, tuberculosis, or rheumatism as a cause. Some time later gonorrhœa was added to the list of probable causes. Still later influenza was added. At the present time focal infection in any organ may be considered as an etiological factor. Since syphilis is the most frequent cause it is the first to be thought of. Many cases of syphilis have escaped diagnosis until the ophthalmologist discovered the presence of an iritis. There are a few mild but persistent cases that baffle the skill of excellent men to determine its origin.

Acute inflammatory glaucoma may be secondary to a low grade inflammation in the ciliary body in an eye that is anatomically predisposed while the cause of the iritis may be found in some remote condition elsewhere in the body.

Tuberculous and syphilitic infiltration of characteristic form may be found in the iris and promptly recognized. In fact, cases occur in which the iritic lesion is the only apparent focus. All such cases should be promptly sent to the internist for further study. The co-operation of both is necessary for the best local and general results

Tumors of the iris may be primary or secondary but in no case can the ophthalmologist be absolutely certain without thorough general examination.

Changes in the lens in the form of cataract may be a purely local matter or it may be secondary to other more distant factors. The so-called black cataract suggests diabetes. An examination of the urine should be made in all cases of cataract and in those cases where sugar is found, it should be handled by the ophthalmologist with the assistance of the internist. Attention to the diabetes no doubt retards the further development of the cataract, and it has been claimed that in some cases actual improvement in the cataract has resulted.

In the retina a variety of changes may occur as the result of general diseases or pathologic states in distant organs.

Cardio-vascular sclerosis, whether of the senile or syphilitic type, manifests itself in the eye grounds by thickening of the adventitious coat and by narrowing of the lumen of the vessel, sometimes by complete obliteration, transient or permanent, and occasionally by retinal hemorrhages. In this connection it must be borne in mind that the changes in the retinal vessels are not always an accurate index of the amount of changes in the other vessels, nevertheless, they afford us some guide.

In referring to retinal hemorrhages, it may be recalled that the same pathologic changes are not behind all of them. Spontaneous hemorrhages may result from the rupture of a rotten vessel in the presence of a normal blood pressure. It may result from an excessive blood pressure with normal vessels or a combination of the two conditions which is more often the case. It may result from the transudation of abnormal blood through a normal vessel, as in the case of snake poisoning, scorbutus or anything that produces hemolysis. It may result from compression of the central vein. In no case of spontaneous hemorrhage in the eye may the condition be considered as a primary disease of the eye. The fundamental condition

must be looked for elsewhere and treated accordingly. The eye man is interested in restoring lost vision by promoting absorption of clots and preventing the recurrence of hemorrhages and he can accomplish these results best with the aid of the internist.

Permanent occlusion of the central artery or one of its branches may be due to one of several causes, but the one most frequently thought of is embolism, referred to elsewhere. It presents a very characteristic picture to the ophthalmologist and speaks for valvular heart disease.

Isolated or multiple tubercles are found in the retina and calls for a general diagnosis and treatment as well as local treatment.

Syphilitic gummas are occasionally found in the retina, and in some cases may be the only evidence of the general character of the disease aside from that which we may learn from a Wassermann test.

Albuminuric neuro-retinitis produces a characteristic picture of swollen nerve, multiple hemorrhages of the retina and circummacular degeneration which so often is the first detectable sign of advanced nephritis. The general prognosis in these cases is extremely bad.

Diabetic retinitis is also associated with hemorrhages and may likewise afford early evidence to draw attention to the disease. Prognosis is also grave in these cases.

Optic neuritis with and without retinitis is a frequent finding in syphilis, especially when associatted with a smoky vitreous. The smoky condition of the vitreous is more likely to occur when the uveal tract is involved along with the retina. These findings are more often met with late in the secondary state. In the most intensive cases the iris, ciliary body, choroid, retina and optic nerve are all involved simultaneously, requiring the most prompt local and general treatment to save the vision.

Choked disc or edema of optic nerve resembles in a measure optic neuritis; however, it is a distinctly different process. It is generally due to increase of intracranial pressure and may be found in any condition of the brain that produces such pressure. Edema of the nerve extending into the retina is also found in occlusion of the central vein from thrombosis or otherwise.

Retro-bulbar neuritis is an affection of the optic nerve which seldom produces visible changes in the disc until atrophy appears. It may

occur in the acute or chronic form. The most frequent cause is some toxic agent, such as tobacco, alcohol, lead, etc. In the case of tobacco, the condition is spoken of as tobacco amblyopia. It manifests itself by loss of central vision, first to colors, later to form. The prognosis is rather favorable under appropriate treatment.

Primary atrophy of the optic nerve is found in metaleutic or parasyphilitic affection, more especially in tabes and paresis, and is a valuable aid in the diagnosis of these conditions especially in those cases where the diagnosis had previously been in doubt. The upper nasal edge of the disc is normally a trifle less distinct than the remainder. Under pathologic conditions it seems to be the first to lose its sharpness. In certain cases the difference in outline is considerably more pronounced than normal, and added to this there is a slight swelling. This finding is quite characteristic of nasal accessory sinus disease and may be present alone or in association with other ocular evidence of sinus disease. In some cases a partial atrophy follows.

Secondary atrophy of the nerve follows optic neuritis, the first cause of which is to be sought in that which produced the original neuritis..

Optic neuritis is often found in conjunction with neuritis of other cranial nerves, a condition which may be conveniently termed multiple neuritis superioris, referred to originally by Frankl-Hochwart.

Multiple or disseminated sclerosis is a variable process and is manifested in many forms depending upon the areas involved. The optic nerve frequently takes part and the changes are rather characteristic in that there is found sector-like areas of atrophy with corresponding narrowing of the field of vision. The eye findings may occasionally be the earliest, and when they are, are more than suggestive of the character of the disease.

The object of this, as well as the other papers of this symposium, is to draw the attention of the general man to the value of our findings as aids to general diagnosis, a fact which they to a greater or lesser extent already realize. In this age of specialization advance in our knowledge of special disease is being accomplished at a wonderful rate outstriding our progress in co-ordinating apparently widely but really associated pathologic conditions. The efforts of Rosenow, Billings and others who have been working at the problems of focal

infection is an attempt in this direction. Nevertheless, we are yet very far from the ultimate goal. Our own Doctor Philip Rice, of San Francisco, has given some deep thought to the philosophy of indirect but subtle factors in the etiology of disease.

The writer is reminded at this time of a thought expressed by a fellow post-graduate student some years ago and at the time it made some impression. He said, "Mack, why are you putting so much time on the study of pathology, neurology and the like things that have no direct bearing on your subject? Don't you know that by concentrating and focusing your energy to a small point you can burn a deeper hole than by dispersing it over a larger field." The writer has thought of this rhetorical proposition many times since and the only answer is "yes." But let us carry the proposition a little farther. If we collect the energy from the blue end of the spectrum, the shaft, no matter how it may be focused, will always render a blue pencil. The same is true for red and each of the colors of the spectrum, whereas by collecting from every source of the spectrum, one is able to get the full perfect white light, the sum total of them all. And so it is in the practice of medicine. The more circumscribed one is, in the collection of his data, the more narrow he becomes as a specialist. The real great lights in the world's history are to be found in those men who have carefully collected what was available from every possible source and focused all upon one object. Versatility is truly the keynote to the successful practice of medicine.

1831 Chestnut St.

Defective Hearing.—The attention of all teachers should be directed at all times to children who do not hear questions readily and frequently ask for repetition. The child who appears inattentive and who is believed to be an incorrigible child, may be suffering merely from defective hearing. If the answer to the question "five times five" is "The capital of New York is Albany," the child should be suspected at least of defective hearing, and should be referred to the school doctor or nurse. In the meantime it is the teacher's duty to place the child at a proper distance from the blackboard and teacher's desk.—*Dr. C. W. Crampton, Volta Review, August, 1917.*

EAR EXAMINATION AS AN AID TO GENERAL DIAGNOSIS.*

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An examination of the ear will afford perhaps a little less opportunity to ascertain facts concerning the general health of the patient as will an examination of the eye or the nose and throat; nevertheless, there are cases that present themselves to the ear specialists for treatment of what the patient believes to be a pure ear condition which we find later to be merely one of the manifestations of a more profound general or systemic disease. Especially is this true of nerve deafness, which, in the majority of instances, is due to syphilis; for instance, it is not uncommon for a patient to present himself for treatment complaining of impairment of hearing; otherwise his history may be negative. Upon examination of the hearing function, we find it somewhat shortened and associated with slight tinnitus which has been lasting for some weeks. He has been under the care of a general practitioner, who, failing to get results and believing the case to be one of simple catarrh, refers him to the ear specialist. The fork test shows shortening of air conduction and bone conduction and diminution of hearing, especially for the high tones. He may or may not have slight vertigo which, upon further examination of the vestibular branch of the nerve, shows diminished function. These findings together with the history of the case is sufficient to tell us that the patient is suffering from an internal ear or nerve lesion which in 80 per cent. of the cases is due to syphilis. The patient is referred to the laboratory which returns a report of a Wassermann plus four. Anti-syphilitic treatment, if the case has not been standing too long, brings about marked improvement and, in some instances, a complete restoration of function. It not uncommonly happens that the deafness is the earliest manifestation of syphilis in the ear.

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*Read at meeting of O., O. and L. Soc., Rochester, N. Y., June 19, 1917.

Ear Examination as an Aid to General Diagnosis.

The ear, as you know, is divided anatomically into the external, middle and internal. The external ear comprises the pinna and the external auditory canal. The latter may again be divided into the membranous or cartilaginous and the osseous or deeper portion.

The middle ear, or drum, is a mucous membrane-lined, air-containing, very irregularly shaped, short cylinder. It communicates with the naso-pharynx by way of the Eustachian tube, which is partly osseous and partly cartilaginous. The drum cavity communicates with a nest of cells posteriorly by way of a narrow tube, known as the aditus ad antrum. The tympanic cavity is separated from the external canal by the tympanic membrane. The drum contains three ossicles whose function serves the purpose of conducting the sound waves received by the drum membrane to the internal ear by way of the oval window, into which fits the footplate of the stirrup.

The internal ear is composed of an osseous labyrinth inside of which we find the membranous labyrinth composed of a system of tubes and sacs. The posterior portion composes the three semi-circular canals, whose function it is to receive the impression imparted to it by the endolymph, imparting to us the sensation of motion in curved lines. These three tubes are in communication by five openings with the utricle. Anteriorly, we have a tube blind at both ends, which is coiled two and one-half times around an axis, known as the modiolus. This coiled tube is known as the membranous cochlea and contains the essential organ of hearing. The lower end of this tube is in communication by a still smaller tube with a sacule. The sacule and utricle are both located in the middle portion of the osseous labyrinth known as the vestibule.

These systems of tubes and sacs just referred to contain a fluid known as endolymph. They float into the space that separates them from the osseous labyrinth, which space contains a fluid known as perilymph.

I have thus briefly reviewed much of the anatomy as a review for the general men, that they might better appreciate the points which will be referred to later.

Let us now take up the consideration of the various conditions of the ear that might guide us as to the location and character of a distant lesion in the body.

About the external ear there is little to be said, with the exception of that which might be found in the canal. The first to be thought of is boils or furuncles. Boils or furuncles of the external canal generally result from an infection of a hair follicle with staphlococcus implanted there through the finger or by some instrument used in the ear to relieve itching. On the other hand, there is something in the individual which makes him suceptible to this condition; namely, what we have come to consider a lowered opsonic index, and if the patient is thus lowered in his resistance, we may naturally expect to find boils elsewhere on the body. For instance, the back of the neck, from which we may safely conclude that boils in the ear as elsewhere are an indication of something wrong in the make-up of the blood, and, accordingly, needs general as well as local treatment.

The condition which frequently prompts a patient to desire to scratch his canal is more often eczema than anything else, so that we may say the eczema of the canal is a predisposing factor to boils. Concerning the so-called eczema of the canal, the majority of them are not true eczemas but rather a dermatitis from the too free use of soap in the ear used for cleansing purposes. True eczema is rather rare, and when it is found in the ear canal, we generally find it elsewhere on the surface of the body. True eczema, according to the prevailing opinion of those who have given it considerable study, is believed to be one of the manifestations of a deeper seated tuberculous condition, the eczema resulting from the elimination through the skin of certain toxic substances produced in a tuberculous focus.

Herpetic blebs are not infrequently found on the pinna and in the canal. They may occur in the simple form commonly referred to by the laity as fever blisters, or they may occur in that more profound type known as herpes zoster, in which case we find the blebs larger, more pustular than in the simple form, and associated with neuralgia of the trigeminus. It sometimes happens that one of these blebs occurs on the tympanic membrane and presents a picture not unlike that of true acute middle ear inflammation. The condition is rather painful, lasts beyond the usual length of time of the simple herpes, and may be associated with involvement of the other of the cranial nerves, as in the case reported by Ruttin and also Mackenzie. Herpetic blebs on the cornea are not uncommonly found by otologists.

On the drum membrane we may find disseminated vesicles, generally containing blood, which rupture spontaneously. They give rise to a few slight symptoms, more commonly pain and slight impairment of hearing. They may be found in the course of influenza and typhoid fever. According to Prof. Alexander, of Vienna, these blebs indicate one or the other of these two conditions, more often the former.

Opacity of the membrane with slight retraction may be found in individuals who have nothing to complain of so far as their ears are concerned; however, the appearance of the membrane prompts the otologist to accept the diagnosis of mild, latent catarrhal otitis media of the chronic form. This picture suggests to the otologist that at some time in the past the patient had suffered with adenoids or some other form of nasal obstruction. An examination of the nose and throat reveals their presence even though the adenoid may have since diminished in size.

Concerning the perforation, there is one finding which is very characteristic and pathognomonic of tuberculosis, and that is multiple perforations combined with thin discharge and with but little inflammatory reaction. The tuberculous process may have cleared up in some cases so that the ear may be perfectly dry. This appearance of the membrane, even though dry, is just as characteristic of tuberculosis as is the tuberculosis of the cartilaginous nasal septum.

By otoscopic examination it frequently happens that in those cases of chronic middle ear suppuration a profuse growth of red granulations may be seen. These granulations in contra-distinction to the true polyps (myxomas) are an evidence of bone involvement, and bone involvement is an indication in some cases of tuberculosis, in others of diabetes, and in still others almost anything that may produce faulty metabolism and impoverished health which you, general men, know as well as I, is a clear indication for silica, one of the real tissue remedies. In all cases presenting these granulations the problem of correcting the ear condition is one that calls for assistance from the general man as well as what we may do, locally, to improve drainage. True polyps, on the other hand, are of an entirely different etiology; namely, the dripping of secretion for a long time over a normal mucous membrane. Tumors of the middle ear cavity may

occasionally be metastatic; however, they are more generally local in their origin.

Occasionally a patient presents himself to the general man with a facial paralysis. All such cases call for a careful examination of the middle ear, for many of them are secondary to one of the forms of middle ear suppuration. True Bells' palsy, however, can occur in cases with a normal middle ear.

Otosclerosis is a bilateral form of deafness that begins at about the age of puberty and is progressive throughout life, is aggravated by pregnancy and is associated with tinnitus. Unfortunately this disease is prone to run through families; not every member of the family, however, develops the disease. It is of sufficient importance that it be recognized and that two individuals suffering with the same condition should not marry for fear of the increased probability of their children developing the same condition as their parents. I have mentioned the fact that otosclerosis is a hereditary condition, the local pathology of which is pretty well recognized; however, it is possible that it may be but one manifestation of a more general process and we otologists will feel very grateful to the general man if he will eventually be able to throw some light on the condition so that we might better cope with it than we have been able to do in the past.

Concerning the internal ear and nerve, a great deal might be said; however, I will limit myself to the presentation of those conditions concerning which we possess more definite knowledge. You general men do not need to be told that quinine, salicylates, mercury, arsenic and other toxic substances that are occasionally administered by physicians in massive doses are responsible for tinnitus and impaired hearing; therefore, all cases presenting themselves with these symptoms should at least be questioned as to the possibility of drug poisoning. Indeed, there are not a few cases in which deafness of the so-called internal ear type from these causes are seen by otologists in their practice. Fortunately, if seen early, stopping the abuse of the drug and the administration of the proper antidotes afford prompt relief. I have already referred to the question of syphilis in its bearing upon the inner ear nerve. This point cannot be emphasized too strongly. Neuritis from other causes, ofttimes obscure, is ultimately found to be due to some focus of infection elsewhere in the body, so that all

cases presenting the typical tuning fork findings of internal ear or nerve deafness should be studied most carefully to determine the cause. In some cases the actual cause is not determined until after the patient has been referred to the neurologist, internist, the laboratory and the X-ray man for important data.

Up to the present time I have not referred specially to the subject of vertigo. With otologists and neurologists of the present day the prevailing opinion is that in the vast majority of cases of vertigo the cause of the trouble is to be found in the vestibular branch of the viii nerve or its endorgan in the inner ear. With this opinion I wish to concur. There was a time when patients suffering with vertigo presenting themselves to the internist for treatment, that the condition was thought to be due to some disturbance of digestion or blood circulation and were accordingly prescribed for. In one case that I recall the patient was taking large doses of arsenic as a tonic for stomach trouble. The arsenic in this case was strictly responsible for the tinnitus , and its continued use aggravated it. Stopping the arsenic alone resulted in marked improvement, in fact, to such an extent that the attacks ceased altogether; notwithstanding careful tests of the vestibular nerve revealed a diminution of its function.

Disturbance of hearing, together with vertigo, may be due to intra-cranial conditions that are secondary to middle ear suppuration or to intra-cranial conditions having nothing whatever to do with it; for instance, tumor of the brain, especially when the tumor is located in the region of the cerebello-pontine angle. In fact, the time has arrived when the neurologist finds it imperative to submit his patient to functional hearing and vestibular tests before making a positive diagnosis, because, as has been shown in the foregoing, impairment of function is a prominent feature and in many instances the first sign of a latent but profound general condition. Especially is this true of the more insidiously chronic or hereditary diseases.

1831 Chestnut Street.

NOSE AND THROAT EXAMINATION AS AN AID TO GENERAL DIAGNOSIS.

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THE advantage of co-operative study of cases by the internist and the specialist is being more thoroughly appreciated, and we find a tendency for these practitioners to get together in order to better understand their cases. The internist is no longer satisfied to accept local symptoms as a part of the general symptomatology until he knows with certainty the local findings as observed by a specialist. The specialist, on the other hand, is not content with the diagnosis and treatment of the local condition until he has positive knowledge of the systemic influence. This intimate relationship of the internist and the rhino-laryngologist has been brought about by the frequency with which systemic disease manifests itself in changes in the nose and throat, and furthermore, the fact that diseased conditions of the nose, throat and mouth stand first as the source of infection in certain systemic diseases. With these ideas in mind we would recall briefly the nose and throat lesions of a number of the more important systemic diseases and conditions which may arise as a result of infection from the nose, throat and mouth.

One of the earliest manifestations of measles is the so-called enanthema which appears from three to five days before the appearance of the exanthema. This consists of a general redness of the pharynx, anterior and posterior pillars. The soft palate is studded with irregularly shaped rose colored spots. These changes are also observed in scarlet fever and measles. The change typical of measles, however, and which is found in no other disease, is the small whitish punctate miliary vesicles which appear on the hard palate and on the gums of the upper and lower molar teeth. Under good illumination these spots appear as irregular, stellate or round rose colored spots slightly elevated, in the center of which is a bluish white speck. Early these spots are few in number, later they increase and become con-

fluent. These mucous membrane changes disappear as the skin rash reaches its height.

Scarlet fever presents throat changes which are familiar to every practitioner, and he would look carefully for throat changes in this condition. The angina may be simply a slight redness of the fauces and slight swelling of the tonsils. The cervical lymphatics may also be involved. There may be a distinct lacunar tonsillitis or a membranous angina present. This membrane may spread to the pillars of the fauces and give rise to a clinical picture of diphtheria. Most of these cases upon bacteriological investigation prove to be of streptococcic origin. True diphtheria may occur in association with scarlet fever but culture of the throat in such cases shows the Klebs-Lœffler bacillus to be present. Membranous angina may appear early in scarlet fever before the full development of the skin eruption.

Retro-pharyngeal abscess, mediastinal burrowing abscess, or empyema may result from tonsillar infection in scarlet fever.

The mucous membrane of the mouth presents nothing characteristic in the average case of scarlet fever. The tongue presents an undue prominence of the papillæ, especially at the tip, presenting the so-called strawberry tongue with which every practitioner is familiar.

The local changes in diphtheria vary. In some of the milder infections there is little local change, the diphtheria, "sine membrana," or catarrhal diphtheria, may present no membrane formation, the fauces showing an angina of varying severity. A picture of follicular tonsillitis may be present, but upon culture the Klebs-Lœffler bacillus is found. In severe cases the membrane is generously distributed over the tonsils, pillars, soft palate, uvula and larynx. Nasal, laryngeal and tracheal diphtheria may be present without constitutional symptoms.

Post-diphtheritic paralysis affects the soft palate causing regurgitation of food through the nose.

Influenzal infections of the nose and throat are usually manifested by a particularly severe rhinitis with marked constitutional symptoms. The mucosa has a velvety appearance with a profuse serous discharge and is frequently so swollen as to completely obstruct the nares and efface all outlines of the normal landmarks. Sinus retention usually occurs with the production of pronounced symptoms. Later profuse

muco-purulent discharge is seen issuing from the middle meati. Anosmia is a frequent symptom in this condition due to blocking off of the olfactory fissure and pressure upon the nerve terminals. The pharynx is injected and may present small superficial herpetic lesions which ulcerate. The tonsils are usually injected and painful. Severe pain and hoarseness may mark the laryngeal involvement. Locally the larynx is reddened about the arytenoids, the ventricular bands and vocal cords. The interarytenoid space may become thickened. In recent epidemics the laryngeal condition has been associated with a marked and protracted hyperæsthesia occasioning a persistent harassing cough.

Frequent cold catching or recurring symptoms of acute rhinitis usually suggest some intranasal disturbance. This state of affairs may be produced by pressure of the turbinates,—especially the middle, —upon the nasal septum, the presence of septal spurs, adenoids and chronic sinus conditions. These pathological conditions in addition to their influence upon the secreting glandular structures within the nose, are often productive of a most annoying type of headache, or neuralgic condition. These neuralgic attacks follow the course of the fifth nerve and all cases of neuralgia involving this nerve should receive a most careful examination of the nose.

Asthma is frequently of nasal origin. Nasal pressure, accessory sinus disease and the presence of polyps have all been associated with this condition and relief of the intranasal condition has not infrequently caused a disappearance of the asthma.

Mental abnormalities ranging from simple lack of concentration to distinct melancholy with suicidal tendencies have been observed in connection with intra-nasal conditions, especially where there is a marked sinus disease.

Epistaxis is an early symptom in a large percentage of cases of typhoid fever. Later the nasal mucosa may present a hyperæmic condition and small superficial ulcers develop. In markedly asthenic cases these ulcers become deep and eventually there is a perforation of the cartilaginous septum. Ulceration of the soft palate and tonsils occurs especially in cases where the toilet of the mouth is neglected. The larynx is especially prone to suffer during the course of typhoid fever, the epiglottis being the most frequent location of the lesion al-

though it may be involved in any portion. This complication usually takes the form of an ulceration and is observed after the third week.

Erysipelas of the nasal mucosa is usually secondary to erysipelas of the contiguous skin. The mucous membrane is dusky red and swollen, completely occluding the passages. It may start in the pharynx with the usual symptoms of an angina. The mucosa here is bright red, glistening, swollen, and the uvula markedly œdematous. Bleb formation with fibrinous exudate may appear on the tonsils. The usual path of progress is to the Eustachian tubes and middle ear where it produces a violent inflammation. Laryngeal erysipelas, fortunately a rare condition, occasions, as may be expected, a severe obstructing lesion necessitating tracheotomy.

Obstinate rhinitis is at times a prodromal symptom of malaria. In severe cases hemorrhage occurs from the nose and pharynx. Neuroses of the palate and pharynx causing dysphagia occur in malaria while in the larynx this same condition produces hoarseness and spasmodic coughing.

In cases presenting a marked rhinitis with profuse watery discharge the possibility of the ingestion of iodide of potash must be inquired into. This agent, as you all know, is eliminated by the nasal and bronchial mucous membrane.

Epidemic cerebro-spinal meningitis and acute poliomyelitis anterior are frequently ushered in by a severe rhinitis. In many cases of the recent epidemic this symptom was prominent.

The so-called "fear of water," as occurs in hydrophobia, is an intensely painful contraction of the muscles of the larynx and the hyoid elevators. Husky voice and dysphagia occur early; spasm of the muscles occurs in the stage of excitement causing dyspnœa.

The gouty and rheumatic throat is familiar to every practitioner who administers to patients suffering with these diseases. It amounts to an extremely painful throat at times before, and again, in other cases, following the attack. The subjective symptoms are out of all proportion to the objective findings. The throat presents usually a mild hyperæmia with a dusky streaking of the anterior pillars. It is common to observe in chronic rheumatics and gouty patients a chronic catarrhal condition of the mucous membrane of the nose and throat.

Deficient thyroid secretion, or hypothyroidea, brings about in-

filtrative changes in the mucosa of the mouth, lips, tongue, nose, throat and larynx. The resulting symptoms are self-evident, thick speech or muffled voice, difficult swallowing and dyspnœa. Dr. D. Roman, of Philadelphia (O., O. and L. Journal, July, 1915), has pointed out that a form of hypertrophy of the thyroid occurs as a result of infection of the tonsils and gives embryonic and anatomic reasons for the occurrence of this.

Gastro-intestinal disturbances bring about chronic catarrhal conditions of the nose and throat in the form of hypertrophy and marked hyperæsthesia. Hyperæmia and dilatation of the veins at the base of the tongue are commonly associated with constipation. Chronic indicanuria induces naso-pharyngeal congestion.

Cirrhosis of the liver is associated with chronic hyperæmia of the naso-pharyngeal mucosa with a ecchymosis and epistaxis.

Angio-neurotic œdema occasionally develops in the mucous membrane of the pharynx or larynx. The lesions appear as grayish non-inflammatory elevations occurring suddenly and subsiding in from one to three days. There are usually skin manifestations associated to assist in the diagnosis.

Cardiac disease with failing compensation produces congestion of the mucous membrane of the nose and throat, hence epistaxis in these patients is a common symptom. Œdema of the larynx occurs with alarming dyspnœa. Intra-thoracic conditions, such as pericardial effusion, aneurism of the aorta, cause laryngeal symptoms through pressure upon the recurrent laryngeal nerve. In lesions of the arch of the aorta pressure is usually exerted on the left recurrent laryngeal nerve and paralysis of the left cord results. This is frequently the first symptom of aneurism. Aneurism of the ascending aorta will involve the right recurrent nerve causing paralysis of the right cord. Mediastinal tumors may also present their first manifestation through alteration in the function of the larynx. The author reported such a case. A mediastinal sarcoma in which the first symptom manifested was a husky voice, due to a paralysis of the vocal cord. (O., O. and L. Journal, July, 1914.)

The characteristic dryness in diabetes is manifested in the mucous membrane, and upon examination of the nose and throat the membrane will be found to be dry and glazed and presenting a dusky hue.

In the various anæmias, the nasal mucous membrane furnishes a very early sign through presenting a markedly pale and shrunken appearance before the condition is manifested in the conjunctival or gingival mucosa. Frequently, in pulmonary tuberculosis, a marked anæmia of the soft palate and epiglottis is observed. In severe anæmia hemorrhagic tendencies are observed as ecchymotic spots and true hemorrhages from the mucous membranes.

The presence of cachectic conditions should always lead to examination of the nose, throat and larynx. Malignant neoplasms are unearthed in these structures when not suspected by any local subjective symptom. Sarcoma is the more common malignant growth in the nose and may spring from the turbinals, the septum or the accessory cavities, especially the antrum. It usually presents as a broad base fungoid-like hemorrhagic growth. Primary carcinoma of the nose is rare and when found is of the epitheliomatous type. Sarcoma is frequently observed in the tonsil while carcinoma and epithelioma are fond of the larynx.

In Hodgkin's disease hemorrhagic tendency is again observed in the nasal and pharyngeal mucosa. Lymph nodules occur on the tonsils, epiglottis, aryepiglottic folds and sometimes in other parts of the larynx and trachea. They appear as small whitish and slightly elevated spots which tend to ulcerate. If the bronchial glands become enlarged, laryngeal paralysis may take place through pressure upon the recurrent laryngeal nerves.

We find laryngeal symptoms in tabes dorsalis. Early in the condition abductor paralysis occurs, later the tensor muscles become involved. Laryngeal crises are observed late in disease and are manifested by paroxysms of violent raspy coughing followed by marked dyspnœa and marked mental anguish. The patient may lose consciousness and even fatal results may ensue.

Scurvy, as you all know, occasions a swollen œdematous condition of the gums with marked tendency to bleeding. Hemorrhagic areas are observed in the faucial and pharyngeal mucosa. Not infrequently these areas ulcerate.

Chronic interstitial nephritis produces a chronic catarrhal condition of the nose and throat. Epistaxis is a common nasal symptom in this disease. We have also observed ulceration of the septum. Œdema

of the glottis is occasionally seen in connection with this condition and produces alarming dyspnœa. The stomatitis which at times accompanies uremic conditions is familiar to all. Chronic plumbism is prominently suggested by the so-called slate colored line observed along the gums at margin of the incisor teeth. At times in this condition also the mucosa of the lips and mouth has a bluish or slate colored tint.

This staining of the mucosa of the gingival border is also observed in mercurial poisoning together with sponginess of gums, pytalism, fetor of breath and enlargement of submaxillary glands.

The relation of the genital organs, both of the male and female, to the nose has attracted much attention for years and long discourses and lengthy citation of clinical cases showing relationship of these areas have been published. Hyperæmia of the mucosa with engorgement of the inferior turbinals, epistaxis, hyperæsthesia and paræsthesia are observed in conjunction with disturbances of the genital tract. Hyperæsthetic spots have been found on the septum and inferior turbinate in subjects of dysmenorrhœa.

Tuberculosis is manifested in the nose in two forms, the acute variety, a complication of a general tuberculosis and the local variety—lupus. The nose is the least liable to acute tuberculosis of any part of the upper respiratory tract, and when it occurs it is seldom of primary origin. The chronic form is more commonly observed. Acute miliary tuberculosis is a very rare occurrence in the nose and when observed it will be found that the process does not involve the bone. This process occurs as small granular elevations, about the size of a millet seed, separated by areas of healthy mucous membrane and observed principally upon the anterior cartilaginous septum and floor of the nose. Later the ulcerations become deep with undermined edges surrounded by miliary tubercles.

Chronic tuberculosis of the nose or lupus may occur as the nodular, vegetating tumor or ulcerating form. Lupus does not involve the bone. This may be symptomless for years, then some lachrymation with a stubborn dermatitis of the vestibule or a sluggish lymphangitis of the alæ and tip of the nose indicates activity. Later a mucopurulent and bloody discharge mark the occurrence of ulceration. Marked deformity occurs where the alæ of the nose are involved.

Tuberculosis of the nasal accessory cavities is rarely observed, although some authentic cases of antral tuberculosis are recorded.

Tuberculosis of the mouth and pharynx is more common than generally supposed. In the mouth, the lips, cheeks, gums, hard and soft palate, tongue, teeth and alveolar process may be attacked. In the pharynx the tonsils, soft palate, faucial pillars and posterior pharyngeal wall may present the lesions. Tuberculosis of the mouth and pharynx is usually represented by multiple lesions and is secondary. Tuberculosis of the mouth and fauces may exist for long periods without symptoms. Pain is not marked early but later as the ulcerations appear the pain is a prominent symptom. In lupus the lesions coalesce, forming nodules, or they ulcerate slowly and heal with a cicatrix. The occurrence of a retro-pharyngeal abscess should always lead to a most thorough investigation for tuberculosis. This lesion is in many instances the first manifestation of tuberculosis of the cervical vertebræ.

Tuberculosis of the larynx is generally accepted as secondary to pulmonary tuberculosis and its occurrence materially adds to the gravity of the prognosis. It may occur in an acute, subacute and chronic form.

The acute form of tuberculosis of the larynx is observed in cases advanced, although it may occur in incipient cases. The larynx presents an œdematous soft condition with marked tendency to ulcerate. The symptoms in this form are readily recognized for they are well defined, marked hoarseness, discomfort and dysphagia depending upon the location of the lesion are present.

The subacute form presents the tendency to fibroid changes. Necessarily the course is less active than the acute form. Areas of infiltration are present and the symptoms are moderate. There is dryness and some alteration in the voice.

The chronic type is characterized by marked fibrosis. Extensive proliferative changes occur with the deposition of fibrous tissue. These cases often escape notice because the patients are very little inconvenienced. Repeated attacks of dryness and slight hoarseness are perhaps the only symptoms complained of.

Primary syphilis of the nose is rarely observed although chancre at the muco-cutaneous junction has been reported. Chancre of the mouth and pharynx is more common, and has been found on the lips,

tongue, palate, faucial pillars, tonsils and the posterior pharyngeal wall. Chancre of the larynx has also been reported.

The secondary syphilis—erythema, mucous patch and superficial ulcer is commonly observed in the nose and throat. In the nose the mucous patch is unusual but the erythema is common. The mucous patch as observed on the soft palate, tonsils, arches and tongue is not difficult of recognition. It is round or oval and produces considerable pain. Occurring in the larynx it causes hoarseness and dysphagia if the epiglottis and the aryepiglottic folds are involved. Associated with secondary syphilis of the nose and throat are usually found the characteristic glandular and skin manifestations which at once direct the clinician.

Tertiary syphilis of the nose and throat takes on the destructive type of lesion—the gumma—which ulcerates and necroses causing destruction of bone and cartilage. The septum usually breaks down rapidly resulting in extensive perforation.

Gummata occur in the posterior pharyngeal wall, hard palate, faucial pillars, tonsils and tongue. They are also observed in the larynx occurring on the epiglottis, aryepiglottic folds, ventricular bands and walls of the larynx.

Tertiary syphilis in the nose occasions obstructed breathing and pain which is worse at night. As the process ulcerates a foul mucopurulent discharge presents and this drying on the septum and the vestibule causes the formation of crusts. The nasal bones may be destroyed with sinking of the bridge. Stenosis occurs as a result of destruction of the alæ.

Gummata in the pharynx are painful and cause difficult deglutition, obstructed breathing and regurgitation of liquids through the nose. Ulceration usually heals with very marked scar formation and adhesions of the soft palate to the posterior pharyngeal wall. These stellate white scars on the soft palate and pharyngeal wall are lasting evidences of a syphilitic lesion. The entire soft palate may be destroyed producing all symptoms of cleft palate.

In the larynx tertiary syphilis may occur in the form of gumma, ulceration or a perichondritis. The lesion produces more or less dyspnœa, husky voice or even aphonia. Healing occurs with the formation of scars, stenosis and fixation of the cords with consequent loss of voice.

This very much abridged citation of the nose and throat manifestations in systemic diseases seems to illustrate the intimacy of the work of the rhino-laryngologist and the internist. There is another phase of this subject and that is the pathologic conditions of the nose and throat and their influence upon the general health. Upon this subject clinical data has accumulated to such an extent that it has become almost a fad. That it is important is at once apparent, for the nose with its accessory cavities, the naso-pharynx with its adenoid, the pharynx with the tonsils, the mouth with the alveolar processes and root canals certainly offer the most promising incubators for the propagation of bacterial life. The obscure general infections, in which the source of the trouble has been traced to the field of the rhino-laryngologist and the aurist are increasing daily.

The nose is the organ wherein the inspired air is changed or prepared for its passage into the trachea, bronchi and lungs. The air passing through the nose is moistened and heated and to a degree the macroscopical irritants filtered out. If, then, Nature's method has been upset eventually changes occur which act to the detriment of the individual so affected. Such obstruction may be partial or more or less complete.

Septal deformities, hypertrophied turbinal bodies, collapse of the ala nasi, or the presence of adenoids may produce nasal obstruction and cause a chronic catarrhal condition of the nose or naso-pharynx, a chronic laryngitis, recurring bronchitis and even inviting graver conditions.

The influence of disease of the nasal accessory cavities upon the general health is apparent in the light of present day knowledge of focal infection. The secretions from a chronically diseased sinus drain into the nose. Some of this material passes posteriorly and is swallowed and thus is kept up, in addition to the absorption through the lymphatics, a chronic infection.

Gastric disturbances very frequently disappear during the course of treatment of a sinus condition.

The influence of disease of the accessory sinus disease in the production of glaucoma must always be kept in mind. This subject has been exhaustively investigated by Dr. J. I. Dowling, of Albany, who has brought out in all its phases the influence of accessory sinus disease upon the visual organ.

The association of the sphenoidal sinuses to the pituitary body must be kept in mind. Naso-pharyngeal symptoms may be present and mislead the clinician. Cushing states that a history of troublesome epistaxis is very common and may be excessive in pituitary disease. Patients may also complain of intermittent discharge of mucus into the pharynx. He also states, "This probably explains why so many of these unfortunates have been subjected to prolonged treatment for supposed primary sinus disease." This same author has found in operating these cases of sphenoidal sinus filled with tenacious white mucus.

The crypts of the tonsil when diseased act very favorably as incubating chambers for bacteria. With the lymphatic supply so bountiful it can be appreciated at once what an active focus this organ may be. This subject has been reviewed in an article by G. J. Palen and the author in the Jour. of O., O. and L., July, 1915.

Clinically, the original point of infection in chorea, rheumatic conditions, and cardiac lesions, have been traced to the tonsil. The urologists have traced the infection in pyelitis and pyelonephritis to tonsillar invasions. Hunter, quoted by Ashcraft, O., O. and L. Journal, July, 1915, calls attention to this and Ashcraft in the same article reports two cases. Clinical reports of nephritis occurring during tonsillar infection are numerous, aad this condition is familiar to all. Cervical adenitis always calls for careful investigation of the nose, throat and mouth for many cases of simple adenitis are the result of infected tonsils or carious teeth and adequate attention to these conditions will cause a disappearance of the glandular condition.

Adenoids possess similar favorable requisites for acting as a base for supplying systemic infections.

Infection of the teeth and their surrounding bony cavities occupy a very important position as active incubating chambers for infection and consequent systemic absorption.

These instances of systemic infection from a focus within the nose and throat are so well appreciated now that it is unnecessary to go into them at length in this paper.

We must realize that the field of medicine is very broad and that a combination of internist and specialist is the only satisfactory method of getting at many of the obscure conditions confronting us and that

improved methods of diagnosis have enabled us more thoroughly to investigate our cases. Improved transillumination, the naso-pharyngoscope, direct laryngoscopy, bronchoscopy, œsophagoscopy, roentgenography and the advances in bacteriological investigation have contributed largely to the completion of many of the symptom complexes offered for solution.

2102 Chestnut St.

Hemeralopia.—The frequency of hemeralopia, extremely low in time of peace (1 in 12,000 in France, according to Walter), undergoes an augmentation in wartime. At Verdun, Bourdier found 8.78 per cent. in ocular examinations during the winter of 1914-1915. At the same period, there occurred in the German army a grave epidemic of this condition. More recently, Vejers has observed it in proportion of 10.2 per cent. This high figure depends on many causes, some peculiar to the present war, which presents conditions different from those which have prevailed, in the past, such, for example, as the higher mean age of the combatants. The hemeralopia in the present war differs from those which have been described in previous wars in two respects: In the first place, there has been no epidemic, and the revictualing of the army being satisfactory, there have been no crises of hemeralopia due to privation and physiologic misery. By reason of selection, symptomatic hemeralopia is rarely found more in military than in civil life. In most cases it seems related to some vice of refraction and principally to myopia. The condition has been observed among volunteers in the early months of the war, among officers of the regular army and medical officers, and because of these facts and others contained in the reports of the commanding officers and because of the isolated character of each case, it is evident that, in the present war, hemeralopia is a symptom rarely invoked by malingers. Except for these cases traceable to general diseases (of liver and kidneys) or to ocular fatigue or disease, there seems to be no satisfactory treatment for condition.—*Practical Medicine Series, 1917.*

THE EFFECT OF VARIOUS PHYSICAL STIMULI ON THE PUPILLARY AREA AND RETINAL SENSIBILITY.*

PRENTICE REEVES,

Rochester, N. Y.

(Communication No. 52 from the Research Laboratory of the Eastman Kodak Company.)

THE results used in this paper were obtained in the Research Laboratory of the Eastman Kodak Company in an extensive series of investigations. In this paper only a few of those of more general interest can be dealt with.

This laboratory is occupied chiefly with investigations of the theory of photography and undertook this research on the eye on account of the close analogy between the eye and a kodak. The kodak has its focusing arrangement for different distances, so has the eye; each has its shutter; the amount of light entering the optical system in either case is controlled by an iris diaphragm and a lens directs the light to the sensitive surface in both cases. The retina is probably the most wonderful light sensitive surface known, and it may be possible to apply results obtained from research on this marvelous mechanism to problems of photographic chemistry. The photographic plate and the eye are the most widely used instruments for studying light problems and in practically all cases the final judgments are rendered by the eye. The action of light on a plate is fairly well known and the physico-chemical processes rather definitely established. The light reacts on the sensitive emulsion of the plate and the result is a latent image which may be developed. By knowing the intensity of the light, the time of exposure and the results on the plate as measured, we are able to formulate the action of the light energy. But when we consider the retina the matter is not so simple. That the process is physico-chemical is quite reasonable, and we may assume it

*This is a revision for publication of a paper read before the Thirtieth Annual Meeting of the O., O. and L. Society, Rochester, N. Y., June 18-22, 1917.

to be similar to that of the plate. We know that the retinal elements themselves are not directly sensitive to light, but are stimulated by some intermediate action caused by the light. As in the case of the plate, we are able to measure the amount of the light acting on the sensitive surface, but can not by any direct means measure the effect on the retina, as we are conscious of the retinal action only indirectly through the resultant perceptions, which defy measurement. In fact, our knowledge of the various steps in the visual process seems to be inversely as the proximity of these steps to consciousness. The radiation which enters the eye is the furtherest removed from consciousness, and we know the most about it. After the radiation strikes the eye it passes through several media before it strikes the retina, and we know part of the details of this journey so we are able to approximate the flux at the retina. When the radiation impinges on the retina something happens on which we can safely speculate, but with respect to the cerebral function we are entirely ignorant.

When a plate is exposed and the light has reacted on the sensitive emulsion that plate has served its purpose, as it can be used but once. In the case of the retina there is a counter anabolic force which restores the sensitiveness, and the eye continues to function. Only when exposed to a glaring light for some time will the retina break down, as in the case of snow blindness. The condition of greatest sensitiveness of the retina is in complete dark adaptation where the anabolic force has entirely restored the substance destroyed. The visual response depends almost entirely on the intensity of the light acting on the retina while the photographic action is a function of exposure time as well as light intensity.

The range through which the eye functions is ten billion to one, *i. e.*, the strongest light the eye can tolerate is ten billion times the intensity of the faintest light that can be seen under the most favorable conditions. Expressed in brightness units the range is from 0.000001 millilambert to 10,000 ml. (The millilambert has been officially adopted by the Illuminating Engineering Society as the unit of brightness and is equal to 1.076 foot candles or 10 meter candles. The brightness of the average residence street illumination at night is 0.001 ml., of the average lighted interior at night, 0.1 ml., interior during the day, 10 ml., and exterior during the day, 1000 ml.) By

shifting to peripheral from foveal vision for lower light intensities the retina is able to maintain efficiency over an extremely large range of brightness, and it is the widest ranged instrument we know. It is as though we had a pair of scales that would weigh a load of coal or a hair with the same precision.

As we have seen, we cannot measure visual sensations nor perceptions directly, so we accurately measure the physical stimuli that give rise to perceptions for various retinal states, and in this manner determine the retinal sensibilities. From these results we are able to arrive at an arbitrary means of measuring perceptions. The first problem to suggest itself through this method is, what is the least amount of physical radiation that will produce a perception? This depends on many factors, the greatest of which is the adaptation of the eye. If we should suddenly extinguish the lights in a lighted room we could see nothing at first, and could see the chairs, tables and one another only after some time of adaptation. The brighter the room lights the longer the time necessary for us to be able to distinguish objects in the room. In order to control the factors involved, the visual sensitometer was made, and is shown in Fig. 1. In this diagram we see the light from a source (N) focused through a lens (L) on a slit (S). The light through the slit illuminates an opal glass window (T), called the test-spot, in the large matte surface which forms the sensitizing field (B). The intensity by which the test-spot is illuminated is controlled by the absorbing wedge (W), which operates on machined metal ways over the slit. At one end, this wedge is clear glass and transmits practically all the light, and as we move the wedge along it cuts out more and more of the light so that the test-spot may have any desired brightness. The flood lamp (F) is used to illuminate the matte surface to any intensity, and in this way the observer adapts his eye to any degree of brightness.

In an experiment the observer sits facing the sensitizing field at a distance of 35 cm. The observer first remains in total darkness from 15 to 30 minutes to counteract any previous conditions of the retina, as otherwise the results from an observer who had been doing dark-room work would differ greatly from the results obtained from an observer who had previously been working in a well lighted room. After this preliminary procedure the observer adapts himself to the

desired brightness, then turns off the sensitizing field, and after repeated trials, determines the least test-spot brightness he can see the instant the initial brightness is extinguished. By using initial sensitizing brightnesses from total darkness to the upper limits of vision we are able to determine the threshold sensibility of the retina throughout its range. That is, if the eye is adapted to a certain brightness we measure the lowest brightness it can perceive when in that state. When the eye is fully adapted to darkness it can detect the minimum amount of radiation, and we say that its sensibility is the highest at that time. The threshold for dark adaptation gives the absolute photochemical reactivity of the retina. The results of this experiment show that the higher the field brightness to which the eye is adapted the higher the minimum perceptible brightness, and, therefore, the lower the sensibility of the retina. When dark adapted the average eye can perceive a brightness of 44x10-7 for a given test-spot, and if the eye is adapted on a bright sunny day the least it can perceive is 2 ml. This holds for all colors of light, and the results for the several colors used are about the same except in the region of faint intensities. This difference is probably due to the Purkinje effect.

Most of the visual sensitometer experiments were conducted with a test-spot 3 cm. square, and with no account taken of the time necessary for the stimulus to give rise to a perception, so the next experiments tried were to determine the effect of varying these factors. With the eye fully dark adapted the threshold sensibility was measured for test-spots from 2 mm. square to 12 cm. square, and the results show that the sensibility varies directly as the visual angle up to a value equal to the angle of the fovea and then rises gradually as the peripheral regions are stimulated. With the small test-spots only a small region of the retina is stimulated and the intensity of the stimulus must necessarily be high in order to cause the retinal reaction which gives rise to the perception. As the size of the test-spot increases the stimulated region of the retina increases and the intensity necessary to cause a perception decreases. The procedure in the exposure time experiment was to place an accurately calibrated photographic shutter before the test-spot and determine the intensity of the test-spot necessary for it to be perceived when exposed for a given time. The range of exposures was from 0.002 sec. to 4 sec., and the results show a

rapid increase in sensibility for the first increases in time, followed by a small increase with later time increases. (It was found that if a stimulus could not be seen after four seconds' exposure that it was not worth while to use longer periods of time, since the numerous factors, such as attention, fatigue, etc., make results unreliable.)

In order to get a more exact measurement of the least amount of light capable of producing a perception the test-spot was screened down to a diameter of 1 mm., and observations were taken at a distance of 3 meters. From this experiment the minimum radiation visually perceptible was found to be 17x10-10 ergs per second. This amount of energy would raise 1 gram of water 1 degree centigrade in about twenty-five years.

After determining the least we can see the next problem is to learn the least difference we can detect under the same conditions, that is, if we have a light of a certain brightness how much brighter or darker should another light be in order to be detected as such? The lights may be presented simultaneously or in immediate succession. The distinguishing of detail under all conditions (and detail is merely another term for brightness differences) is the fundamental requirement of efficient vision. The ability of the eye to distinguish details depends upon the absolute brightness of the object viewed, upon the brightness of the surroundings and on the state of adaptation of the eye. For example, if we are examining photographs in an ordinary room we are able to easily distinguish the larger objects, but if we wish to see the finer details we move closer to the source of light. If we have just come in from a strong or weak light we must wait some time before we can critically examine any of the pictures. By using the visual sensitometer all factors could be controlled and the contrast sensibility measured for the same brightness range used in threshold sensibility. This contrast sensibility increases as we increase the field brightness through the lower intensities, remains about constant for the brightness found in ordinary vision and drops off for the higher intensities. It has been determined that the eye under favorable conditions is able to detect a fractional difference of .0175 between two fields, and that this value holds for the range of ordinary vision. That is, if we have two adjacent visual fields which are of equal intensities, we must increase or decrease one of the fields 1¾ per cent. in order to detect it as different.

The next step in this research was to determine what brightness could be tolerated when the eye was adapted to any given intensity, and the result of the experiment on this problem shows that the tolerable brightness increased with the brightness to which the eye was adapted. We know that a light, which is glaring to us at night when walking, would hardly attract attention during the day, and the lights under which we read at night could not be faced when we first awaken from sleep. The average dark adapted eye can just tolerate a brightness of 25 ml., while an eye adapted to a bright sunny day can stand a brightness of 16,000 ml.

Up to this point we have found for any brightness to which the eye is adapted the least we can see, the slightest difference we can detect and the greatest intensity we can tolerate, or, in other words, what we can just see, how well we can see and what we can comfortably endure. An example of this is, an eye adapted to a room artificially lighted at night (a brightness of about 0.1 ml.) can just see a contrast of 1,037 to 1, the deepest shadow in which it can see anything is 0.0017 ml., and the brightest tolerable light is about 800 ml., a brightness which would hardly be noticed if walking on a bright day.

We know by actual experience that our vision is about as efficient in a well lighted room as it is in full daylight, although these two brightnesses are in a ratio of ten thousand to one. If we change the brightness the visual apparatus automatically adjusts itself to the new condition. In our everyday experience the environment is seldom constant as the brightness changes almost continuously and the eye adjusts itself in such a way that we are not conscious of changes unless they be comparatively large. For a small brightness change the adaptation is almost instantaneous, but for greater changes an appreciable amount of time elapses. To study this time of adaptation the visual sensitometer and the threshold method were used. The retina is sensitized to the desired brightness, the flood light then switched off and the sensibility measured after 0, 1, 2, 5 seconds, and so on for any length of time of adaptation to darkness desired. The adaptation is quite rapid for several minutes and continues slowly until an equilibrium is reached. The length of time for the retina to reach a state of complete equilibrium is rather a debatable question, and some observers have continued the experiment for several hours. For all practical

purposes we may assume that the equilibrium has been reached after 30 minutes (at the most an hour) as the threshold measurements are about the same after that time for any initial sensitizing brightness. An interesting fact in the rate of growth of sensibility with adaptation is the effect of the color of light used. The adaptation is least and most slowly for red, then come yellow, white, green and blue. The sensibility change in blue light proceeds much more rapidly and much further than in red light. Not much data have been obtained for adaptation when changing from darkness to light, although we know that the rate of adaptation from lower to higher intensities is more rapid than the rate from higher to lower. A person "gets his eyes"

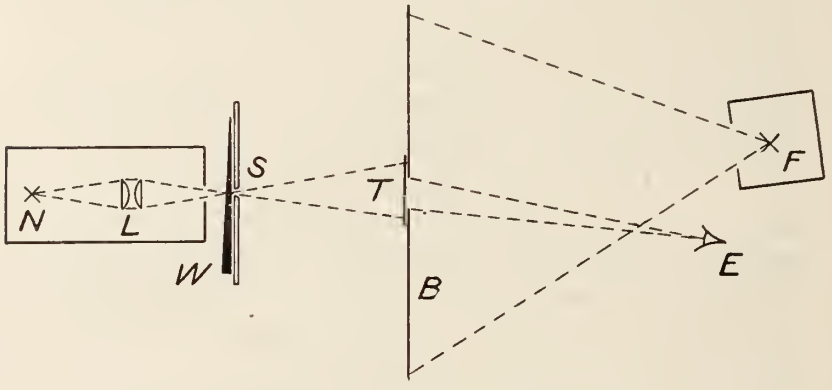

Fig. 1—Visual Sensitometer.

quicker when turning on a light in a darkened room than when turning off the light in a lighted room. In any process of adaptation there are two factors, the retinal process, whatever it is, and the change in the pupil opening. We have examined the former, now let us consider the latter. The pupil has been found to vary through a wide range and series of photographs have been taken of the eyes of several subjects over the entire brightness range. The subject was adapted to the desired brightness level for at least five minutes and a photograph taken of the eye. For darkness and faint intensities instantaneous flashlights were taken, while ordinary exposures were made for the higher intensities. By taking the photographs through the same brightness range that was used in the sensibility experiments we can directly compare the pupillary range

with the sensibility range. The average diameter for dark adaptation was 8 mm., the largest diameter for any pupil was 8.6 mm., and the average minimum diameter, where the subject faced white paper in sunlight, was 2 mm. Since the pupillary area varies as the square of the diameter the variation is of the order of 16 to 1. The threshold sensibility we saw to be over a million to one so the pupillary change is only a small part of the total process. For any fixed brightness level the diameter of the pupil does not remain constant but fluctuates through quite a noticeable range. (We are now investigating the extent of this range and also the rate of pupillary reflex and hope to present this data in the near future.)

The effect of exposing one or both eyes to the sensitizing field was also tried and the results are shown in Table 1. The photographs were taken of the right eye in both cases, and the difference between the results in the second and third columns shows the effect of closing one eye. At either end of the brightness scale the results show very little difference between binocular and monocular sensitizing, but through the middle brightnesses the difference is quite marked. When both eyes are exposed to a given brightness the iris muscles automatically cause the pupil openings to come to a certain diameter. Now if one eye is closed that pupil tends to expand as it is really subjected to conditions of darkness, while the other eye tends to remain at the pupillary diameter corresponding to the given brightness. The iris muscles ordinarily operate together sympathetically, but in this case there is an opposition of tendencies and the resultant diameter of the open eye as measured is a compromise between the opposing forces. This action can be demonstrated very well if a person looks into a mirror with both eyes, then covers one eye with his hand. By repeating this procedure for several brightnesses an idea may be obtained of the experiment just described.

Artificial lighting is as old as man himself, but efficiency in lighting is comparatively a recent movement as the older lighting principle seems to have been merely to have light enough. With the wonderful improvement in lighting sources and diffusing media the illuminating engineer is now able to design systems to meet almost any requirement. Good lighting is that which makes good seeing possible, and the results in the various sensibility experiments enable us to determine the

requirements of good seeing. The demands of efficient vision are best approached through the study of the visual mechanism and in this study the ophthalmologist is in a position to "do his bit," as he is prepared to understand and point out to the engineer the conditions and demands of normal vision. By co-operation with others in outlining the fundamental requirements of good lighting the eye specialist is able to render as great a service to humanity as he is now rendering in correcting the defects of vision.

TABLE I.*

	Diameter in Millimeters.	
Brightness in Millilamberts.	Both eyes open.	One eye closed.
0.0	7.4	7.5
0.000015	7.15	7.25
0.60	5.3	6.5
6.3	4.1	5.7
126.0	2.6	3.3
2000.0	2.0	2.0

DISCUSSION.

C. L. RUMSEY, VICE-PRESIDENT: This paper is a great help in making us realize the relationship between the intensity of light and the states of the eye. It is now open for discussion.

R. I. LLOYD: This paper involves so much peculiar knowledge and is so deep that Mr. Prentice Reeves need not be surprised that none of us are willing or able to discuss it. It is a satisfaction to know that scientific efforts are being made to correct the present imperfect lighting of streets and buildings; certainly the glare of the flame should not reach the eye without some intercepting medium to dim its intensity. The very many detailed points brought out in the paper cannot be discussed intelligently by anybody without much study. I will, therefore, end by making a motion that we express our thanks for the paper by a vote. Seconded. Carried. I also want to thank Mr. Poser for his discussion of my paper. I have always found him willing to help on scientific questions.

G. A. SHEPARD: The efficiency of the eye which instantly adapts

*These results are from one of the observers in the experiment and will be published in detail in a later paper.

itself to such a wide range of illumination is a wonderfully interesting study; of course, it is due to the pupillary movement, but also to the arrangement of the rods and cones in the retina. As we go from the peripheral parts of the retina towards the fovea centralis we find more and more cones; it is there they are grouped together. The sharpest vision is where the cones are thickest. In the peripheral portions of the retina the cones are less closely grouped and vision is not so acute. And yet faintly illuminated objects are appreciated better and more accurately by the outer parts of the retina than by the fovea centralis. By this arrangement we have increased sensitivity in faint lights, and it is my opinion that the adaptation of the eye to various illuminations is brought about not only by the iris but also by this arrangement of the rods and cones. They form the chief factor in increased efficiency of the eye. The retina and a photographic plate are presumably much alike, but this power of shifting from the fovea to the periphery when the light is faint is a great superiority and accounts for the extension of the range of illumination. The pupillary condition goes hand in hand with it to help out any deficiency of the eye in its power to manage the lights. If the light is too strong, getting through the pupil in spite of its contraction, the sensibility would be cut down on that account. We do not know exactly what the relative function of the rods and cones is. The visual purple is given off by the pigmented epithelium of the retina to the rods alone not to the cones; it is blanched by light and restored by darkness and rest. Just what the function is in vision is an extremely interesting question, but cannot be answered in our present state of knowledge. It seems to me it may have some light thrown upon it by an understanding of the photographic plate. As the retina is sensitive to light it must be by some intermediate action, physical or chemical, and there must be some medium in the retina itself which is acted upon by the luminous energy striking upon it, and accompanied by some loss of the visual purple. This may be wrong, it may be right, but it seems plausible.

Mr. Max Poser: I have dissected a number of eyes of animals in order to compare them with the human eye; especially did I spend time upon the eyes of bats and owls. In these nocturnal animals there are no cones at all, and yet the owl sees well. There are merely rods. If you dissect an eagle's eye you will find very small tracts of visual

purple. There is much to be learned yet; gradually we may be able to understand more about the rods and cones. The idea has been broached in Germany, I think, that inasmuch as a whole bundle of rods joined together may make only one fiber that may be a means of moderating the stimulus. They may also enable one to appreciate contrast effects. It is all theory, of course.

G. W. McDowell: Have the defects and refractive errors of the two observers been tested?

Mr. Prentice Reeves: Yes, we were examined. My sight was found to be more correct than the average. The other had to have some slight correction made. The results given are the averages of a great many trials.

G. A. Shepard: Perimeter tests should be taken into consideration only when the general states of the system are allowed for. General fatigue will reduce the color field for blue. During the menstrual period there is a change in this respect also. Correct results can be arrived at only when the individual state of the experimenter is fully known. I have tested individuals many times and found great variations in conditions of rest and fatigue. As I said the field of blue is reduced at the menses; I have known women who, during the earlier months of pregnancy, have had no perception of the color of blue at all. General vision was good, she could use her eyes for fine work and so on, but ability to perceive blue was lost, and it produced a feeling of discomfort. The variations of this sense from day to day have been demonstrated by a large number of observers.

Science.—To the natural philosopher, to whom the whole extent of nature belongs, all the individual branches of science constitute the links of an endless chain, from which not one can be detached without destroying the harmony of the whole.—*Schoedler.*

THE PRESENTATION OF A CASE OPERATED FOR LARGE SUBDURAL CYST OF THE FRONTAL LOBE.

Geo. W. Mackenzie, M. D.,

Philadelphia, Penna.

MY object in presenting this case is to show to what extent a careful eye, ear, nose and throat examination aids one in the diagnosis of intracranial conditions. Practically all of the information obtainable as to the patient's condition was through these sources, as a study of the report will show.

Patient.—Wm. S., age 57. Was referred to me by Dr. H. M. Goddard on March 5th, 1917.

Family History.—Mother died at the age of 87. So far as patient can recall, her general health was good for a number of years before her death. Father died also at the age of 87. His general health had been good with the exception of an attack of rheumatic fever when 50 years of age. Patient is one of a family of thirteen, most of whom lived to a ripe old age; one brother died from an acute cardiac condition; can not recall the exact cause of death of any of the other brothers. He has a sister still living past 60 years of age.

Previous History.—Patient can not recall any definite diseases excepting those of childhood, which were few. At the age of 21 he had, what the doctors termed, inflammation of the bowels and catarrh of the stomach for a period of six or seven weeks (probably typhoid). At that time he was employed as a carpet weaver. At the age of 26 he married, and is the father of eleven children. At the present time there are six children living. One child died from diphtheria, another from pneumonia, both before they were 10 years of age. Cannot recall the cause of death in the other two. The first child was still-born.

Present History.—In the early part of October, 1916, the patient fell down stairs, was picked up unconscious and moved to bed. The following day the family doctor was called in. At that time the

patient complained of headache over the right occipital region. A day or two later he returned to work and felt all right for about one month, when the headache returned. Since then the pain had become more intense, but the intensity varied from time to time. Patient consulted an osteopath and received nine treatments. He then called in a general physician who consulted with another physician who was more or less of a specialist. He was then transferred to one of the Philadelphia hospitals and was under the care of a surgeon for about three weeks. The patient appeared to be benefitted by the treatment and left the hospital of his own accord and returned home. He remained under the care of his family physician who later sent him to another hospital where he was under treatment for about nine days. During this time a polyp was removed from the right side of the nose and a frontal sinus condition diagnosed, which was thought to be the probable cause of the patient's headaches. During his stay at the second hospital the patient claims to have become gradually weaker as the result of a restricted diet. He then consulted Dr. Goddard, who referred him to me on March 5th, 1917.

Present Condition.—The general appearance of the patient was that of pronounced emaciation with a shuffling, uncertain gait (length of steps about eight inches), requiring two persons to lead and support him, one on each side. His speech was slow and he had a vacant stare in his eyes, which suggested poor vision. He complained of severe pain on the right side of the head, centering especially in the temporal and frontal regions. During his attempts at walking, there was a tendency to pitch forward due to an inability to balance himself. The same tendency was manifested if one pushed his body backward or to the two sides.

Examination of the cranial nerves gave the following findings:

I. Nerve: The patient was unable to distinguish between the odor of alcohol and catsup. His answer on repeated tests with a few minutes' rest between were occasionally given correct, but were always slow. Each side was tested separately and the patient's sense of smell seemed to be blunted on both sides. On the left side the blunting of the sense of smell may have been in part due to a pronounced obstruction from a deviation; the right side (concave side) was quite free of mechanical obstruction, however, there was considerable secretion. At

the time of taking the sense of smell there was some question in my mind as to how much was due to an actual blunting of the sense of smell, how much to obstruction and how much to slow cerebration. Later on, I learned that the patient under normal conditions, prior to and since operation, is a slow and deliberate talker, but he was more prompt in his replies at this time (June, 1917) than he had been for some time prior to operation.

II. Nerve: Ophthalmoscopic examination O. D. Optic nerve showed extreme choking (elevation 6 or 7 diopters), as well as pronounced increase in circular dimensions (mushroomed). The outline of the disc was very poorly defined, apparently blending with the

retina. The vessels of the disc was quite obscured, the veins in the retina markedly distended. The retina showed innumerable streak-like small hemorrhages, mostly surrounding the veins, while at the lower part of the retina there were some larger masses of hemorrhage; the upper margin of these were horizontal. There were a few small areas of pale-colored degeneration scattered between the disc and the macula. The distribution of these areas, however, was not of the classical albuminuric type. The vision O. D. was fingers against a black background about one foot more often incorrectly estimated than correctly. O. S.—the ophthalmoscopic picture was the

same as that of O. D., with the exception that the choking was less pronounced (4 or 5 diopters), the hemorrhages perhaps fewer, while the vision was about the same as that of O. D.

III., IV. and VI. Nerves: Mobility of the eyeballs normal, in that both eyes moved together and freely in all directions, with no evidence of strabismus; however, on examination for the lateral positions, there was an apparent aggravation of the physiologic nystagmus. Pupils were both moderately dilated, the right more so than the left. Reaction to light was practically nil on the right side, but moderate on the left.

V. Nerve: No disturbance in tactile, pain or temperature sense on the two sides, nor was there any weakness of the muscles supplied by the motor branch of the V. nerve on either side.

VII. Nerve: The function of the mimic muscles on both sides equal and normal.

VIII. Nerve: Cochlear branch. Hearing for conversational and whispered voice and acumeter apparently normal on both sides.* The fork tests gave normal findings in that Weber was not lateralized. The bone conduction was normal, Rinne positive, 40 seconds, which is normal for the Politzer middle tone weighted fork that I use. Patient also heard the low and high forks normally.

VIII. Nerve: Vestibular branch. The extreme headache which the patient was suffering, together with his inability to sit in the turning chair, made it impossible to conduct turning tests. Accordingly, the galvanic test, which I believe to be an easier and more accurate method, was used. With the cathode to the right ear, the patient manifested a rotatory nystagmus to the right with a current strength of 3 M. A. With the anode to the right ear, there was a pronounced rotatory nystagmus to the left with a current strength of 3 M. A. On the left side the cathode produced a nystagmus to the left with 3 M. A. current; while the anode produced a rotatory nystagmus to the right with 3 M. A. Prior to making these galvanic tests, the patient

*In regard to the tuning-fork tests they were rather difficult to make, because the patient seemed to fatigue under the tests and it was necessary to complete the examination at the second attempt two days later. At times there was a question as to whether there was not slight diminution on both sides of very moderate degree, but repeated tests, using considerable patience, showed that the function of the cochlear branch of the viii nerve on both sides was normal.

was tested for spontaneous nystagmus, which was not present when looking straight ahed. On looking to the right, there was pronounced nystagmus to the right, and on looking to the left, there was pronounced nystagmus to the left, as noted above; however, it was equal in intensity to the two sides. The disturbance in gait has already been mentioned.

There was spontaneous past-pointing inward, about 8 inches, on both sides; that is, when the patient attempted to find the finger from above downward, he deviated inward with the right hand; also with the left hand, and the condition was to a like degree on both sides.

IX. Nerve: The sense of taste was tested with salt, sugar, alcohol and catsup, all in liquid form, with a small pledget of cotton wrapped on an applicator wire. The two sides were tested separately and the tips and the dorsum of the tongue were also tested separately and the mouth washed with water between tests. The replies were very uncertain and tardy. Comparing them with the control, they were much slower than normal, especially on the left side; however, there was not a pronounced variation on the two sides.

X. Nerve: Temperature, 98; pulse, 64; respiration, 24, and no vomiting up to the time of the date of this examination; however, there was one attack of what the nurse reported as expulsive vomiting as the patient reached the hospital and prior to his operation.

XI. and XII. Nerves: Normal findings.

The general muscular condition of the patient was fair and equal on the two sides; that is, the extensors, flexors, supinators and pronators were tested and found to be weaker than the average but equal on the two sides. The same applies to the hand grip.

The arms, legs, chest and back were tested for disturbances in the tactile, pain and temperature sense, but none were found.

The speech centre was found to be normal, in that there was no motor or sensory aphasia nor was there any paraphasia; furthermore, the family was questioned on these points and replied that they had not noticed any disturbance in his speech or in his identification of articles. On the other hand, there was a slight hesitancy in his speech that the family had noticed which the patient did not show before his present illness.

Examination of the nose revealed a pronounced deviation of the

septum to the left, as noted. On the right concave side there was a moderate compensatory hypertrophy of the inferior turbinate and a moderate amount of secretion in the region of the middle meatus. The appearance of the stump of the middle turbinate suggested that it evidently had been amputated, because of previous hyperplasia. The mucous membrane on both sides of the nose was somewhat pinker and more turgescent than normal.

Examination of the mouth revealed three scattered wounds in the alveolar process of the upper jaw, due to the recent extraction of teeth. The tongue was slightly coated, of a gray color, and was protruded straight forward with a slight, coarse tremor. He could extend his tongue and move it to the two sides freely and to a like degree. The soft palate moved freely and did not deviate during the phonation of the letter a.

Otoscopic Examination.—Right ear: tympanic membrane intact, brilliant, fairly opaque, no retraction, normal mobility with Siegle. By Politzer inflation, the membrane moved outward freely over a large area and went back somewhat slowly, especially in the posterior half, indicating a somewhat relaxed condition of the membrane.

Left Ear.—Membrane intact, brilliant, slightly opaque in the posterior half; however, sufficiently translucent to permit a view of the long process of the anvil. Mobility normal with the Siegle. By Politzer inflation the membrane moved outward freely and went back promptly.

Urinary Examination, March 5.—Amount, 4 ounces. Sp. gr., 1009. Reaction, faintly acid. Odor, none. Color, light amber. Transparency, clear. Sediment, heavy, grayish-white, flocculent. Albumen, trace. Sugar, negative. Urea, 0.010 gms. per c. c. Indican, negative. Bile, negative. Urobilinogen, negative. Blood, negative.

Microscopic.—An abundance of amorphous urates, many epithelial cells (mainly bladder), few renal cells, an abundance of bacillary bacteria, few uric acid crystals.

Wassermann Examination.—March 13, 1917. Made by the Philadelphia Clinical Laboratory.

Reaction.—Negative.
Antigen I.—(Cholesternized) negative.
" II.—(Alc. syph. liver) negative.
" III.—(Acet. insol. lipoids) negative.

From the symptoms and signs the diagnosis was made of a tumor of fair size, located in and about the right inferior frontal convolution.

The patient was sent to the hospital for further study before attempting an operation. I visited him several times, corroborating the findings noted above. On the 15th of March I took Dr. Weston D. Bayley, of Philadelphia, as consulting neurologist, his findings corroborating those of mine. Dr. Bayley furthermore agreed with me as to the character and location of the lesion. On March 16th the patient was operated under ether narcosis administered by Dr. R. Frank Hill. A semi-circular incision was made on the right side extending from a point an inch behind and on a level with the auricle, upward and around to the outer angle of the orbit, through the soft parts and periosteum to the bone. The periosteum was separated from the bone and the flap turned downward. With the Alexander mastoid gouge No. 12 an opening was made through the skull in about the middle of the exposed area. This was enlarged with the bone-biting forceps in all directions and an oval-shaped area of the dura exposed about 7 cm. in its longest dimension (horizontal), and 6 cm. in its shortest dimension (vertical). The dura appeared normal and smooth on its external surface, but beneath could be seen a dark discoloration. Furthermore, there was evidence of marked pressure. A small horizontally running incision was made anteriorly through the dura, from which squirted a dark, almost black-colored, fluid. This was allowed to flow slowly until it appeared that a sac had collapsed. Then the incision was lengthened as far as the exposed dura would permit. The upper margin of the dura was retracted and it was seen that there was a considerable space between the dura and the brain tissue, giving one the impression that the brain had suffered a dent, the maximum depth from the surface of the dura to the brain tissue being about 2 cm. About a dessert spoonful of dark clots were removed, after which an inspection of the dura and surface of the brain showed a dark greenish-colored stain—no doubt from the iron salts of the blood. The dura over the cyst was about three times as thick as normal, the inner two thirds of which appeared to be a more or less organized sac which could be peeled from the dura proper with some difficulty. The greater part of the dura was stitched, with the exception of a small gap which was left anteriorly into which the end

of a one inch iodoform gauze strip was inserted for drainage. The wound over the soft tissues was closed with interrupted sutures, except the extreme anterior end, through which was allowed to protrude the iodoform gauze wick. Iodoform gauze dressing was applied directly to the wound, over which a rich plain gauze dressing was laid and the whole bandaged. The patient was put to bed and a few hours later, when he had come out of ether, he remarked that his headache was gone.

On March 17th the patient's pulse, temperature and respiration were normal. There was slight œdema about the right orbit, otherwise he said that he felt comfortable and remarked that he could see better.

On March 18th the patient's condition was improved from every angle. The wound was redressed and showed no evidence of excessive reaction. After this date the wound was dressed every day. The headache had entirely disappeared and he noticed that his vision was constantly improving.

On March 19th the wick was partly withdrawn and the following day removed entirely. At this time his gait had so improved and he felt strong enough to walk from the ward to the operating room for redressing. On the 24th the wound was quite healed. There was no secretion, his vision had improved and he was discharged from the hospital. Two weeks after the operation the patient walked from his house to the office, accompanied, but unassisted, a distance of about three miles.

On March 28th the patient was re-examined, and the sense of smell, although not perfect, was much better than on his first visit.

The optic nerve, O. D., was still swollen about 3 diopters. The blood vessels on the disc were seen more distinctly than they were on the first visit. Hemorrhages were considerably diminished in number, and the patient's vision improved to fingers at one meter. O. S., disc swollen about 2 diopters, the same general appearance as in O. D., but less pronounced. Vision, with correction that he had been wearing, 6/30.

The sense of taste was positively improved over that which it had been prior to operation.

The remaining cranial nerves normal. The patient had gained

10 pounds in weight, and was physically much stronger than before operation and entirely free of headache.

On April 21st K. I. was administered in 10 drop doses, t. i. d., in the hope of clearing up the slight remains of œdema of the disc. The patient reported at the office about twice a week from then on until May 19th, when he was refracted with a mydriatic. The vision in right eye was 6/60. It was impossible to improve the vision in this eye with any glass. O. S. + 1.87 D. sphere ⊃ + .50 D. cyl. ax. 105 gave a vision of 6/12. With 4.00 D. sphere added, when the patient was able to read ordinary newspaper type. The patient observed his central vision was poor, as compared with that directly around it. He stated that he loses fixation of objects when he looks directly at them, but when he directs his vision away from the center, he reads better than when looking directly at it.

Urinary Examination.—May 5, 1917, report of the Philadelphia Clinical Laboratory. Color, light yellow. Consistence, clear. Reaction, acid. Sp. gr. at 15° C., 1018. Robert's test for albumen, not found. Robert's test for heat, + H No_3, not found. Benedict's test for sugar, not found. Casts, not found. Urates, amorphous, present. Crystals, not found. Large squamous epithelial cells, few found. Leucocytes, few found.

By ophthalmoscopic examination there was no evidence of swelling of the disc, distension of the veins or hemorrhages.

Since May 19th the patient reported every week or ten days up to June 16th. His vision is still improving, so that now he reads 6/12 with ease, and is discharged as cured.

The points worth emphasizing in this case are: 1st, That the very severe headache combined with the immense choking of both optic nerves were sufficient to indicate that there was considerable intracranial pressure. 2d, That the headache was more intense on the right side. 3d, That the right optic nerve was choked more than the left. 4th, That the vision was poorer in that eye; all pointed to a right-sided lesion.

The absence of localizing symptoms with the exception of the sense of taste and smell, would suggest that the location of the pressure was in some so-called silent area in the region of the inferior frontal convolution of the right side, just above the Sylvian fissure anterior

extremity, and possibly exerting some pressure on the anterior portion of the tempero-sphenoidal lobe.

That there was no speech disturbance was due to the fact that the patient was right-handed.

The presence of the spontaneous past-pointing inward with the right and left hand, together with the exaggerated physiological nystagmus to the sides, were probably due to distant pressure and were of no particular localizing value.

The history of a fall in November, from which time the patient dated his trouble, would suggest that the character of the lesion was probably hemorrhagic.

1831 Chestnut St.

THE WRONG GUESS.

In Dublin a zealous policeman caught a cab driver in the act of driving recklessly. The officer stopped and said:

"What's yer name?"

"Ye'd betther try and find out," said the driver peevishly.

"Sure, and I will," said the policeman, as he went round to the side of the cab, where the name ought to have been painted; but the letters had been rubbed off.

"Aha!" cried the officer. "Now ye'll git yersel' into a worse disgrace than ever. Yer name seems to be oblitherated."

"You're wrong!" shouted the driver triumphantly. "'Tis O'Sullivan!"—*Jour. Amer. Med. Assn.*

CORRESPONDENCE.

Report of the Sub-Committee of Oto-Laryngology of the Surgical Specialties of the General Medical Board of the Council of National Defense:

The Sub-Committee of Oto-Laryngology of the Surgical Specialties of the General Medical Board of the Council of National Defense appeared before a meeting of Oto-laryngologists held in the University Club, New York City, Saturday, August 12th, at three p. m.

The members of the Committee present and addressing the meeting were Dr. Charles W. Richardson, of Washington, D. C., appointed by the American Otological Society; Dr. Burt R. Shurly, of Detroit, appointed by the American Laryngological Association, and Dr. Harris P. Mosher, of Boston, appointed by the American Laryngological, Rhinological and Otological Association; all three representing the Oto-laryngological Section of the American Medical Association.

Dr. Charles W. Richardson, as chairman of the Committees, presented the Committee's activities and a plea for recruits in the oto-laryngological section of the M. O. R. C., in which he was ably supported in speech by Major Shurly and Major Mosher. Dr. Richardson in giving a resume of the Committee's activities since its formation stated:

"The Committee was called into existence in March through its appointment by the Presidents of the various societies which it represents. A meeting was held in Washington, being supported in their deliberations by Major Noble, U. S. A. and Surgeon R. C. Holcombe, of the Navy. A scheme of action and suggestions was drawn up and presented to the General Medical Board of the Council of National Defense. At the annual meetings of the various societies which they represented, they made a report and were requested by these Societies to consult with the Surgeon-Generals of the Army and Navy to ascertain how far they would be willing to recognize the specialty of Oto-laryngology and employ the men now practicing these specialties in the Army. The Surgeons-Generals of the Army and Navy seemed to look with favor upon the project and suggested as aids to

the Committee in furthering the work before the Departments, Major Theodore Lyster, of the Army, and Surgeon G. E. Trible, of the Navy. Both of these officers being oto-laryngologists and necessarily in sympathy with the aims of the Committee, promised to be of great value in co-operation with it in the objects to be attained.

"On June 22d the General Medical Board of the Council of National Defense received a report of the Committee of the Societies, and the request for the creation of the Sub-Committee on Laryngology, Rhinology and Otology. On June 23d, the Executive Committee of the Geneal Board received the chairman of this committee and promised favorable action on the request; and was told to go ahead with plans suggested. Immediate work was inaugurated in listing the oto-laryngologists, preparing a questionnaire and formulating the method of classifying replies to the questionnaire. By July 6th the questionnaire's were multigraphed and prepared for distribution. On July 9th and 11th, 5,488 of these were addressed and in the mail. The replies have come quite promptly. Nearly twenty-five hundred replies have been received up to date and classified. Six different types of form letters to meet the replies were prepared, numerous individual letters have been answered and the business is absolute up to the minute.

"Major Lyster having returned to Washington, a more intimate relationship was obtained with the Department. Major Lyster's and Surgeon Trible's names were added to the Committee.

"A joint meeting was held with the Sub-Committee of Ophthalmology, and the privilege of meeting in joint session was granted by the General Medical Board of the Council of National Defense. At the joint meeting it was decided to request of the Surgeon-General's office the creation of a head surgical unit in the Medical Corps of the Army, and that these head surgical units be formed with the mobile force, in the field hospitals and that in the base hospitals groups, a hospital for the head surgical unit be granted. This so-called head surgical unit to consist of a brain surgeons and assistants, oral surgeons and assistants, ophthalmologic surgeons and assistants, and oto-laryngologic surgeons and assistants. These requests have been granted through the able assistance of Major Lyster. Such a procedure has been contemplated for the Cantonments, and your committee ex-

pects to assist in forming the personnel of these units. We have been requested to modify the plans of a hospital and receiving ward to meet the requirements of our specialty. Our committee has two reserve officers on duty in the office of Major Lyster in the War Department, Major H. P. Mosher, and Major Blair. The Sub-Committee on Ophthalmology has Major Black and Major Bagley.

"Your committee's members are given extreme courteous and unusual co-operation and aid by all the executive officers of the Army Medical Service. The Committee feels that its work so earnestly carried out should meet with the support and response of as many members for service as can give their services for this great patriotic duty."

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Editorial

THE SPECIALIST IN THE WAR.

AMONG the hundreds of innovations which the present World War has shown, we note that the army surgeon to whom all the old time war glory went, must in this 20th century war yield a modicum of his power and prestige to the various workers in specialized portions of the great medical and surgical field.

True, many departments of medicine have in former wars been actively and effectively present, but the present war finds them far more efficient owing to the scientific discoveries in recent years. Army and Camp sanitation, prophylactic measures, anti-typhoid and paratyphoid inoculations, etc., serve to increase the efficiency, and diminish the disability of the modern soldier inestimably and in the same proportion diminishes the "practice" of the army surgeon, or, rather, physician.

It is, however, in the results of actual combat that we find the greatest contrast in this and preceding wars of magnitude. The predominating resort to trench warfare, with the use of heavy projectiles and high explosives has, in comparison with the old method of open field fighting, produced conditions which have called many specialists into the fields. Prominent among these are the psychiatrists and the ophthalmologists and otologists. I think the more comprehensive, but less elegant, term "head specialist" is technically more correct as descriptive of the duties which call our eye, ear, nose and throat men to the front. Trench warfare, which exposes the head more than any other portion of the body to machine gun and shell and shrapnel fire, produces a greater percentage of injuries to the head than in any other war. Statistics of injuries in the American

Civil War show the total number of eye injuries to have been 1,190, which was one-half of one per cent. of all wounds. In the Franco-Prussian War, in 1870, the percentage of wounds of the eye was 80/100 of one per cent. The Japanese in their war with Russia in 1894 sustained two per cent. of all wounds to the eye, while in the present war conservative observers declare that fully eight per cent. of all wounds are to the ocular apparatus.

It is doubtful if any department of surgery can show an advancement in the results of treatment of military injuries equal to that of ophthalmology, inasmuch as in earlier wars injured eyes were promptly enucleated which are now saved, or, in the other extreme, eyes penetrated by infected material were allowed to destroy the other eye as well by sympathetic inflammation. One of the surprising reports from the army hospitals today is the infinitely small number of cases of sympathetic ophthalmia, due to early and thorough sterilization of infected wounds.

The military ophthalmologist is *furthermore* a valued consultant to the surgeon in intracranial injuries, by reading the fundus oculi with the ophthalmoscope. Diagnosis in cerebral localization has made material advances during the present war.

The otologist's work in the war is well outlined by quoting a synopsis of a paper by Fraser, of Edinburg, the *Edinburg Medical Journal of Ophthalmology and Otolaryngology,* April, 1917:

The External Ear.—Even severely injured auricles can be saved by promptly suturing the several portions. Injury to the meatus is often followed by stricture. Sometimes the facial nerve is cut. Direct injuries are almost always fatal unless they happen to be caused by spent bullets that lodge in the petrous bone. Purulent otitis and meningitis are apt to follow.

Middle Ear.—Rupture of the drum is due to explosions close to the ear. The tear is irregular in shape and gives the impression of there being a loss of tissue. There is frequently an accompanying concussion of the labyrinth. Purulent otitis usually follows. The prognosis is good. Direct wounds of the middle ear lead to extensive bone injury. Only rarely is the middle ear alone involved. Injuries to the mastoid alone are usually a good prognosis if all the foreign bodies are removed. Concussion of the labyrinth and facial paralysis

may follow. Septic thrombosis of the sigmoid sinus has been observed.

Labyrinth.—Injuries may be classified as (a), direct, due to bullets or fragments of shells. Usually they are immediately fatal. If not, death may follow as late as six weeks after from septic meningitis. (b) Indirect,—due to a blow on the head either with or without fracture of the skull. If the labyrinthine capsule is injured there is a discharge of cerebro-spinal fluid from the ear, if not, deafness may be due to hemorrhage into the labyrinth or rupture of the eighth nerve. (c) Noise deafness—continuous overstimulation results in degenerative changes in Corti's organ and later in the cochli ganglion and nerve. This is seen in naval gunners and artillerymen. (d) Explosion deafness,—the pathology is vague, several theories having exponents: (1) degenerative neuritis; (2) tearing off the membranous labyrinth; (3) hemorrhage into pons, medulla or cerebrum.

The effect depends upon the calibre of the shells, atmospheric conditions, the angle at which the noise strikes the ear and the distance from the exploding shell. The effects are more serious in an enclosed space, *e. g.*, a trench, than in the open field. If the drumhead remains intact the labyrinthine injury is apt to be more severe.

Psychic Deafness.—In many cases there are no demonstrable lesions and recovery, when it once begins, is too rapid and complete to be due to a peripheral lesion. Fraser believes it to be due "to the temporary abolition of sensory impulses in a brain already anæmic as a result of physical fatigue and mental strain."

Aviators sometimes experience deafness, vertigo and vomiting on rising rapidly to great heights, and in severe cases Meniere's symptom-complex is met with.

Psychiatrists are at the front now more than 500 strong, trying to restore reason to men crazed by their indescribable experiences of the horrors of the infernal regions on earth, the merciless slaughter of human beings in the trenches. We are told that strong men leap out and are carried back raving maniacs, and others whose mentality is preserved are nervous wrecks from the gruesome sights which they have witnessed.—*I. O. D.*

"PATRIOTIC RAMIFICATION."

AT this date, our soldiers boys are still mostly at home and in U. S. training camps, a few on foreign soil, but none as yet in actual conflict with the enemy; it is astounding to note the rapid and far reaching invasion of war preparation into every avenue of American life and every line of activity. Much of this is apparent, more is not readily revealed, and no doubt much more is completely hidden by strict censorship. As unconsciously as we approach and round a curve in a railway, we have turned the stile from peace into war. There is no more splendid spectacle than that of our brave boys marching to the overthrow of tyranny and the protection and perpetuation of our homes and firesides. High ideals of right impels them forward, making them forget their personal and financial sacrifices, yet this puncture alone would be imperfect. In art there must be highlights, shadows and a suitable background to round out the scene into one artistic whole; so we see our magnificent army and navy in the foreground supported and embellished by a stalwart background of a united nation, washed *almost* clean of petty jealousies and political strife by the great wave of patriotism which has swept from shore to shore.

In few fields do we note the war spirit so much as we do in literature; this is true not only in the daily press and the weekly and monthly periodicals which early were given up largely to questions military, but also in the recent books, few of which now command any considerable notice unless they touch upon the vital questions of the day.

Finally, let me say what this ramble has brought me to, and that is that the same apathy to all questions not directly bearing upon or concerning the war has reached and is manifest in medical and surgical literature, to the extent that it is difficult and impossible to get men to consent to contribute articles to medical journals, on other than war topics, and so few of our American colleagues have as yet had experience in the field that a dearth of medical writing is now apparent. The associate editor, this month, failed utterly to secure an original contribution, which may in a measure be accounted for by the fact that the vacation and fishing season has also been on.—*I. O. D.*

ANNOUNCEMENT.

SOUTHERN HOMŒOPATHIC MEDICAL ASSOCIATION ANNUAL MEETING POSTPONED TO NOVEMBER 14-15-16.

THE annual meeting of the Southern Homœopathic Medical Association, called for October 24-25-26, is postponed to November 14-15-16. A War Congress of the American College of Surgeons was recently called to meet at Chicago during the week of October 22d. Many of our surgeons desire to attend this meeting.

Information from every section of the country indicates that an exceptionally large number of members and others are planning to attend the annual meeting of the Southern Association. After careful consideration of the matter, and with the courteous consent of our prospective hosts at Washington to arrange for the change in date, the Executive Committee decided to postpone the meeting to November 14-15-16. This is done to avoid any complication in the meeting time of these two important sessions.

The Executive Committee is making a thorough canvass to bring this meeting to the attention of all, and particularly of members from the South, as matters of unusual importance to the Society and the region which it represents will be considered.

In view of the crowded condition of Washington hotels, the Executive Committee enjoins all who expect to attend to secure reservations now at Headquarters, the Shoreham Hotel, or elsewhere.

"The program of the annual meeting of the Southern Homœopathic Medical Association to be held at Washington, November 14-15-16, includes some interesting addresses by well known authorities. Miss Lathrop, Chief of the Children's Bureau, Department of Labor, will speak upon the subject, 'Welfare and Income.' Dr. Leake, of the Public Health Service, will read a paper on 'Poliomyelitis.' This subject has vitally interested our profession in recent years, as also the people of our country. With the opportunities afforded by connection with the Public Health Service, and because of his own thorough study of the subject, Dr. Leake is in a position to review the matter in an interesting, instructive manner. Lieutenant Colonel McCulloch,

of the Surgeon General's Office, will address the Association on a subject pertinent to the times and with close bearing upon the work of the medical profession. Other specially attractive features are included in the program. The Washington Local Committee is arranging clinics, limited in number because of the short time allowable, but they are concentrating their effort to present the most interesting cases available in medicine and surgery. The full program will be published in due time."

H. W. Stevenson,
A. E. Hinsdale,
Mary E. Hopkins,
F. A. Swartwout,
Executive Committee.

Effects of High Explosives on the Ear.—J. Gordon Wilson (*Brit. Med. Jour.*, March, 1917) states that as the result of the concussion due to high explosives, there is frequently a trauma demonstrable in the ear. This may be accompanied by neurosis (traumatic neurosis), especially vertigo, and headache. The perception sound is diminished over the whole normal range, and may be totally abolished. There is a diminution all along scale both for bone and air conduction. As the deafness diminishes there may persist for a long time an inability to grasp intelligently what is said or to retain the memory of it. Thus a word may have to be repeated two or three times before the patient gets it, or, if he be asked to repeat two or three numbers given consecutively, he will repeat the last one; he knows that there were others but did not get them.—*The Hahnemann Monthly*, Sept., 1917.

THE EVOLUTION OF VISION.*

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AS this paper is quite different from the sort of papers usually presented before this society it will not be amiss to try to justify myself in giving such a paper. When all is said and done we are forced to concede that the fundamentals of all optics are dependent on the eye. We all use our eyes in our everyday duties, as well as in our pursuits outside of our business, and the very nature of the mechanism and function of the eye keeps us from being conscious of the fact. As long as our eyes are serving us in a normal way, their action is either purely reflex or below the levels of consciousness, and it is only when something goes wrong that we become outwardly aware of the fact that we even possess eyes. All eyes are not in themselves capable of performing their normal duties, due to defects in their physical construction, but these difficulties, in most cases, are corrected by glasses and a person wearing glasses soon falls into the daily routine with little or no direct attention to his eyes. There are also defects in the eyes which may be classified as physiological and psychological, some of which yield to direct treatment and some which are beyond restoration. These defects offer material for a paper within themselves and have been treated in part in a previous paper before this society.

The question before us might have suggested itself to some of us before, namely: Did the eye in its highly developed and specialized state, as we possess it, spring suddenly into existence or was it a growth requiring even millions of years? We look about us and see that our domestic animals possess eyes; the birds and fish also have eyes and if we trouble ourselves a little we could find a trace of vision in practically all the forms of life which we could find. We would

*Paper read before the Rochester section of the Optical Society of America, Feb. 20, 1917.

also find that as the animals became simpler in type, or, perhaps, we had better say, further removed from man, that the structure of the eye became less complex and by observing the behavior we could easily infer that function, too, was simplified. It is into this field that we wish to go in this paper. I have tried to select animals with whom we are all more or less familiar and at times I have touched only the high places in order to keep from becoming too involved in theories which only a specialist in the Biological Sciences could safely tackle.

The eye primarily is the organ of vision and as an organ it comes within the scope of organic evolution; so first let us see, at least, the generalizations of that very much unsettled theory. In order to completely carry out such an investigation we would be forced to go even beyond the organic into the inorganic; for, probably, at some time there was no organic matter. Evidences of this still exist to bear out such an assumption and there are, at the border between organic and inorganic matter, numerous substances which defy exact classification. So, too, we find regions where it is impossible to distinguish plant from animal and a complete investigation would call for a chapter at least on this phase. But for our subject we can merely mention that plants are affected differently by light and darkness, they bend toward light, develop differently if subjected to different qualities of light such as blue or red, but in no case can we safely assume even elementary vision so we pass on to the strictly animal scale.

Evolution teaches us that all animal life has grown from a common ancestry. Putting aside the inorganic and plant series, originally all animal life was in the one-celled stage. An idea of this one-celled stage may be obtained by a microscopic study of the protozoa of to-day. The amoeba and paramecium are good examples of these animals and are so small that many of them could live in a drop of water. Do not understand that the ancestry of man was an amoeba or that an amoeba could ever evolve into a man, but merely that an amoeba is a one-celled animal. The popular conception that man's ancestry was the monkeys and apes is also probably exaggerated, although it is highly probable that man came through a stage quite analogous to the form now called the ape. The remains which are *known* to be human extend back only a few thousand years and those

thought to be human are extended only a few more thousand. This period of time is only a drop in the bucket as compared to the estimated age of the earth and animal life. Man is the intellectual superior of the animal kingdom and while not strictly the structural superior is usually placed at the top of the list, and there has been an evolution by which man has reached his position. In the animal series, as we find it today, there are animals which represent most every stage between the simple one-celled stage and the complex millions of cells as found in man. As in the case of amoeba and monkey, man was probably at some time in his history at these various stages, although it has probably taken as long to bring the monkeys to their position as it has to bring man to his.

Just how this evolution proceeded is a question answered only by theory. In the chapters of Genesis we read of a special creation and understand from a direct translation that man came forth in his present form. Few of us take this view literally, as most of us will concede a figurative meaning. Then what shall we accept? Darwin and his school teach us a chance variation with natural selection. The variations are not purposive, but, through the struggle for existence and survival of the fittest, natural selection works as a sort of natural teleology. Take a concrete example with respect to vision, where we have a large number of animals with a limited food supply. This case of individuals tending to multiply more rapidly than the food supply seems to be an accepted fact so that some individuals are going to lose out on the eats. Now if these animals had no vision and through some channel one or more of them developed an organ by which he could see the food his chances for survival would certainly be increased. Or if the whole group had vision and the variation was better sight the increased chances hold just the same. The mere fact that this lucky individual had survived would enable him to give rise to offspring which would be apt to have the same advantage and soon a race with better vision would result. Those with poor vision or no vision would die off, leave no offspring and subsequently disappear, or they might survive by being forced to other food sources and then develop along other lines. Those with the improved vision would then continue to develop still better vision and so on through the range.

Rather opposed to these small chance variations gradually bringing about changes through natural selection we find another school started by Hugo de Vries teaching sudden mutations which persist. That is, from a species having no eyes suddenly might come an individual with an eye, he in turn has offspring with eyes and an apparently new species is started. Later from this new species an improved eye might come suddenly and so on through the race history. Lamarck would have had us believe that an individual with an eye constantly using it would improve the eye during his life and that this acquired character could be transmitted to the following generation, who, in turn, would continue the use, improvement and transmission so that the eye was constantly being improved. When organs no longer were useful they would disappear through disuse and the evolution of animals would be accounted for.

Lamarck is rather generally discredited, but Darwin and de Vries have numerous followers. Other writers give a place to the relative values of heredity, environment, use and disuse, but say that while they have all played a part in varying degrees of importance that they were as varied as life itself and that the creative power of internal environment has always been present, always active and always changing. This view we see would make the mechanism of evolution wholly dependent on the inner individual environment. There are so many factors to be considered in connection with any treatment of the evolution of species that to me it seems that there is no master key to the situation. It does not seem possible that the movement has always been continuous, ever advancing or that it has been either necessarily slow or fast, but rather that the rate has been variable. It has probably been now slow, now fast, now advancing, now retreating, now diverging; at times by numerous minute steps and again by leaps and bounds because the ever shifting conditions and relations between part to part, part to whole, between the individual and environment and even society as a whole are so unequal in value and so unlike in their very nature. These unequal conditions have served to create crises in organic evolution and thereby create actual gaps in the so-called animal scale. That is probably why we have the divergent evolution in all organs of which the eye is no exception. So the theory I would

construct, if called upon to do so, would be made up of planks taken from most of the theories we have discussed.

That the eye is a product of evolution we have various reasons to believe. We are told by many biologists that ontogeny recapitulates phylogeny; that is, that the individual in his development goes through stages analogous to those followed by the race. We know that in the pre-natal, embryonic growth the individual starts from a one cell stage, divides by mitosis as the simple animals do, and that in the various stages of development we find the organs and general structure following the same trend found in the animal scale. A baby's lungs do not function until birth, and he is really amphibious before birth. From the standpoint of vision we find the primitive eye in the early embryo, and at one stage or another we find the eye in its evolutionary growth. Histologically, these embryonic stages are quite similar to the different animal eyes throughout the animal scale. Further evolutionary evidence is to be had through making a careful study of the eyes along the scale and we see how the simplest kind of an eye in the lowest form changes gradually to the complex eye of the highest animals. In numerous animals we see the type of eye changing from the simple eye in early stage to a more complex eye in later life.

Our next source of evidence is from paleontology. In the successive geological periods there were animals representing stages in evolution, so by examining the layers of rock deposited during these periods we are able to find an ascending series of animal remains. The eyes of these various animals point quite definitely to evolutionary trends.

One other source of evidence is that the eyes of similar species are similar in structure while the eyes of species further removed are often quite dissimilar. If the species had been created separately we would expect more of an homology in structure.

The complexity of the eye in its higher development is due to the complexity of the media with which it deals. It is not necessary to deal with the physics of light, but will merely remind you of the fact that light travels rapidly and from great distances. Light is a persistent stimulus and conveys numerous impressions. We are constantly seeing when awake. The survival value of vision can hardly be over-emphasized, and the value of being able to react to a stimulus

before we actually meet it is quite evident. Animals without vision have to bump into food before they react, and, on the other hand, fall easy prey to their enemies; while animals with vision can see and pursue food or escape from enemies.

Vision being so important, made its appearance quite early in the animal scale, but all animals do not have eyes and all animal eyes are not equally efficient. When we start with an animal to study its vision we first look for an organ that resembles an eye. If we find a structure similar to our eye we conclude he is effected by visual stimuli. If he has no such organ or if we are in doubt we must determine from his behavior whether he has a sense of vision. We then place the animal under laboratory conditions and study his behavior in the presence and absence of light. If he acts the same in the light or in darkness we conclude that he is not effected by a visual stimulus. If he alters his behavior in the light and we conclude that he has a sense of vision we are then ready to investigate more in detail. If he alters his behavior in the presence of the stimulus but behaves the same way under all degrees or sorts of stimulation we conclude that he has not the powers of discrimination or power to distinguish between degrees of quality. That is, an animal may have an eye and be quite sensitive to light but not be able to distinguish between different intensities of light or between colored lights. Another method is the combination of the above. If an animal has an organ resembling an eye and we get results from our experiments we are not necessarily sure that the results were through stimulation of the particular organ. The method used by some experimenters is to remove the organ by an operation and repeat the experiments. If the animal no longer reacts to the light it was an eye, but if he continues his reaction it was not an eye. Another method is to use a small beam of light and stimulate the particular spot in question and study the behavior as opposed to stimulating other regions of the body.

The further up the animal scale we go the more difficult it is to interpret our results from the study of animal behavior. The expression may be delayed and often numerous stimuli may lead to the same reaction. It is hard to get the animals interested in the experiments and rewards and punishment must be used. Long practice

series must be run, the animals watched closely and items of chance eliminated. The experimenter can never be assured that the animal is not using other criteria for his reactions. An example of this was accidentally discovered in a series of experiments run to determine if a dog could distinguish colors. The dog faced a screen before which colored disks would appear. The experimenter, concealed from the dog, operated the colors by means of levers. The dog was taught that when a red appeared he would be fed, but if he went for food when shown a blue he would be punished. After a series of practice trials the dog would go to the food when shown a red and would run away when shown a blue. Here was color vision in the dog, and the results were almost ready to publish, to contradict literature which denied color vision to dogs. Due to some accident the colored disks became interchanged so that the lever which formerly displayed the red disk now showed the blue, and the dog completely reversed his reactions. Further experiments showed that the dog was ignoring colors and reacting to pitch differences in the mechanism of the levers —a point which had entirely escaped the experimenters.

In studying animals we have three possible methods of research available—anecdote, observation and experiment. In anecdote we could collect all the stories about our phase of the subject, but against this method we can easily see a host of objections; the desire to tell a good story, possible prejudice in favor of the animals, the fact that successes not failures and that only exceptional cases are reported. In observation we can study the animal in his everyday life and learn from his natural habits. Within certain limits this method is valuable, but we are not apt to observe enough different activities to really learn the possibilities of the animal, so we must add our other method—experiment. In this case we get the animal where we can control all stimuli, create various environments and study him from numerous points of view. To the difficulties previously mentioned must be added the fact that the animal may not act naturally in these artificial surroundings.

We have three conditions which determine whether a sense will evolve. (1) It is necessary that a certain definite physical stimulus be present in the environment. There would be no vision unless some light was present, and we do find species in dark places that have no

eyes. (2) There must be some adaptation of the organism to the light. This adaptation might be pure chance, or it might be a sudden mutation, but it must be effected by the physical stimulation. The first trace of an eye is a mere spot which responds more readily to light than other parts of the body. (3) The physical phenomena must be of some value in the life of the creature. Light is valuable to practically all creatures so that is probably why the sense of vision appears so early. These same conditions continue to promote the further evolution of the sense, and in the case of vision the complexity of the stimulus has led to the complex eye. If all light was uniform there would be no use for color discrimination, and we find color vision developing when the creature's demand for it becomes strong enough.

In treating the growth of the visual sense we will have to start back at the most primitive sensation as there is and was a point in the evolutionary system where vision does not exist. The most primitive form of sensation is feeling, see Fig. 1, and we are forced to leave

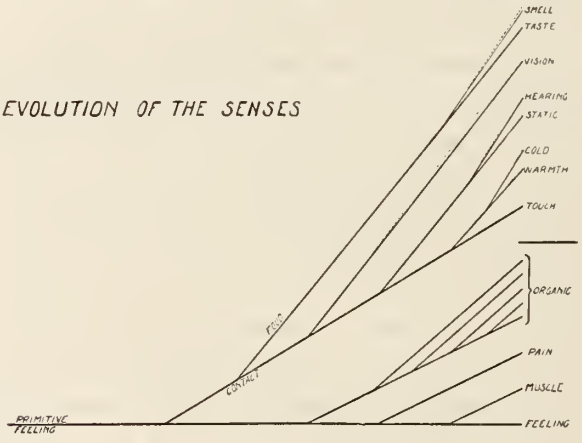

Fig. 1

this very indefinite. The simplest sensation may probably be a mere awareness of existence and exists in some form of pleasure-pain reaction system. The behavior of the animal is our only means of studying this type of sensation. This reaction accompanying the pleasant is usually a cessation of activity which tends to keep the individual in the vicinity while the unpleasant is manifested by a withdrawal reaction. This distinction is the beginning of differentiation of

sensation, and is found in the simplest type of animal, although still in a vague form, and it is only through analogy that we can supply it. From this primitive feeling we find three elementary senses growing, *i. e.*, contact, food and internal senses. Some stimuli have a chemical effect and some have a mechanical effect, and these probably give rise to the differentiation from feeling in the form of food and contact. The first evidence seems to be contact rather than food, although we would think that food came first. The paramecium, for example, gives evidence of having only one special reaction, and that is contact sense. The amœba seems to have a positive and negative contact reaction and a food reaction.

There is probably some vague internal feeling in these lower forms which gives rise to internal sense as we find the organism expelling non-nutritious matter. An interesting fact here is that some animals have the same sort of reaction to light as to contact, and we can easily argue that all external senses, at least, are in their last analysis contact senses. Light waves must impinge upon the retina; sound waves on the tympanum; gaseous emanations on the organs of sense, and dissolved food particles on the taste bulbs in order to have any of these senses function.

The food sense continues developing and at some place in the line it splits into taste and smell, the latter continuing to further differentiate as we have almost countless smell qualities. Taste, on the other hand, gives us only four qualities, as the things we ordinarily call taste are in reality a combination of taste and smell and properly designated as flavor. The taste of an apple and an onion is exactly the same while the flavor is quite distinct.

Soon after the food sense has broken off from contact we find vision making its appearance and furnishing interesting material for study. The static sense is next to develop, and evidence seems to point to the fact that hearing is a later development from the static sense. Comparatively recently the temperature sense has been found to be distinct from the sense of touch, and it breaks up into warmth and cold. The end of the contact line is reached in the sense of touch which shows quite a little differentiation from more primitive contact, although it is quite in line with its predecessor.

The heavy horizontal line in the diagram marks the division be-

tween internal and external senses. In this discussion the internal senses may be conveniently omitted, as they are quite vague and very little experimental evidence has been obtained on any of them. The dotted lines in the diagram indicate that those senses are so-called distance senses, and that actual contact is not necessary in order for the receptor to be stimulated.

As we have previously seen, vision appears very early in the scale, and it should as it is very important. Silence is not as bothersome as darkness, and, in fact, the absence of stimulation of no other sense is noticed as much as in vision. In the lowest animals there seems to be no distinction between contact and light, but by the time we reach amœba we find some distinction. The amœba although we find no trace of visual differentiation reach negatively to white or blue light, no reaction to red, and in general seems to seek darkness. The first trace of an eye is found in the pigment spot in euglena, and if that spot is stimulated by light he reacts. This is the beginning of a distance receptor. Some pigment spots change color when stimulated by light just as some pigments do. Volvox is a colony of single celled animals bound together by threads, each having a pigment spot turned toward the outside of the ring. Here we find the beginning of differentiation as those animals on the outside of the ring act as eyes for the colony. The group has a positive reaction to moderate light intensities, negative to strong light and none to weak intensities.

In the lowest metazoa, animals with many cells, we find pigment spots in some of the cœlenterates and they react to light. The jelly fishes show a different reaction when these spots are removed. Planarians (flat worms) and the common earthworms have an area in their head region which is really a collection of pigment spots more highly differentiated. Their vision is really more of a skin sense as they have no lens nor focusing ability and they have merely a sense of light or luminosity with no sense of size, shape nor distance. The mollusca, which includes squids, oysters, clams, cuttlefish and the like, display a great variety of eyes ranging from mere pigment spots in clams to a focusing eye with an iris and lens in the squid. The eye of the squid has the possibility of perception of form, distance and even colors.

The echinoderms, of which the starfish is the most common, al-

though higher in the animal scale, seem to represent a retrogression as to vision as they display only the crudest forms of eyes. The orthopods, which are represented by bees, wasps, spiders, crayfish and lobsters present a queer combination of eyes. Take for example the grasshopper, we find a pair of compound eyes which are somewhat similar to the faces of a diamond. Light rays may enter each surface, and if the successive surfaces be stimulated in succession the animal gets an idea of motion and direction. In addition to the compound eyes we also find three ocelli or simple eyes which have a lens, cornea and retina. Some members of the level may have several pairs of compound eyes as well as a generous supply of ocelli. This group of animals represents the highest level of invertebrates, and show a higher development in vision than some of the lower vertebrates. There is a great difference between the vertebrate and invertebrate eye, the principal difference being that in the invertebrate eye the optic fibers branch on the outside of the eye while the vertebrate fibers branch inside causing the blind spot. Most invertebrate lenses are not capable of accommodation, and it is generally believed that the invertebrates do not have color vision. The vertebrate eye also has the optic chiasm where fibres from the right side of each eye branch to go to the same brain hemisphere and similarly for the left.

Just at the border between the vertebrates and invertebrates we find the amphioxus, which has an inferior visual development and reacts negatively to light. The fishes have well developed eyes and can probably distinguish colors. Some rather recent experiments showed that chugs could be trained to come after food when a red stimulus was displayed and not for green. Frogs appear to distinguish between white and red, though this distinction may be based on brightness differences. As far as I can learn there is no data available on reptiles. Birds have some color distinction, and in many mammals we are confronted with a flood of experimental evidence, much of which is contradictory. Just such results as were found with the dog and colors are probably the basis of contradictions. From some of the data we learn that the raccoon can distinguish colors from grays, but not from one another; mice have a three color discrimination, yellow, violet and green, dogs are apparently color blind, and the monkey has a well developed color sense. The most

highly developed color distinction occurs in man though from one to four per cent. of men are at least partially color blind. An interesting item just here is that women are rarely color blind, although they transmit color blindness from their father to their son.

In this hurried review of the evolution of vision you have probably noted three stages. The first is the mere distinguishing of light from darkness, and is usually performed by tissue differentiated so as to be sensitive to light rays. The second division is a focused eye by means of which form and distance are distinguished, and the third stage is the development of color distinction and probably requires special apparatus.

Before leaving this evolution of sensation I must yield to the temptation of discussing a point which has long been in my mind. I am rather positive that I have a consciousness, and I feel safe in concluding that you all have the same thing. When investigating the higher animals I can assume through analogy that they have consciousness, but as I descend the animal scale the success of my inferences decreases. If they have no consciousness as I know it, have they a form of mind, let us say, about which I know nothing? Furthermore, is it not possible that they have senses about which our methods of analogy tell us nothing. There is quite a little evidence pointing toward a magnetic sense, an electric sense and a sense of direction as found in migrating animals, bees and homing pigeons. If such senses and others about which we know nothing do exist the animals possessing them may have criteria of judgment entirely different from ours so that we are far astray in our experimental procedure and conclusions.

In the animal series vision is undoubtedly the most important sense, and in man, as the highest animal, we find vision dominating to its highest degree. Vision enters into practically every activity, and the other senses are almost always reinforced by vision. The static sense gives us an idea of bodily position, but with the eyes closed we are easily deceived. We hear a sound and invariably we turn to see. A perception through touch is usually not complete unless we also see. It is true that blind people build up accurate perceptions, but it is only through an education in these lines.

In man hearing probably ranks second, but in the entire animal

scale smell is next to vision. There are no shadows in smell and darkness does not obliterate it. An animal often smells, especially when to the windward, long before he can see and many species depend more on smell than vision. Another important feature of smell is its close connection to food. Hearing is next in order, and although one of the last senses to appear it often transcends vision. In communication we can easily see its value as contrasted to vision. The senses which we find in the front rank are all three distance senses and have specialized localized end organs. The remaining senses are not localized and of them touch is probably the most important, with the muscle sense ranking next. The organic senses are vague and very little data is available although they are quite important in the life processes. The pain sense, if it is a separate sense, is widespread but probably has no specialized end organs.

The general value of sensation is great as it is through the senses that the environment acts on the individual and enables him to react on the environment. All stimuli have originated from without and are conveyed inwardly through some sense. A creature with no sensations is no longer an animate being, and although the functions lost when disease or accident removes one of our senses are partially supplied by other senses, we are never complete reacting mechanisms unless our senses remain intact.

Pains in the Head From the Standpoint of the Oral Surgeon.—Pain and headache, according to J. L. Courier (*New York Med. Jour.*, May 6, 1916) are not the same condition. Most pains in his opinion, may be traced to the mouth and the ear. The fifth nerve because of its wide distribution is the usual seat of trouble. It is said this nerve represents the sensory roots of all motor cranial nerves, from the third to the twelfth, inclusive. "An irritation in any branch of the sensory distribution of the fifth nerve may be the exciting cause of reflex pain in any other branch of the same nerve."—*Prac. Med. Series*, 1917.

SENILE CHANGES IN AN EYEBALL.*

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THE incentive to this paper has been an apparent deficiency in most text-books upon this subject. True it is, mention is made of important changes of senility upon certain parts of the eye, but nowhere is the subject of senile changes treated in toto. Hence, my apology for collaborating the more important "Senile Changes in an Eyeball."

With advancing age the cornea becomes flatter, thinner, its watery contents diminished, and it has a special tendency to collapse or become folded when incised. All of us have seen this later condition in our operative work. Again, the corneal reflex to light becomes less prominent. Histologically, the corneal cells are flatter and stain very poorly.

Arcus senilis is not necessarily a senile change in the cornea. There are several cases reported with microscopic findings of arcus senilis of congenital origin. However, since the beginning of the nineteenth century, many attempts have been made to find out the possible cause of senile arc. We may divide voluminous literature of this subject into two categories:

(1) Senile arc is due to a predisposed condition of the corneal lamellæ or changes in their structure, or (2) it is due to the presence of substances which do not exist in the normal cornea. Some of the older views may be mentioned as they are interesting and entertaining. Chelius, in 1816, claimed that with senility, lessened vascularity of the anterior part of the eyeball occurred with a diminished volume of aqueous humor; as a result the cornea became flatter and opacities occurred. Von Ammon was the first to notice actual presence of foreign substances in the neighborhood of senile arc.

In 1850-'60 Von Canton published an article about senile arc in which he proved that in the neighborhood of senile arc he found many

*Read at Meeting of Amer. O., O. and L. Soc., Rochester, N. Y., June 19, 1917.

drops which responded to fat reactions. The profession soon adopted this view without hesitancy. Even Virchow, Classer confirmed the nature of these droplets.

Fuchs in his well known article on Pinguecula came forward with a new theory. Senile arc was not a fatty degeneration, but a hyaline degeneration, or to be more explicit, these concrements lie directly beneath the Bowman's membrane, and have no relation with the corneal stroma cells. This view was for the time being accepted by the profession as absolute.

However, ten years later Takayosu made a study of senile arc staining with sudan 3. The microscopic sections showed typical orange red reaction. The result is that whether senile arc is a fatty or hyaline degeneration is not settled. In the best text-books, Rohmer-Elschnig, we find that senile arc is due to deposits of chalk with hyaline and fatty degeneration.

CLINICAL SIGNIFICANCE.

It is surprising when we consider the amount of degeneration which is present in a senile arc, that it does not become a factor to consider from an operative standpoint. Remember that Gustavo Athas claims that after the age of forty years there is microscopic evidence of senile arc, even if it is clinically not present.

In 1709 Ettmuller and, later, Mackenzie, spoke of delayed wound healing after cataract operations in cornea containing senile arc. From the literature on this subject one is impressed with the fact that most operators do not consider the presence or absence of senile arc, they simply avoid direct incision into the senile arc.

However, in optical iridectomy, senile arc becomes of greater importance. Other senile changes in the cornea of less frequency are Drusen of the Descemet's membrane, a condition first reported by Hassall and Henle, and a rare condition—Drusen of Bowman's membrane described by Elschnig. Other senile changes in the anterior part of the eye are shallowness of the anterior chamber and greyish or yellowish color to pupils.

The pupillary phenomena from birth to senilium invite us to a closer study. According to the researches of Pfister, the size of the pupil increases from birth to about the seventh year. That refraction has an influence upon the size of the pupils is disputed by none.

Nevertheless there is abundant literature covering a number of years where this present established fact was controverted. We will study a little more closely the influence of pupils in regard to refraction, and we look to Tange for our necessary information. Tange found that in myopia of 1 — 6 D in persons under twenty, the myopic pupil becomes smaller, and approaches the size of the emmetropic pupils. In higher degrees of myopia Tange found the size of pupils different. In advanced years the size of the myopic pupil equals that of the emmetropic. With diminished luminosity Tange found that the myopic pupil rapidly dilates. This phenomenon is present up to the age of fifty.

Aubert, Woinow, Schmeichler and Schallow claim that the amount of pigment in the iris plays an important role upon the size of the pupils.

What is the direct influence of age upon the size of the pupils? According to Tange, irrespective of refraction, the pupils have greatest diameters between the age of 5 to 25 years, from which time the size of pupils diminish until past fifty, when they assume a constant diameter.

Histochemically, the senile changes in the inner ocular membranes are less prominent than in the cornea or sclera, nevertheless these changes are important as they affect the physiological processes of a senile eye. The ciliary body presents most of these changes. Special studies on the anatomy of the senile iris have not yet appeared. All of us know that a distinction between a normal and pathological iris in an old person is not so well defined as in a younger individual. Nevertheless it is the senile changes in the iris structure itself which are responsible for irregularities in the shape of the iris, and the less active reaction of the pupils to light. About thirteen years ago while Meller was preparing patients for Professor Fuchs to operate for cataract (simple extraction without iridectomy) he noticed a certain number of the pupils would not dilate to atropine. Clinically, he noticed these pupils were surrounded by a partial greyish ring. Finally opportunity came to him to study such an eye microscopically, and he found hyaline degeneration at the sphincter pupillæ. His deductions are that this change is no common occurrence in a senile eye, but it is a change which we see only in older individuals, never in the

young. He considers this greyish ring clinically a contra indication for cataract operations without iridectomy.

The senile changes of the ciliary body have been much studied even half a century ago. In the text-book of Stellway von Carion, 1865, in a chapter on Senile Arc, we find the remark that he found infiltration of the ciliary body with fat drops in the muscle itself and processus ciliaris together with an atheromatoris condition of vessel walls.

It was at the 13th Versammlung der Ophthalmologischer Gesellschraft at Heidelberg that the relationship of the ciliary body to refraction was propounded by Kuhnt and Kerschbaumer. A microscopic knowledge of the various types of the ciliary body is important.

We all know the three types of ciliary body depend on the refraction state of an eyeball: emmetropic, myopic, hyperopic. Nevertheless I want to throw out an interesting fact which is generally not known. O. Lange (Monatsblätter fur Augenheilkunde, 1901) found that in a study of the size and shape of the ciliary body of various newborn infants that a great difference exists, especially concerning the shape and development of the inner circular fibres to the outer longitudinal fibres. Lange believes these differences have an important bearing upon the further development and configuration of the eyeball.

The senile changes of the ciliary body are as follows: The muscle fibres are thinner, absence of nuclei, the interfibrillary substance is thicker, only exceptionally has it the appearance of homogenous hyaline.

With Sudan 3 the ciliary muscle is infiltrated with small fat drops. Vollario, in a writing on the physiology and pathology of the senile eye, claims that these fat changes are an important role in the production of presbyopia. However, I have been taught by Dr. Charles Le Fevre that presbyopia develops at an age when the ciliary muscles are at the acme of power and development.

We have important physiological changes in the ligamentum pectinatum. "This meshwork of the iris angle, a cellular structure at birth, undergoes a progressive and physiological fibroses with early subsequent sclerosis, until it finally becomes a fibrous structure. The individual strands of the meshwork are more than twice as large

at advanced age as at birth, consequently the alveoli of the meshwork becomes markedly reduced in size." (Symposium on Glaucoma, edited by Nance and Peck, 1913, page 31.)

No part of the ocular tissue must undergo so many successive physiological changes as the crystalline lens. At birth it is markedly behind in its development. The smallness of the lens in a newborn is not noticeable in all directions. Its sagital diameter approaches that of the adult, the equatorial diameter is decidedly smaller. Up to the age of 25 new equatorial fibres grow and extend from the anterior to the posterior surface of the lens, hence the lens loses its spherical shape. From the age of 20, the consistency of the lens gradually changes so that by the time 30 is reached we have quite a hard nucleus. The gradual increase of the muscles becomes responsible for the advent of presbyopia. Finally, the senile lens fibres are firmer and are decidedly more resistant to chemical substances. The property of the lens when injured to "swell up" when it comes in contact with the aqueous is not present. Resorption even of the cortical part of a senile lens is hardly possible.

The lens of a younger individual is absolutely transparent, but it is not colorless. Even the lens of a newborn child has a yellow tint, which becomes a yellow brown color with advancing years. We are all acquainted with the results of Priestly Smith's studies concerning the growth of the normal lens. Between the ages of 25 and 65 the lens increases its volume one-third.

Many of you are anticipating me taking up the senile cataract as the next topic of this paper. However, I do not believe that cataract is a true senile change. I believe firmly in a quotation which is in one of our modern systems of ophthalmology. "Cataract is a disease not a phase of senile evolution."

Drusen of the choroid are considered a purely senile change. However, we find them quite frequently, microscopically, in atrophic eyeballs.

Pthysis Bulbi—While they are considered harmless, let us not forget the fact from their location they may cause pressure upon the rods and cones. Clinically, it is essential for us to know their characteristic appearance and preference of location for their differentiation from retinitis albessens or even albuminuric retinitis is a difficult

one. Drusen of the optic disc is an ophthalmoscopic treat. Lauber believes a low grade optic neuritis may result from the pressure of these drusen bodies in the disc.

All of us in our refractive work are acquainted with the unsatisfactory results we obtain in a certain percentage of senile patients, when to our delight we increase the visual acuity from perhaps 20/40 to 20/20, but as far as the patient is concerned we receive no reward of thanks, even if we explain and show the patient that he thoretically sees better in the testing chart. I can explain this only by some form of senile changes in the refractive media.

Finally, given a patient who presents a history of myopia, let his optic discs have a few myopic changes, such as small crescent—a slight pallor of the temporal side—and a broad shallow disc, and then add a few senile changes to the media of the eyeball, plus an increase in the pallor of the temporal side of disc—we have a problem to differentiate a senile disc from a glaucomatous disc.

1825 Chestnut St.

DISCUSSION.

F. O. Nagle: We are indebted to Heinrich Mueller for a new concept of the choroid and much new knowledge about it. The inner elastic membrane is fully developed at birth; drusen are tip-like projections on its inner surface; they are either pure muscular fibres or pure papillary structures. They are arranged in clusters and cannot be said to be normal or perfectly harmless as they come into direct contact with the rods and cones, are of a yellowish tint and may give rise to central scotoma. Drusen are considered to be a purely senile change. In shrunken eyes we are apt to find drusen, microscopically. Lambert believes that a genuine optic neuritis may result from pressure such as would be likely to be present in these eyes.

So far as the senile changes in the optic nerve go they are various; given a person of 50 or 60 with obvious senile changes in the physical frame or even a person younger in years with these physical changes, and naturally we may expect to find senile changes in the optic nerve. Here they most usually consist of a greater depth of the excavation.

J. A. Campbell: I would like to ask whether anyone has observed the swelling of the lens in progressive cataracts giving in-

creased power to the organ requiring glass changing, say, from a plus 1 or 2 down to a minus 1 or 2?

G. W. Mackenzie: It is hardly fair to Dr. Nagle to allow such an excellent paper to go without more discussion. In regard to the pupillary changes in old age, I wish to mention that the pupillary margin is frequently sclerosed. Elschnig spoke of a case in his lecture where the changes were so marked that the forced use of atropine actually caused a rupture of the iris tissue at the pupillary margin. On that account it is of clinical importance where we find a comparatively non-reactive pupil in an otherwise negative eye to remember the possibility of this. Drusen occur in a certain class of cases which cannot be classed as senile, for the age of the patient may be thirty years or younger.

I would like to call attention to a fundus picture not unfrequently found in old people with health below par, and on examination we find changes resembling the vision that is rather typical, yet I cannot recall that it has any particular name. The changes on the disc resemble somewhat those found late in pigmentary degeneration of the retina minus the pigment deposits in the retina. The retina appears rather pale, the vessels are narrowed both at the disc and throughout the retina, while the choroidal vessels are seen more distinctly through the retina than normal. I believe the condition is due to senile changes in the choroidal vessels, especially the chorio-capillaris which nourish the deeper layers of the retina, which in turn tend to atrophy.

G. A. Shepard: We need more light upon the subject of cataract. I feel that cataract is more of a disease than a degeneration. I have recently operated on two cases of progressive cataract occurring in early life, so it looks much more like a disease than a degeneration. These were progressive cataracts, the pupils were stationary. It seems to me a possibility that certain portions of a cataract may be due to disease and certain other portions may be simply degenerations.

F. O. Nagle: Not infrequently a patient comes to us with eyes normal so far as we can see, say, 20/40ths vision so that a small refraction correction will bring them up to normal, and yet they come back complaining that they do not see well, that the glasses are not satisfactory, and so on. The increased vision afforded by the glasses

is frustrated by the asthenopic condition which is present. Priestly Smith in his monograph upon the size and curve of the lens in relation to glaucoma found, after examining one hundred and sixty lenses, that in those eyes which were inclined to become cataractous that the lenses were small and backward in their growth. The increased volume of the lens in glaucoma is a secondary change. Many things have been alleged to be the cause of cataracts, but often the causes are present in many, while the cataracts are present in only a few. It does not hold good for if it did there would be more cataracts than there are. It is true as Dr. Shepard says that we do not know enough about cataracts. We do not know what they are due to. It is not dehydration as some have claimed, for more water has been found in them than normal. The glands of Treatcher-Collins nourish the lens at the equator, and it has been thought that microscopic changes in those might be responsible. The fact that cataracts often begin in the lower part has been used as an argument that the ultra violet rays might be a cause as the lower part is more exposed to them than the upper part. Chemical changes are advanced as a cause; cataract contain more mineral matter and more salicylates (?) than normal, and there is a change in the proportion of chlorides. The lens is an epithelial body like the hair and nails, but unlike them it has no chance of exfoliation. The thyroid gland has much control over the structures of the eye, and atrophy of the gland is quite common in cataractous patients, which is suggestive, but it is not a settled question. We do know that total removal of the thyroid, along with the serious general symptoms produces a typical tetany of a Mueller cataract, a perinuclear cataract. When I was at Vienna they were feeding patients with thyroids with the hope of curing that interesting disease which we call tetany.

Responsibility.—Responsible behavior depends more on sound morals than anything else, and sound morals are sound habits due to sound parentage and a wholesome environment.—*Geo. Frederick Arps, Scientific Monthly.*

MUSCLE TESTING IN THE AVERAGE EYE EXAMINATION.*

HERBERT DANA SCHENCK, M. D.,

Brooklyn, N. Y.

WHEN our president asked the writer to prepare a paper upon this subject, he at first declined because it was not thought that there could be much difference of opinion regarding the value of such an examination. First, because most American ophthalmologists have been made to appreciate the value of small muscular errors. These conditions are particularly prominent in nervous, restless Americans. Several hobby writers among us who have gone to extremes in operating upon small muscular errors and have reported remarkable results from such work, have caused our more conservative men to investigate their claims, sift out the grain from the chaff and bring the whole science of the treatment of the muscles to a practical and workable basis.

Second, because the value of such work must have appealed to every man who has had good groundwork in accurate refraction work. Further consideration overruled these objections with a feeling that the results to be derived from a muscular examination and the methods adopted by some of us might be of considerable value to other members.

If we define refraction work as the diagnosis and the treatment of defects of sight whether they are defects of curvature or of muscular balance, we then must include in the work of every case of refraction that is well done the test of the muscular balance of the eye as well as whether the vision is perfect and the refractive media hyperopic, myopic or astigmatic.

I had concluded from some statements made by patients who had come to me after having work done by other oculists, that many were not using muscular tests to the extent to which I have carried them for many years. The result of the questionnaire sent out some weeks ago, however, seems to bring out the curious psychological fact that

*Read at Meeting of Amer. O., O. and L. Soc., Rochester, N. Y., June 19, 1917.

one has to take the opinion of patients with a great deal of skepticism as to what was done or said by a fellow practitioner. I have had patients come back and tell me that I told them certain things about their eyes when the written records showed I could never have made any such statements. Patients are rarely able to remember from one test to the next, if they be only a few months apart, whether their vision has increased or diminished. I often used to ask them to give me a statement in certain cases whether their vision was as acute at the present time with or without their glasses as when they were examined by the other oculist. I have long since come to the concluusion that such questions are useless, and their answers very often misleading. Each case has to be gone over from the ground up, and the whole condition worked out by the individual oculist regardless as to what his predecessors may have done.

In taking up the examination, my method is to first get a careful family history and an individual history of the eye and head symptoms with a statement of the general health and particularly whether there is any condition in the nose which might reflexly act upon the eyes.

My present equipment for refractive work is a Reinold phoroptometer with a multiple Maddox rod and two Risley prisms which make it possible to use Wells' stereoscopic attachment. The refraction is carefully worked out, paying particular attention to small astigmatic errors even in cases of presbyopia.

After each eye has been tested in this way, the muscular balance is examined. First, by testing with the Maddox rod for the horizontal, and then for the perpendicular deviation. It is usual for me to also run the case through the Stevens' prisms in testing the phorias. I rely in most cases upon the results of the test with the Stevens' prisms as a better picture of the muscular error than that obtained from the Maddox rod. The images are so dissimilar with the latter that the separation of the image is apt to be exaggerated in most cases. I find the esophoria is apt to be greater with the Maddox rod than with the Stevens' prisms, and conversely, exophoria is increased with the Stevens. These measurements are all taken with a small flame six meters from the patient. After these tests are made, an examination is made at thirty-five cm. with a small cross upon a black background

with the Stevens' prisms. The muscles are first tested at this distance with the distance glasses, which gives an idea of what the internal recti can do with the aid of the accommodation. In cases of presbyopia, in esophoria or in very small degrees of exophoria, I often omit testing with the readers. At this point, I usually test the range of accommodation and get an idea of the strength of the reading glasses that will be needed by each eye. These glasses are then in a position for the test of the lateral deviation in accommodation, if it is to be made. Duction is then measured, beginning usually with abduction, which is found by using loose prisms before the left eye. I have found so few cases that show much difference between the right and left eyes that I rarely test more than one for ab- or adduction. Sursumduction I measure carefully in each eye, although I have come to the conclusion that that is useless in the majority of cases. Following the measurement of sursumduction, adduction is measured, holding the prisms before the right eye. This is followed by the shadow test to confirm the trial case findings, and afterwards the fundus is carefully examined to find out whether the eyes are diseased or healthy. It is then the work of but a few moments to adjust the distance and reading glasses, and, after a trial, to prescribe them.

I realize that this consumes much more time than the average man gives to this examination, but I have always thought that what is worth doing at all is worth doing well. I find these muscular tests are of great value in giving my prognosis. They will also give an accurate idea of whether the patient must use distance glasses as well as readers in cases where the decision has to be made upon other grounds than the visual errors present. It also gives one a chance to tell the patient in a general way the amount of use that can be expected from the eyes, and with his muscular condition whether he will have to be careful with his eyes or can use them ad libitum. It will also give one a chance to warn a patient that he may not get entire relief in the use of his eyes or comfort without further treatment than that involved in the prescription of the glasses. It may be that a small degree of hyperphoria will have to be corrected, the muscles strengthened in exophoria, or a prism combined with the glasses in esophoria before he is comfortable.

I have used the loose prisms in preference to the revolving

Risley prisms, which are recommended by some of the makers of phoro-optometers as a correct and easy method of measuring duction. I found my own experience in having my adduction greatly reduced by the revolving prisms over loose prisms was the result I had with most of my patients.

Last fall I made in fourteen cases a comparative test of duction with the loose and Risley's revolving prisms. This is too small a number for any conclusion to be drawn regarding the comparative merits of the two methods, but it points to the fact that abduction is decreased somewhat with the Risley prisms, as is adduction. The measurements in sursumduction were not greatly changed in these cases. In general, I agree with Dr. Lloyd, who says that "he uses the Risley prisms but that they must be used with judgment, and that fully fifty per cent. of adults fail to note when the second image appears, and that one must frequently use loose prisms to get a result worth anything." My experience is not like his, that the Risley prisms give measurement too high, but rather the reverse. Whether Dr. Lloyd has stated the reason corectly, I leave to you to judge. He says, "that the average individual has never been accustomed to note accurately what goes on before his very eyes. He is guided by what he thinks ought to take place and dislikes to be thought different than the standard. He is busy trying to conclude what ought to be his answer, rather than reporting accurately the result of his observations. The doctor thinks this a subconscious process."

In order to get an idea of the work that is being done by members of this society, the following eighteen men were asked to answer a questionnaire sent them recently: President Gilbert J. Palen, Elmer J. Bissel, Royal S. Copeland, C. Gurnee Fellows, G. De Wayne Hallett, Burton Haseltine, A. E. Ibershoff, Ralph I. Lloyd, George W. McDowell, Dean W. Myers, A. B. Norton, Charles E. Paine, William H. Phillips, Philip Rice, George A. Shepard, David A. Strickler, Alton G. Warner, and David W. Wells. I am glad to say that all replied cheerfully. The selection of these men was made from the various large cities extending from Boston to San Francisco to determine whether local conditions and environment led to different methods of work. A large number of these men are ex-presidents of the society, and the others have been prominent as officials or contributors to its meetings. The following is the questionnaire:

1. Do you make any muscular tests in the examination of:
   (*a*) Children?
   (*b*) Presbyopes?
   (*c*) Adults with hyperopia?
   (*d*) Adults with myopia?
   (*e*) Adults with astigmia?
2. Do you test for phoria and duction?
3. Do you use the Maddox rod?
4. Do you use Stevens' prisms?
5. Do you use any of the tests for the oblique muscles?
6. In duction, do you use the square, loose prisms or Risley's revolving prisms?
7. Do you test the right and left eyes separately for adduction, abduction and sursumduction?
8. In what proportion of your cases do you make any muscular examinations?
9. What value do you attach to the information gained from a muscular test?
10. Any general remarks or comment.

As you will note the questions were simple and direct, but the members were asked to state their opinions as fully as they liked. To the question of making muscular examinations at different ages and in different curvature errors, I find all were testing in all cases except one man. Dr. Rice, of San Francisco, says he does not measure phoria as a routine practice. Two others do not test in children. I expect that if these answers were amplified, one would find that they mean children below school age.

To question No. 2 all test for phoria and all except five for duction. Two or three of these say that they test for duction in special or selected cases. All use the Maddox rod except one. Dr. Rice does not use it. Fourteen use the Stevens' phorometer, either with or without the Maddox rod. Three use instead other prism tests.

The oblique muscles were reported as being regularly tested by only three men, Drs. Wells, Myers, and Strickler. Many of the other fourteen reported that they examine them in selected cases where trouble is suspected. Dr. Lloyd not only said he did not use any test for these muscles but said he did not know of any *real* test of the

oblique muscles. As to whether the loose square prisms or the Risley revolving prisms in the phoro-optometer give the best results, the table shows that ten members are using loose prisms, three are using the Risley prisms exclusively, and five use both.

Those who are testing the right and left eye separately for duction number six, while those who test only one eye total eleven. One reports that he tests each eye separately in selected cases. These eleven members say that they make an examination of the muscular condition in all their cases. Seven qualify by saying in nearly all, which includes two who give their percentage as ninety. Dr. Rice only examines the muscles in fifty per cent. of his cases. Sixteen of this group think a muscular examination is of great importance, most of them stated that it is as important as the proper adjustment of glasses.

Dr. Hallett thinks an examination that simply measures the curvature fault without the muscles is no better when made by an oculist than the examination of the average eye-sight specialist or optometrist.

Dr. Bissell and Dr. Shepard feel that good judgment is required to determine whether a muscular defect is producing symptoms, in advising whether muscular work of any character is required, and what it should be. As Dr. Bissell points out, many cases with considerable phoria experience no trouble when the error of curvature is corrected. Dr. Shepard says that the selection of the form of correction depends upon the amount of error, age, and temperament of the patient; but that one should surely know that the error is present.

Dr. Phillips thinks that he would have neglected a very important part of his examination if he did not determine the muscle balance.

Dr. Myers says that he attaches the greatest importance to hyper- and hypophorias and exophorias, and believes not only that the muscles should always be tested but that the fusion sense should be recorded, and that a fusion or muscular error corrected when found.

Dr. Haseltine does not correct small lateral defects regularly, but he does give attention to small vertical errors. He often finds that attention to the general health is more important than local measures.

Dr. Norton thinks that muscular tests are absolutely essential to good refraction work.

Dr. McDowell says that in a few cases which showed orthophoria

and the glasses did not relieve, he had found a weakness of abduction and adduction in proportional amounts. He had endeavored to overcome this by means of "wall to wall" exercise.

Dr. Wells thinks that the value attached to muscular examinations is nearly as important as the correction of the refraction.

Dr. Ibershoff says that muscular work often clears up a case which was refracted correctly but needed a relatively slight vertical phoria corrected. In cases of neurasthenia and those in which there is vertigo, nausea, vomiting or epileptiform convulsions, he is particularly careful in his examinations of the muscles, and always corrects the vertical phorias. He says the testing of the muscles gives one a feeling of satisfaction that his work is done thoroughly, which is not overlooked by the patient.

Dr. Fellows says that the information gained from muscular tests gives him valuable information for his prognosis as to the probable relief glasses will bring, and also as to whether the case may require fusion or muscle training when the glasses do not relieve the conditions.

Dr. Strickler says he believes thoroughly in muscle training and in correcting the phorias. He rarely prescribes prisms except in hyperphoria without first trying the effect of spheres, sphero-cylinders or cylinders whichever are required. He usually develops by prismatic exercise cases of marked exophoria or cases where he knows no other cause for continued asthenopia. He uses the high frequency current in connection with his exercises.

Dr. Rice uses Stevens' clynoscope and tropometer in testing muscular co-ordination and the deviation of the eyes from their proper axes.

Dr. Warner says that he thinks the information is desirable for a general study of the case, although he does not think every case of phoria needs correction. He feels that an exaggerated importance is given to the effect of muscular deviations in some cases.

Dr. Paine finds that the muscular examination often reveals the whole trouble to be here, and that a correction of the muscular defect will give comfort with the glasses the patient is wearing without any change in the lenses. Corrected muscular deficiencies give great satisfaction and relief oftentimes to the patient.

Dr. Copeland says that he "attaches tremendous value to a mus-

cular examination and could not keep house without these tests. He says he is ashamed that he went so many years before fully comprehending their vital importance."

Dr. Palen has been left to the last because he thinks that the value attached to a muscular test depends on the findings. He mentions what others have not, that he tests for binocular vision, fusion, convergence near point, parallax, and uses the cable test.

Dr. Lloyd thinks that "the information obtained by the muscle tests is very much over-estimated. He is inclined to feel that many go through them as a matter of routine without the constant attention and care which really makes any test worth while. The patient must be watched every second or the results are haphazard. Other than occasionally showing the presence of a hyperphoria and a weakness of adduction, he feels these tests are not worth much. They demonstrate what the muscles can do if the attention is awakened and the effort made. They do not, except as above mentioned, show what the muscles *really do* in actual life. There are many cases which test out normal, barring exophoria in accommodation, perhaps, yet if these cases are tested by other means, the habitual non-use of the eyes in binocular fusion can be shown. The number of cases of monocular vision for near is surprising, but they will not be disclosed by the set methods of muscle testing.

"Taking one group of records at hand, 125 in the group, there were twenty who depended on one eye at the near point by the Bishop-Harmon diaphragm test. This fact is not brought out by the set tests. The simple deviation in exclusion test is worth much more, in my humble opinion, than the average set test. We should add to our routine some reliable test to tell us whether the patient is really using both eyes for distance and near, or not. The Bishop-Harmon diaphragm is to my mind the best of the kind for the purpose. Deviation in exclusion should also be determined in every case for not infrequently the set tests tell us the patient has an esophoria in accommodation which is the opposite to what is revealed by the deviation in exclusion."

The conclusion which the writer has drawn from the experiences recorded by this group of men strengthens his already strong conviction that muscular work is one of the most valuable parts of our

refractive work and cannot be left out or done in a sloppy manner without loss to the patient and a definite loss of information to the oculist. These conditions often change more frequently than the visual, and every re-examination demands a careful working out of the muscular balance. Muscular tests of a careful character should surely be a part of the average examination of the eye.

75 Halsey St.

DISCUSSION.

G. W. McDowell: I use the wall exercises with considerable success.

W. M. Muncy: What are they?

G. W. McDowell: A mark is placed on both side walls of a room, on a level with the eyes and in such a position as to be seen only in *extreme abduction.*

With the head in the primary position the eyes are quickly turned from side to side, alternating, fixing the spots on the opposite walls. This exercises both interni and externi simultaneously.

First. A general eye muscle exercise, probably of value to nearly any patient. "Holding the head still, turn the eyes upward to the extreme right and fix the vision upon some object; then downward to the left in the same manner. Do this several times and then take the other oblique, up to the left and down to the right, repeating the procedure two or three times a day."

Second. An exercise calculated to promote power in the internal recti, and stimulating fusion power and the accommodative power at the near point. "Using such glasses as may be required, look off across the room, then fix the vision upon some distinct or bright object about 5 mm. in diameter held in the hand on a level with the eyes and about fourteen inches away. Then approach the object as close to the eyes as it can be followed by both eyes.

"Then look again across the room and again at the proximal object, and repeat the procedure 10, 20 or 30 times at one sitting, and let it be ordered twice or three times a day."

This exercise must be done a few times under observation of the oculist to train the patient's knowledge of fusion in accommodation.

De Wayne Hallett: It is a common experience to find patients who will be greatly benefited from an increased adducting power and a

training of the fusion sense, who will, nevertheless, find it convenient or necessary to limit the number of their visits to the office for this purpose, and particularly is this true as their distressing symptoms begin to subside.

Yet these patients may not have reached such an amplitude of power as to give prospect of comfort in the presence of a sustained effort.

For these it is vastly helpful, when we secure their confidence, to initiate a method of exercise adapted to their needs which they can and will continue at home.

The Military Value of the Aphakic Eye.—Valude (Abstract by W. C. Souter in the *Ophthalmic Review,* from *Ann. d'Oculistique,* February, 1916) makes much of the *responsibility of the State to look after soldiers who have serious eye injuries,* which, he maintains, could not be altered by operation or non-operation. The State has a right to exact from a wounded man such service as he is still capable of giving. Aubineau expresses his views thus: First, an eye affected with cataract involves exclusion from armed service and permits only auxiliary service; second, an eye successfully operated on for cataract does not bring with it exclusion from the service; third, a successful cataract operation does not do away with the responsibility of the State, but reduces the responsibility, since it reduces the loss suffered by the man; fourth, the inopportuneness of a cataract operation in a soldier depends upon the general principles of lens surgery—absolute integrity of the deep membranes of the eye, disappearance of all infectious symptoms and all ocular reaction. Do not operate but in an operable eye, and do not hurry operation—these are the only rules, he says, which ought to guide the surgeon.—*Prac. Med. Series,* 1917.

GOLF BALL RUPTURE IN MOUTH WITH ACID BURNS TO LARYNX—TRACHEA—BRONCHI—ŒSOPHAGUS—STOMACH, AND DEATH IN THIRTY HOURS FROM BRONCHO-PNEUMONIA.*

W. D. Rowland, M. D.,

Asbury Park, N. J.

STANLEY N., aged six years, was on the way to school, March 30, 1917, and while chewing upon the soft core of a golf ball the contents were thrust down his throat. The accompanying clinical history relates the facts until I saw him at 8:00 p. m.

The child was markedly cyanosed, and respired only with great difficulty by bringing into action all accessory respiratory muscles. He was given ether anæsthesia in the operating room of the Ann May Memorial Hospital, Spring Lake, N. J., and Dr. Helen Upham and myself prepared to pass a bronchoscope, thinking that we had to deal with some foreign body at the bronchial tree, marked difficulty being located at the right bronchus. We found the larynx almost wholly occluded by œdema and deemed it inadvisable to pass even the small bronchoscope (5 mm.). The cords could not be seen, only a sponge carrier could be passed, and that with some degree of effort.

The condition of the patient becoming more grave, we performed a low tracheotomy, which gave immediate relief in respiratory and heart action, and then passed the bronchoscope to the bifurcation of the trachea. The mucosa of the trachea was burned grey and with small effort could be peeled off. The bronchi showed marked œdema and corrosion. At the left bronchus a dark red area was seen which proved to be hæmorrhagic tissue. No foreign body being seen, we concluded that we were dealing with a chemical burn of marked degree and extension. A tracheal tube was inserted, and the patient returned to bed in better condition than before our intervention.

No marks of any burn were seen in the mouth any place, except

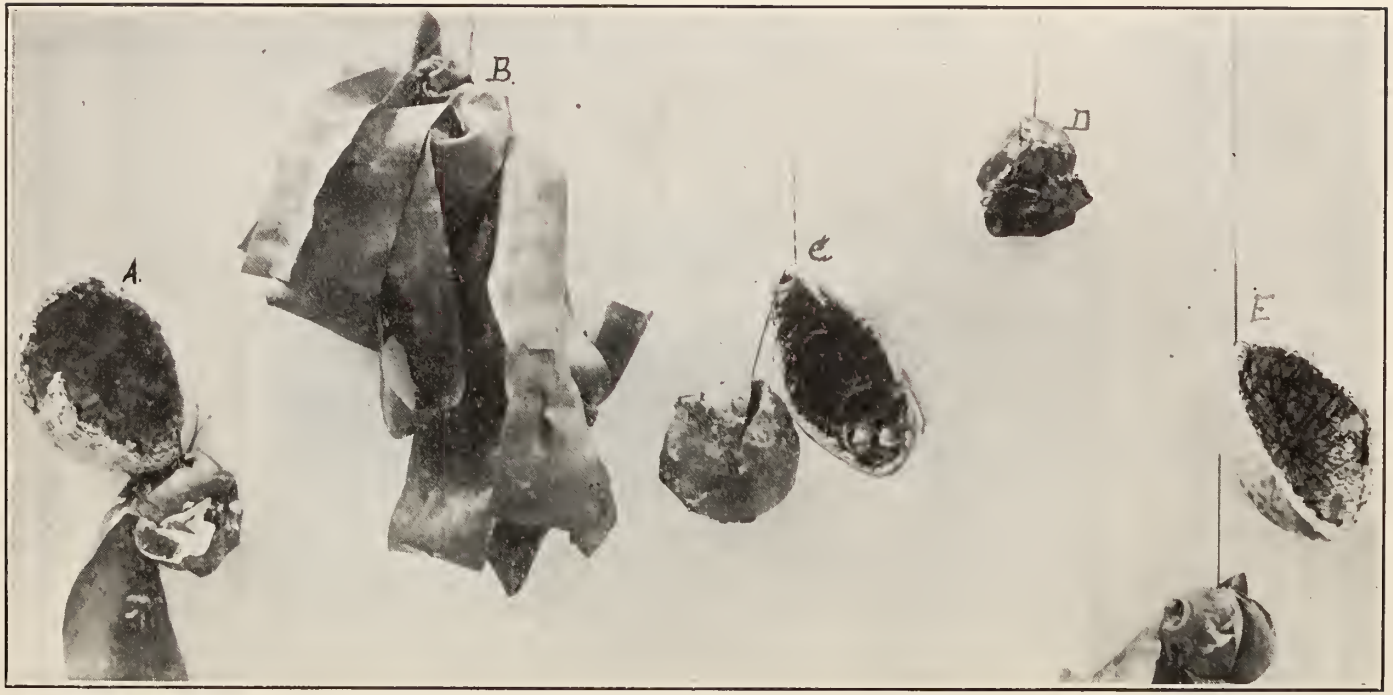
*Read at meeting of Amer. O., O. and L. Soc., Rochester, N. Y., June 19, 1917.

at the upper larynx and œsophagus, either during the care of the patient or at autopsy. The child had a fair night, but grew worse the next day, dying at the end of thirty hours.

The autopsy disclosed the facts in the accompanying report in general, and in particular, the mucosa of the larynx was corroded and the submucous tissue œdematous to the extent of occlusion, the cords not being identified. The trachea was corroded with less œdema.

A A—Pins upon which specimen is mounted.
B—Right bronchus.
C—Left bronchus.
D—Ventral surface of epiglottis.
E—Ventricular area so corroded that structure identification is impossible.
Note also the tracheal mucosa loss throughout the lower area, especially in left bronchus.

The region of the bronchial tree showed red-streaked submucosa, the mucosa having been peeled off. Corrosion and œdema extended into the bronchi of each lung, and a marked hæmorrhagic area was found in



A—Golf ball shell and hollow core filled with white lead-like and slightly acid semi-liquid.
B—Rubber ribands which fill in space between core and shell.
C—Golf ball shell and hollow core which contained a turbid acid liquid: 1 c. c. being neutralized by 2 c. c. decinormal Sod. Hyd.
D—Hollow core, same type as core in C, and which caused the death of Stanley N. Analysis of contents reported by chemist.
E—Golf ball shell and solid putty-like core.

the right middle lobe, which was the thing regarded as a foreign body before operative intervention. The œsophagus was corroded in streaks and the mucosa of the stomach opposite the cardia was gone, leaving a dark corroded area about the size of a half dollar and exposing the muscle tissues. The gastric mucosa was generally corroded. No foreign body was found in the lungs.

Exhibit "A" is the larynx-trachea-œsophagus specimen.

Exhibit "B" is the golf ball core which caused the burn.

I regard the cause of death to have been broncho-pneumonia.

CLINICAL HISTORY OF MASTER STANLEY N., VILLA PARK, N. J.

Age.—Six.

State in Life.—Single.

Religion.—Protestant.

Occupation.—School boy.

Admitted to Hospital.—March 30, 1917, at 10:30 a. m.

Social History.—Negative.

Family History.—Negative.

Previous History.—The following facts were obtained partly from the patient and partly from his father:

On Friday morning, March 30, 1917, the patient was in a normal condition of health. After breakfast he started to walk to school, taking with him a golf ball, which he had found on the grounds of the golf club where his father is employed. He had found the ball the previous evening, and had removed the outer covering without the knowledge of either of his parents. A few minutes after he left home for school he came running back, crying, and, as his father expressed it, "blue in the face and unable to breathe." The boy said he had been chewing the remaining portion of the golf ball, when "something went into his throat and hurt him." (The ball core was recovered and showed at one point it was ruptured, from which a highly acid, sticky substance exuded.) Dr. Leighton, of Spring Lake, was summoned, and he immediately removed the patient to the Ann May Memorial Hospital.

Upon arriving at the hospital, he was taken immediately to the Accident Ward. The patient at the time was slightly cyanosed, extremely nervous and frightened, and could only speak in a whisper.

He complained of a severe pain in the epigastric region. The pulse was 140, respiration 46, and temperature 100 4/5°. Examination of the tongue and pharynx showed no sign of a burn.

Immediate Treatment.—Morphine sulphate, gr. 1/16, and atropine, gr. 1/300 were given hypodermically. Lavage of potassium permanganate solution was given, and six drams of castor oil allowed to enter the stomach before withdrawing the tube, the solution returning as given. The patient was then taken to the male ward.

Subsequent History.—Upon arriving in the ward the patient became rapidly worse. Soon he was unable even to whisper. Breathing was extremely laborious, so much so that all the auxiliary muscles of respiration were brought into violent use. At about half hour intervals the patient became extremely cyanotic, and was only relieved by the use of oxygen or by coughing up a large amount of mucus.

Examination of the chest at 12:00 a. m. (March 30, 1917) showed the following:

Palpitation.—Negative.

Percussion.—Negative.

Auscultation.—Bubbling rales over trachea and moist rales over entire chest. Breath sounds were otherwise normal in both lungs.

Examination of the chest at 6:00 p. m. (March 30, 1917):

Palpitation.—Negative.

Percussion.—Dullness quite marked over lower lobe of left lung. Right lung normal.

Auscultation.—Rales increased except over left lung, where the breathing was markedly diminished. Pulse, 128; respiration, 32; temperature, 100 4/5°.

Examination of larynx and trachea and tracheotomy performed by Dr. W. D. Rowland at 8:30 p. m., march 30, 1917. (See Dr. Rowland's report.)

SATURDAY, MARCH 31, 1917.

Patient had a restless night and was able to sleep but little.

Examination of the chest at 9:00 p. m. showed the following:

Palpitation.—Negative.

Percussion.—Dullness over entire area of left lung.

Auscultation.—Breath sounds absent over entire left lung. Condition of patient was such that one could not test for vocal fremitus,

but undoubtedly it would have been increased. Breathing diminished over central portion of right lung, and the rales not so prominent. Over the trachea the large bubbling rales still persisted. The patient remained conscious up until the time of death at 3:30 p. m., March 31, 1917.

Treatment.—Atropine, gr. 1/300, every three hours during the first day. On the second day gr. 1/200 was given every two hours. On two occasions morphine, gr. 1/16, and once morphine, gr. 1/8, were given in combination with the atropine because of the extreme restlessness of the patient.

At 4:25 a. m., March 31, 1917, a hypodermic of strychnine, gr. 1/60, was given.

Cantharis 3x q. i. h.

Orange juice and olive oil, equal parts, were given ad lib.

The patient was also able to swallow a little water and a small quantity of milk.

W. E. Fairbanks, M. D.

AUTOPSY.

March 31, 1917.

Stanley, E. N., age 6 years, 5 months. At Ann May Memorial Homœopathic Hospital, Spring Lake, N. J. By Dr. W. D. Rowland, assisted by Drs. Fairbanks and Leighton. Autopsy, 9:00 p. m.; death, 3:30 p. m.; elapsed, 5 hrs., 30 min.

Body of a male child, about six years of age, well developed and muscular, with no deformity excepting a small anterior polar cataract of the left eye.

Slight post mortem lividity of the dependent portions of the body. Rigor mortis present and well developed.

Above the sternal notch, in the center line, an incision, clean-cut and opening into the trachea, is found, about one inch in length, presumably an operative procedure for a low tracheotomy, otherwise no stains or other signs of injury are found upon the body. The lips, tongue and throat show no changes excepting a marked dryness. There are no discharges from any of the body orifices. Expression peaceful. Cellular crepitus in anterior thoracic region.

THORAX.

There is present a slight air infiltration of the mediastinal con-

nective tissue. The lungs partially collapsed and no free fluid present. All organs in the normal positions and no pleural adhesions.

The heart normal as to size and form, the right cavities containing a dark clotted blood.

The upper lobe of the left lung completely collapsed and of a dark slate color, the lower lobe congested, but floats on water.

The right lung has congestion of the tissues about the larger tubules. Collapse of the structure at the apex of upper lobe and anterior margin of the lower lobe. Hæmorrhagic consolidation in central portion of middle lobe about two inches in diameter.

LARYNX AND TRACHEA.

(See first part of paper.)

ABDOMEN.

No fluid present. Bowel empty of fecal matter, but well filled with gas. Normal glistening appearance of the entire peritoneum and omentum, with no perforations or congested areas of the organs.

Stomach of normal size, with no perforations and containing about six ounces of fluid material, which proved to be an acid fluid containing oil and partially digested blood, no fresh blood being present. Upon opening the lining membrane is soft, eroded and easily stripped off. Upon the greater curvature, directly below the cardiac orifice, is an oval area about 1x1½ inches in size, in which the membranes are completely eroded, leaving bare the muscular coat with no infiltration or stain of the surrounding tissue.

The diaphragm, liver, gall bladder, kidneys, spleen and pancreas are normal.

R. L. Leighton, M. D.

CHEMICAL REPORT.

Philadelphia, Pa., April 14, 1917.

Two sealed envelopes were received, which I have marked No. 1 and No. 2. On envelope No. 1 is written "Golf ball core broken open by Newman children," and on envelope No. 2 is written "Stanley Newman—golf ball core causing acid burn to larynx, trachæ, bronchi, œsophagus-stomach."

Examination of envelope No. 1 contents:

Rubber core which seemed to have been opened at one end.

Weight, 4.8760 gm. This was placed in a clean grinder. The weight after grinding was 4.519 gm., the total amount not being collected. The ground portion was added to fifty (50) mils of water in a beaker and stirred occasionally during twenty-four hours. The liquid was only feebly acid, several hours being required for it to change the color of blue litmus paper.

Examination of envelope No. 2 contents:

The rubber in this package was wrapped in a small piece of waxed paper and was very different in appearance from the rubber in No. 1. The rubber was of irregular shape and pliable. It weighed 2.093 gm., and was easily cut open with a pair of scissors. Practically no liquid was found within, the only evidence of a liquid being the shining surface. No distinctive odor was recognized. The opened shell was put in a beaker with fifty (50) mils of distilled water and stirred occasionally during twenty-four hours. The liquid was found to be distinctly acid to litmus, and when 10 mils of the liquid were tritrated with deci-normal sodium hydroxide 1.5 mils were required to produce a distinct pink with phenolothalein as an indicator. Only a trace of sulphates and a trace of nitrates were found but a good test for chloride.

SUMMARY.

It may be seen from the reports above that the two samples submitted were very different. The contents of envelope No. 2 only contained a small amount of acid when examined, and the contents of No. 1 practically none.

W. O. Pearson, Ph. D.

DISCUSSION.

W. D. Rowland: The golf ball did not explode; the child had chewed on the soft core until it ruptured in the mouth and the contents ran downward. There were no burns in the mouth or on the tongue. The force of the corrosive action was expended upon the larynx, trachea, bronchial tree, œsophagus and stomach.

Dr. Thomas L. Shearer: From time to time cases of accidents arising from golf ball explosions have been described in the medical press. In the *British Medical Journal,* volume I, 1915, Elliott and Inman have a most interesting article upon this subject, in which they say that "injuries to the eye from contact with the contents of the so-

called 'water core' golf balls are becoming so frequent as to constitute a serious menace." Casey Wood, in the *Journal of the American Medical Association,* volume VI, calls attention to the manner in which these accidents occur. The cores of golf balls are surrounded by machine wound india rubber ribbons, and are thereby subjected to great pressure. It follows that when they burst, or are cut into, any fluid they contain is expelled, sometimes with explosive force to a considerable distance. The contents of the water core balls seem to vary considerably. The liquid first used appeared to be water, but this was discontinued in favor of heavier fluids. An analysis made for Lowell showed a ball's contents to consist of barium sulphate, a soap and a free alkali. Crigler's examination revealed a similar paste with 2.4 per cent. of sodium hydroxide. Suker and Carroll, Annals of Ophthalmology, Vol. XXIII, found dilute sulphuric acid; rather remarkable when one considers the destructive action of such an acid upon rubber. Wilder's analysis revealed a paste of chloride of zinc and soap; another report affirms the contents of the core to have been a mixture of chloride of lime and soap, and yet another discovered a solution of chloride of zinc as the filling of the core. In the *Lancet,* June 18, 1914, the patient reported by Dr. Jessop, stripped a golf ball, known as the zone zodiac, nearly to the core and then cut into it, when it burst so violently as to shoot its contents on to the ceiling of a living room ten feet high; the fluid core consisted of a semi-fluid mass of soft soap or potash soap which was very strongly alkaline, and was contained in a small rubber sac tied around with string. After having read these reports—most of which occurred between the year 1914 and the present, I deemed it best to communicate with some prominent manufacturer of golf balls and ask him to frankly give me the information required. So the A. G. Spaulding & Brothers Company, of Massachusetts, most promptly and with clearness, sent me a letter from which these facts are obtained: "We have heard of injuries or burning from the forceful ejection of the liquid cored golf balls into the eyes and mouth of a child. Some of these liquid cores which we have examined comprise a rubber bag filled with a heavy liquid-lead acetate. Dealers have offered us and submitted samples of heavy lead solutions which prove to be lead acetate; no doubt under the impression that we use this. The adoption of soft or

mobile cores as a nucleus for the tensioned winding of rubber tape and thread in golf balls came about through the discovery that a freely distortable core permitted the development of the resiliency in the tensioned rubber that the earlier and harder forms of core did not. We obtained this result in our line of golf balls and continue to do so, with one exception, by employment of a core for which there was a patent granted the writer. (A. F. Saunders.) This core consists of a vulcanized rubber compound with comminuted minerals to give weight and a softening agent—a non-volatile hydro-carbon—to give softness and mobility. Exhaustive experiments and the experience of the winning professionals who use golf balls of this construction, almost without exception, demonstrate that nothing is gained in the use of liquid cores in place of these. However, in order to meet the demands of a certain part of the trade, we, as a concession, manufacture a ball featured with a bag core. This consists of the usual rubber bag, but instead of the heavy lead acetate solution we use the most inert mixture that will serve and this consists of castor oil and zinc oxide."

From a study of these various reports it is evident that the tendency has been to fill the fluid core balls with a strong alkaline solution and not an acid one—for obvious chemical reasons. Further, the accidents which resulted in injuries were from unwinding the outer covering of the ball, and then either cutting or biting into the central bag, probably already decayed by the action of the enclosed caustic mixture. I do not know of any case of a ball exploding on the course during play, and with the modern high class ball, such as made by the Spaulding firm, such accidents should disappear from our clinical reports. However, there is always a certain class of manufacturers in every form of industry who are tempted to produce a cheaper article, and lest any child be thoughtlessly inclined to unwind a ball, physicians should warn the parents of the danger in the event of the ball containing caustic or acid mixtures. Dr. Rowland should receive the thanks of the society for presenting this case—which is unique for the extent and rapidity of the destruction wrought upon his patient, as well as for the very remarkable fact that the mouth and tongue escaped injury.

W. D. Rowland: I would like to ask if any member here ever

had a case like this; I am anxious to learn something about this class of injuries. We communicated with Chevalier Jackson, and to our satisfaction he commended the course we had pursued. The death was due to broncho-pneumonia.

President: The absence of discussion shows that we have not had such a case.

Wm. McLean: There have been a large number of injuries from golf balls, not like these but injuries to the eyes from the acid contents of the balls; would it not be wise for our society to go on record as being opposed to these dangerous, poisonous balls?

W. D. Rowland: I think it is illegal now in many of the States to make such balls.

H. B. Ware: The trouble in making golf balls is to get the necessary spring and resiliency in the ball; makers have tried many ways and found the most satisfactory is the liquid center of some acid.

President: Will you close the discussion, Dr. Rowland?

W. D. Rowland: I have nothing to add except possibly that children are more important than playing golf, and the laws against such balls should be enforced in every State.

An Irish soldier had lost an eye in battle, but was allowed to continue in the service on consenting to have a glass eye in its place. One day, however, he appeared on parade without his artificial eye.

"Nolan," said the officer, "you are not properly dressed. Why is your artificial eye not in its place?"

"Sure, sir," replied Nolan, "I left it in me box to keep an eye on me kit while I'm on parade."

PERFORATING GUNSHOT WOUNDS OF THE EYE.*

James A. Campbell, M. D.,

St. Louis, Mo.

MOST authorities, text-books, as well as our personal experience, all agree that perforating gunshot wounds of the eye are very serious, usually resulting in partial or total loss of vision in an eye so injured. In this connection it is interesting to note that probably the best description and most complete clinical examples of these conditions will be found in the older writers, as in Lawrence or McKenzie, on the eye, published seventy-five years ago, many of the modern text-books making merely a brief mention of the subject. It is probable, however, that such injuries were more common in former years than at the present time, owing to the more defective forms of cartridges in use, and the very generad pastime of bird hunting in those earlier days.

I present here a case, which may have some points of special interest.

August 19, 1916, a young man, thirty years old, was led to me with the following history: Two weeks before that he was hunting with a companion in a neighboring State. His friend thought he saw a rabbit in the brush, about 150 feet away. He fired point blank at it and filled his neighbor's face, head and neck with shot. The left eye was entirely blinded and the right eye nearly so. Examination showed V. R. = 15/200. L. = O, not even light perception remained. The ocular and palpebral conjunctiva of the right eye was red, swollen and chemosed. The pupil was partially dilated with but little reaction, atropia sulph. having been used. The ophthalmoscope showed a clear media, both aqueous and vitreous, but there was a white line of choroidal involvement, extending upward from the lower outer fundus, ending in a hæmorrhagic spot, as if a shot had penetrated the lower outer eyeball and had plowed its way along the fundus, leaving

*Read at meeting of Amer. O., O. and L. Soc., Rochester, N. Y., June 20, 1917.

a white line of sclera showing, and then perforating the eyeball at the hæmorrhagic spot, passing backward into the orbital cavity, a chorio-retinitis line of inflammation following.

The left eyelids and conjunctiva were violently red and swollen. The lower inner eyelid had been perforated by a shot, which had passed into and probably through the eyeball, entering the ball about 3 mm. below and to the inner side of the sclero-corneal margin. The

Fig. 1.

lid was united to the eyeball, at the point of injury, by inflammatory adhesions, which I separated. The anterior chamber was full of hæmorrhagic effusion.

There was pain in the eyes and head. His temperature was 100°.

Four or five X-ray pictures were made of the head, three of which are here submitted, from the right side, left side and a frontal view. The true extent of the injury was here clearly seen. The whole

face, head and neck, as well as the eyes, were loaded with shot. About forty shot were easily counted, seven in the neck, an ample supply to the nose, face, jaws and forehead, as well as four shot which could be made out in the brain itself and eight in upper left chest. This latter was well shown in a stereoscopic X-ray picture, which is probably the most satisfying and positive method of intra-cranial localization.

Fig. 2.

I submit to you here this stereoscopic picture, which clearly demonstrates its value. A glance at these reproductions of the X-ray negatives will also show shot in the retro-orbital regions.

The shell used held from 125 to 150 shot. The wonder is that the man lived to tell the tale.

No attempt was made to remove any of the shot, except one or two superficial bodies in the nose. Atrop. sulph. was used to keep the

pupils as fully dilated as possible. A boric acid and non-alcoholic tincture of calendula solution was dropped in the eyes every hour for the local conjunctival condition. The patient was kept quiet in a subdued light. His diet was regulated. As for other treatment, he was put under a "watchful waiting," but from the severe nature of his injuries, the treatment adopted was directed more to the external inflammation. Several internal remedies were given in turn, as the symptoms seemed to indicate. His temperature rapidly went down,

Fig. 3.

reaching normal in about ten days, after which no pain was present in the eyes or head. The vision of the right eye, which as noted above, was only 15/200 in the beginning, in two weeks was 15/70. In three weeks 15/50, improving slowly by degrees until October 21, two months after I first saw him, it had reached 15/20, with ability to read J. 3, where it still remains. All of this time he seemed to be in

perfect health, no pain, no irritation in eyes or head. He worked all winter at his trade, as an electrician, doing outside work. There is no conjunctival inflammation in the right eye and very little in the left. The ophthalmoscope shows the white choroidal line in the right eye, spoken of in the beginning, still present, with some choroidal pigment deposits along the margins, more marked at the point where the perforation took place in the fundus. There is necessarily some little break in the field of vision, corresponding to the line of involvement, but it does not, in any way, seem to interfere with his vision for general use.

The left eyeball has gone through a retrogressive atrophy, more marked at the point where the ball was perforated at the lower inner sclera.

While we recognize that the retained useful vision of the right eye is entirely the result of a happy chance, the interesting and important question now is, what will be the future of this case? Is there any chance of sympathetic inflammation taking place in the right eye from the atrophic injured left eyeball, especially since the perforation described is in the ciliary region, and now is an atrophic depression at that spot? The fundus of the left eye can not be seen as the lens is opaque. Is there any retained shot or piece of shot still in the left eye? It has been demonstrated by experimental studies that lead in the anterior chamber is borne comparatively well, but badly when in the vitreous. Double perforation gives somewhat better results, though even here marked cyclitic changes may appear.

The shot located in the brain probably passed through the nose, through or at the side of the ethmoid region, and in all probability are encapsulated. In such cases symptoms of inflammatory action are not uncommon, and neuralgic irritations have been seen at times. But in this case there has not been the least evidence of any such complications for the last six months. The man is in perfect health and has gained five or six pounds in weight.

With forty-eight shot embedded in his head and neck and chest, the possibility of lead poison might occur to us; but so far, no symptom of it is seen. Noyes has called attention to the fact that the high temperature generated by the explosion of the powder would render the shot perfectly sterile.

It is not necessary for the shot to penetrate the eyeball to cause blindness, as a glancing shot on the eyeball has been followed by loss of sight. I have had two such cases, one from an air rifle injury.

Guenther,* in an interesting article, "Injuries of the Eyeball By Small Shot; from a Clinical and Pathological Standpoint," gives an account of 32 eyes injured by small shot in thirty patients. In twelve eyes there were double perforations; none of these retained useful vision. Enucleation had to be performed in nine of seventeen cases in which the injury was not perforating, and even among the remaining eight not one recovered vision at all satisfactory.

In the present great European war, owing to the nature of the trench fighting, where the head is especially exposed, there has been an unusual number of eye injuries and blindness, the result of shrapnel and rapid firing guns; but, according to reports, there have been very few cases of sympathetic ophthalmia following these injuries. It is probable that in these cases the injuries were so severe that enucleation was made without delay.

In the American Civil War there were reported 254 cases of destruction of the eyeball, followed by 41 cases of sympathetic ophthalmia; while in the Franco-German war there were 55 cases of sympathetic ophthalmia, or 6 per cent. of all cases of wounds of the eyes.

The excellent vision retained by my case here reported is exceptional, and is, as suggested above, entirely the result of happy chance, owing to the fortunate location of the perforation, as well as the prevention and limitation of the extension of the internal inflammation in the eye fundus. If, unhappily, the optic nerve had been injured either by the shot or subsequent inflammation, blindness would surely have resulted.

Mermod-Jaccard Buld.

DISCUSSION.

W. H. Phillips: In common with most men in civil practice my experience in gunshot wounds has been rather limited; there is nothing about a shot wound in the eye to make it different from an ordinary injury produced by flying metal except that the metal in this

*Klin. Monatsblat. of Augenheil., XL, vii-i.

case is lead. The force is usually sufficient to make a double perforation instead of a single. There might have been a double perforation in the right eye; there may be double perforation of all of the tunics of the eye and yet there may be clear media. I fail to see how we could avoid having some intraocular hæmorrhage; there must have been severe contusion and probably the inflammation was the result of that rather than the perforation. In the left eye there was double perforation with intraocular hæmorrhage and secondary glaucoma. Most likely the resulting atrophy was due to the contraction of the hæmorrhagic area rather than to the plastic irido-scleritis (?). There is nothing said to show that plastic iritis or corneal inflammation which might make one conclude that plastic irido-scleritis was present. The anterior chamber was filled with blood when the doctor first saw the case. He asks two questions in his paper: one is whether there is still a possibility of retained shot. At one point he makes the statement that there was an abundant supply of shot in the head, neck and face as well as in the eyeball, but no reference to those which passed through the eyeball. I know of no way of answering that question except by means of the X-ray. If it is negative, there is nothing left in the eyeball. The second question was with reference to the future fate of the best eye. May it have or be subject to a sympathetic ophthalmia? What is necessary to produce sympathetic ophthalmia is some infective condition, and as long as plastic irido-scleritis is present there is always that possibility and that danger. But if the condition is due to intraocular hæmorrhage alone, the danger of sympathetic inflammation is practically nil.

De Wayne Hallett: This is a very interesting paper; the questions that arise and the fact that there may be differences of opinion as to the presence of the shot in the globe leads me to report a similar case. A year ago a man hunting quail on Long Island received a shot in his eye. The gun was fired from a distance of about two hundred yards. Evidently the shot struck the gun of the hunter which he was holding low down so that the barrel was across his knee and the shot were deflected upwards to his eye. It passed upward through the lower lid and passed into the globe of the eye. The accident happened at eight a. m. I saw him at three p. m. I had with me an electric ophthalmoscope and Sachs' transilluminator.

I examined the eye and to my surprise I saw the shot in the vitreous, well in the field of vision, through a widely dilated pupil. It moved as the eye moved and continued to move after the eye came to rest. All those present saw this shot. You could almost make it out without any instrument at all. It displayed a bright shining appearance with the ophthalmoscope, but looked simply like a black round body with the Sachs' transilluminator. The vitreous was clear with only a gray line through it. At the fundus of the eye was a spot of congestion with a red center. My belief was that the shot being nearly spent when it entered the eye had lightly touched the retina. My advice was to make no effort to remove it. At the time he had excellent vision. I recommended further consultation as total loss of vision was a probability. In the meantime we had an X-ray taken without a localizing device. It showed the shot nicely and was interpreted as showing the shot within the globe of the eye. In forty-eight hours the shot had fallen into the lower portion of the vitreous. The other consultant agreed with me that it was wise to make no effort to remove the shot, at least at present. Later another X-ray was taken by Dr. Dixon, who claimed on the strength of his instrument that the shot was behind the eyeball. He says that he would stake his reputation on it. The present state of the eye is one of comfort and useful vision, and irrespective of Dr. Dixon's findings, I firmly believe that the shot is within the eye and not behind it.

J. A. Campbell: Was there much hæmorrhage?

De Wayne Hallett: No, there was no hæmorrhage to amount to anything.

F. O. Nagle: I have a little dope on sympathetic ophthalmia; if there was any question settled thirty years ago it was that question, both as to its etiology and as to its pathology. First, in order to have sympathetic ophthalmia you must have a perforated wound. In saying that everything was settled thirty years ago I am referring to Mueller's theory of sympathetic ophthalmia. Since that time we have had the benefit of several monographs upon the subject together with the findings of pathology in such eyes. There have been only thirteen eyes examined where the second eyeball became involved. As a result we have a definite pathological picture of sympathetic ophthalmia, under the microscope it can be diagnosed in a few

minutes. Fuchs settled that thoroughly. In therapeutics, too, we have made some advances. Salcci (?) treated such eyes with antidiphtheritic serum with success. Every injured eye received from fifteen hundred to two thousand units of antidiphtheritic serum. We all agree on the fact that after the second year there is a very small proportion of eyes that become involved sympathetically, only about 1 per cent. Puncture wounds usually result in a lymphangitis, the inflammation going to the lymphatics rather than the blood vessels. It is a direct involvement and the more opaque it becomes toward the optic nerve the greater the involvement of that eye. There are giant cells found in the involved area but never the tubercle bacilli. In the thirteen cases of examined eyes mentioned there were only three complete examinations of the optic chiasm.

G. W. Mackenzie: I had hoped Dr. Nagle would mention the interesting case of sympathetic ophthalmia he had recently. My experience is like that of Dr. Campbell's. I have had a few cases of gunshot wounds of the brain, one of which I reported and showed at our last meeting at Philadelphia. The bullet had traversed the brain and gone through the accessory sinuses. The patient had no reaction at all. In another case the ball went down the Eustachian tube. On account of the nearness of the carotid artery I left it alone and nothing happened. In Judge Gaynor's case the bullet was wisely left alone. I have not found leaden foreign bodies to cause nearly so much damage in the long retina as those of other metals. A wound made by copper, on the other hand, is a bad injury. In Fuchs' pathological laboratory at Vienna, Mellor and Salzmann have a vast number of eyes that have been removed on account of injuries made by brass or copper.

Gilbert J. Palen: If there are no further discussion I call upon Dr. Campbell to close the discussion.

J. A. Campbell: Dr. Phillips doubts whether the shot could have perforated the eyeball; he says it is impossible to have perforation without intraocular hæmorrhage. I was astonished to find no hæmorrhage, but it can occur. Dr. Hallett just related a case which very distinctly proves that there may be perforation without much hæmorrhage. That answers that question. I stated in the paper that the X-ray showed no shot present in the left eye; that answers the second

question. As to the conditions that cause, or that may cause, sympathetic ophthalmia, I assure you that it is a large question, and is by no means settled yet. Dr. Phillips says that if there were lymphatic deposits present it might produce sympathetic ophthalmia. Surely a perforating wound of the eye with an atrophic spot would presuppose a lymphatic exudate.

J. A. Campbell: A statement by Dr. Nagle will not hold water; he said that there was no danger of sympathetic ophthalmia except from a perforating wound. That is not so, for case after case has occurred and been recorded from simple contusion. On the other hand, severe injuries occur which ought by all the rules to produce a sympathetic inflammation in the other eye and nothing of the sort occurs. No inflammation whatever follows. It is only about once in five hundred times that an injury to one eye produces a sympathetic inflammation in the other eye. In regard to the X-ray localizers I am convinced that many mistakes are made by them.

H. W. Hoyt: I would like to report that the case of rudimentary external auricles was examined by Dr. McDowell and found to have no meatus. A small probe could find no orifice.

What Name.—Orville Wright said at a Dayton dinner: "The war has developed flying enormously. We'll all fly after the war. Air fiends will then be as thick as motor fiends are to-day."

What name shall we give to the air fiend's mania? "Aerysipelas," perhaps? Or would "flyfoid" be better? Maybe we'll call it "Inflewenza." Hold, though! All things considered, wouldn't the best name be "skyatica?"

"HOW TO SUCCESSFULLY TREAT INFECTIONS OF THE NOSE."

Wm. F. Beggs, M. D.,

Newark, N. J.

PERHAPS the expression: "Every one has catarrh in this climate" has been used so frequently by the lay as well as profession that we have looked upon it as being axiomatic. The profession indulge in this kind of sentiment after unsuccessfully coping with nasal catarrhal cases—an acknowledgment of defeat. The lay patient shouts it from the house tops, all because the client has been in the hands of a "squirt syringe" so-called specialist instead of an up-to-date rhinologist. My own convictions, being opposed to these sentiments of pessimism, have led me to try and record in a practical way, if possible, the routine or technic of my procedure in handling nasal infections.

A history of the case is first taken by my secretary. A nose case is first examined in an absolute dark room by transillumination. Here we can discriminate between an ethmoid, antral, frontal or a combination. In my experience have rarely found the sphenoid the sole offender, though it is frequently involved along with the post ethmoid group. A radiographic plate is often found helpful in confirming the diagnosis. Still we do not lean on the findings as heavily as some of my confreres. When radical work is contemplated or necrosis suspected, think an X-ray plate absolutely essential.

Regarding anatomical deformities, such as septal deviations, polypoid growths, turbinal hypertrophies, diseased tonsils and adenoids, formerly my first efforts were devoted toward nasal symmetry, that is, septum and turbinal bodies were attacked surgically, especially middle turbinal, when the frontal or antrum were involved. In the light of experience it is found unnecessary to do surgical work, excepting we have a third degree deflection (complete) or polypoid growths. Polyps are usually diagnostic of sinusitis. When tonsils or adenoids exist and doubt is present as to the normality, my advice is to give

the patient the benefit of the doubt and remove the glandular structures. Have seen so many tonsils with a surface health appearance which upon removal proved the opposite that I am nearly prepared to say that in my judgment all visible adult tonsillar tissue should be ablated. Another observation is that the antrum is many times a residual pocket for holding muco-pus. A form of treatment which fails to recognize this and correct it by puncture with saline irrigation will fail to cure the case. Where saline irrigations fail to cure one should suspect a defect in the constitution or a local factor overlooked in the antrum.

Many of my cases have to be individualized and proper physical and hygienic regime instituted. Rest, fresh air (at an open window) and feeding up is indicated in many of these cases. Diabetes, Bright's tuberculosis and syphilis are large constitutional predisposing factors. When possible the assistance of a good internist should cooperate. Where one has skill along homœopathic therapeutics these cases tax your ability. The cases coming to me have all had the advantage of good prescribing, hence my therapeutics is apt to be along the line of vaccine and serobacterines. The products from Lederle, P. D. & Co., Sherman and Mulford, have apparently proved useful. Before the advent of winter, when possible, advise a prophylactic serobacterine treatment.

My patients are told to provide themselves with a nasal douche pint jar, preferably Whitall Tatum model; with this the nasal cavities are several times daily flushed with a normal saline, warm, this to be continued till all evidence of discharge has ceased. Any intercurrent cold can easily be aborted by this douche. As soon as feasible the case is brought to my office, where a more or less accurate localization of the infection is made. A tampon saturated with Glycerate of Iodine (Iod. grs. xx, K. I. grs. L, Glyc. iv ozs.) or 10% Argyrol is placed at the junction of the middle turbinal body and the hiatus semi-lunaris. This is allowed to remain a minute or ten, according to the individual susceptibility. This many times induces sneezing, which helps to loosen up the secretions. A suction or vacuum apparatus is now used to draw out the mucus and pus. By having the patient close the opposite nostril and swallows, the nasal cavity becomes a closed pocket, this being necessary before the suction ap-

paratus will work. A hand squeeze on a rubber ball gives me the desired amount of suction. Meyrowitz have made me several models as per my directions. It resembles two glass two dram vials at right angles, the one being the receptacle. The Sorensen pump has a suction device for this work, however my best results have come through using the hand bulb. Treatments should be given every day or two, time lengthened as case improves. Ordinary cases of a sub-acute type get better in a week. Chronic ethmoiditis and antral cases with a constitutional vice may take many months. Where there has been a large septum operation the flaccid wall acts as a valve and defeats the effort to extract muco-pus; therefore, advise against all operative measures on the septum unless there is apposition of the parts or atresia.

Following the suction treatment the nose is flushed out with a p. n. tip, using a mild alkaline wash, then an oily nebulizer is put through the nose under resistant pressure.

When pain is present a leucodescent light is used which benefits largely through its heat.

In summing up: Think the first requisite an absolute dark room with proper rheostat and diagnostic light.

Tonsils, polyps and third degree complete deflection about all the operative work necessary.

Washing out the antrum with saline should be a routine where the shadow shows dullness or nasal cavity pus.

Suction or vacuum apparatus the last word in nasal therapeutics. Vaccines are helpful, especially when prophylactically given.

2 Lombardy St.

CORRESPONDENCE.

THE following was received by the editor from the United States Food Administration, Washington, D. C.:

The United States Food Administration announces the creation of an Advisory Committee on Public Health. This Committee has been created because the Food Administration, realizing that the nutrition of a people and the condition of its food supply bear intimate relations to the general problems of public health, sought the advice of experts in these lines. Dr. Welch has been named as Chairman of the Committee, the personnel of which is as follows: Leonard P. Ayer, Herman Biggs, David T. Edsall, Cary T. Grayson, A. Walter Hewlett, T. T. Janeway, F. G. Novy, Richard M. Pearce, William H. Welch, and H. Gideon Wells.

Dr. Ayer is permanently identified with the school hygiene movement. He has been director of the Department of Child Hygiene, Education and Statistics of the Russell Sage Foundation during the past ten years, and is the author of books and articles on the educational and statistical phases of health work.

Dr. Biggs is a member of the Rockefeller Institute and an authority on public health and sanitation. As a representative of the Rockefeller Foundation, Dr. Biggs has recently completed a survey of the health condition of France, with particular reference to tuberculosis.

Dr. Edsall is Professor of Internal Medicine in Harvard University; he has in the past devoted much effort to the investigation of nutritional diseases, and within recent years has become identified with research in the general domain of industrial diseases, which bear to nutritional diseases, both in the individual and society, a close relationship.

With the creation of a large army and navy, the public service has a natural relation to the work of food control, and to represent the interests of the armed services of our country, Admiral Cary T. Grayson has been placed upon the Advisory Committee.

Dr. Hewlett is Professor of Internal Medicine in Stanford University, and is recognized authority on the subject of diseases of the circulation and elimination.

Dr. Janeway is Professor of Internal Medicine in Johns Hopkins University; he is the author of books and articles on diseases of circulation and elimination.

Dr. Novy is Professor of Bacteriology in the University of Michigan, and through years of active research over the broadest domains of his subject has established himself as an authority upon the subject of general sanitation.

Dr. Pearce is Director of the Department of Research Medicine in the University of Pennsylvania. Dr. Pearce has paid particular attention to the subject of national health and sanitation and has during the past two years, as a representative of the Rockefeller Foundation, completed surveys of the conditions of health and sanitation of Brazil and the Argentine Republic, at the requests of the government of those countries.

Dr. Welch, Professor of Pathology in Johns Hopkins University, is scientifically and personally regarded universally as the dean of the American medical profession. There are a few departments of pathology to which Dr. Welch has not contributed in research, and there are no departments connected with public health upon which he had not impressed the influence of his wisdom and experience.

Dr. Wells is Director of the Sprague Memorial Institute of the University of Chicago, a research institution devoted to the investigation of diseases of constitutional type. Dr. Wells is the author of a very successful work on chemical pathology, the first of its kind in any language, and has contributed important research to many subdivisions of medical science.

It is believed that through the advice and co-operation of this committee, representing specialized workers in the various correlated departments of medicine, the administration of food control will be enabled always to work for the best interests of the health of the different classes in different sections of our country.

In addition Dr. Alonzo E. Taylor and Dr. Ray Lyman Wilbur, members of the Food Administration, will be ex-officio members of the Committee.

SENT BY THE TREASURY DEPARTMENT, UNITED STATES GOVERNMENT, FOR PUBLICATION.

STANDING BEHIND OUR SOLDIERS.

YOU are undertaking a great duty. The heart of the whole country is with you. Everything that you do will be watched with the deepest interest and with the deepest solicitude not only by those who are near and dear to you but by the whole Nation besides, for this great war draws us all together. * * *.—*From President Wilson's address to the soldiers of the National Army.*

If the heart of the whole country is with our soldiers of the National Army, and it is believed that it is, the money of the Nation will be back of them. The Liberty Loan is to be used to arm, equip, and maintain our soldiers, to prepare them for the conflict in France, and make them as effective and powerful as possible, and safeguard them in every way possible. In addition, it will be used to give them life and indemnity insurance and provide for their dependents. The uses of the Liberty Loan appeal to every patriotic American, for it is used for our soldiers and sailors and the principles which they uphold, which the heart of the whole country is with.

The foundation of our great country is liberty; its superstructure, peace.—*William McKinley.*

THE LOAN MUST SUCCEED.

We must make this loan a success. We can make it a success. The failure of a single issue of Government bonds would be worse for America than a disaster upon the field of battle. We must never let that happen.

A few days ago I read the following manifesto issued in Berlin by the League of German Municipalities:

"If money talks, the President of the United States may learn by October 18, when the subscription lists close, that the echo of the new war fund given by the German people will have drowned out completely the clamor of unending protests to which his reply to the Pope has given stimulus."

Let us meet that challenge by a subscription to our Second Liberty

Loan on the 27th day of October, nine days after the close of the German loan, which will make clear to the German military despotism that American marshals not alone her brave soldiers upon the field, her invincible Navy upon the high seas, her industries throughout the length and breadth of this land, but as well her financial resources, and that she is determined to use them all without stint and regardless of sacrifice to vindicate American rights, outraged too frequently by German infamies.—*From Secretary McAdoo's speech before the American Bankers' Association,* September 28, 1917.

GOOD WORK OF THE BOY SCOUTS.

Reference has heretofore been made to the splendid work done by the Boy Scouts of America in promoting the sale of the first issue of Liberty Loan Bonds. Though possibly many other subscriptions were indirectly induced by their efforts, it has been carefully figured out that subscriptions aggregating some $23,000,000 were taken in by the Boy Scouts, representing 152,000 individual subscribers.

Seven thousand six hundred and eighty-six Boy Scouts of America earned the war-service emblem by selling 10 or more Liberty Loan Bonds and will receive in time the badges of honor.

The Boy Scout holding the highest record for bonds sold is Fred Shelton, of Troop 1, Mayfield, Ky., who sold 324 Liberty Loan Bonds, aggregating $24,750. He is a farmer boy, and obtained subscriptions for the bonds in the neighborhood of his home.

The patriotism and efficiency of the Boy Scouts will be utilized to the greatest extent possible in the Second Liberty Loan campaign. It is an inspiring thing to see the boys of America actuated by a great national feeling rendering great national service. They are the citizens of to-morrow, and their to-morrow must see the world safe for democracy. In aiding the sale of Liberty Loan Bonds they are performing their part to that great end.

President Wilson has just issued a letter commending the work of the Boy Scouts in the last Liberty Loan campaign, and wishing them greater success in the coming one.

The President will present, it is announced, a United States flag to the Boy Scout troop selling the largest amount of Liberty Loan Bonds of the second issue.

THE SECOND LIBERTY LOAN.

The bonds of the second issue of the Liberty Loan are to be issued under the act of Congress appointed by the President, Sept. 24, 1917.

The amount of the issue will be $3,000,000,000 or more; $3,000,000,000 will be offered, and the right is reserved to allot bonds in excess of that amount to the extent of one-half of the oversubscription. That is, if $5,000,000,000 is subscribed the right is reserved to issue $1,000,000,000 more than the $3,000,000,000.

The bonds will be offered for sale on October 1, 1917, and subscriptions will be received until the close of the business day of October 27.

The bonds will bear date November 15, 1917, and will mature November 15, 1942. But the Government reserves the right to call in and pay the bonds in full, with accrued interest, any time after 20 years after their date.

The bonds are convertible gold bonds and bear 4 per cent. annual interest, the interest being payable semi-annually on May 15 and November 15 of each year.

The bonds are exempt, both as to principal and interest, from all taxation now or hereafter imposed by the United States, and State, or any other possessions of the United States or by any local taxing authority, except (*a*) estate or inheritance taxes, and (*b*) graduated additional income taxes, commonly known as surtaxes, and excess-profits and war-profits taxes now or hereafter imposed. They are not liable to the ordinary Federal income tax.

The interest on an amount of bonds the principal of which does not exceed $5,000, owned by any individual, partnership, association, or corporation, are exempted from the taxes provided for in clause (*b*) above.

The right is given to holders of the bonds to exchange them for bonds bearing a higher rate of interest if any such shall later be issued by the United States before the termination of the war. This conversion privilege must be exercised, if at all, within six months after the issuance of such higher-rate bonds.

THE BONDS.

The second issue of Liberty Loan Bonds will be of two kinds, registered and coupon.

The registered bonds will be registered at the Treasury in the names of their owners and will be of the denominations of $50, $100, $500, $1,000, $5,000, $10,000, and $100,000. Checks for the interest on these bonds will be mailed from the Treasury to the owners each semi-annual-interest date.

The coupon bonds will be payable to bearer and will have coupons attached for the interest. They will be in denominations of $50, $100, $500, $1,000, $5,000, and $10,000. The coupons can be cashed like a Government check at any bank.

The coupon bonds of this loan will have only four coupons attached, representing the semi-annual interest for two years. Between November 15, 1919, and May 15, 1920, the holders of coupon bonds must exchange their bonds for new bonds having full sets of coupons. These temporary bonds are issued because the work of engraving so many bonds with so large a number of coupons attached can not be completed within a reasonable time for delivery.

PURCHASE OF BONDS.

Bonds of the Second Liberty Loan can be purchased by filling out an application blank made on the form prescribed by the Secretary of the Treasury, which can be obtained from any bank or Liberty Loan committee, and sending it or having it sent to the Treasury of the United States or any Federal Reserve Bank or branch accompanied by the payment of 2 per cent. of the amount of bonds applied for.

These applications must reach the Treasury Department, a Federal Reserve Bank or branch thereof, or some incorporated or trust company in the United States on or before the close of business October 27, 1917. Practically every bank in the United States will willingly receive these applications and handle the whole transaction of the purchase of bonds for any subscriber.

PAYMENT FOR BONDS.

A purchaser may pay in full for his bonds at the time of making his application, or, if he so prefers, he can take advantage of the in-

stallment plan and pay 2 per cent. on application, 18 per cent. on November 15, 1917, 40 per cent. on December 15, 1917, and the remaining 40 per cent. on January 15, 1918.

Although so far as the Government is concerned the purchase price for the bonds must be paid as above, nearly every bank in the country will make arrangements by which Liberty Loan Bonds can be paid on an installment plan providing for weekly or monthly payments, and a great many employers will make the same arrangements for their employees.

Payment can be made to the Treasury Department or to any one of the Federal Reserve Banks, but purchasers are urged to make their payments to the banks or other agencies with whom they placed their subscriptions.

ALLOTMENT OF BONDS.

It is believed that the Second Liberty Loan, like the first issue of Liberty Loan Bonds, will be heavily oversubscribed, but no matter how largely oversubscribed, the policy of distributing these bonds as widely as possible among the people of the country will be followed, and every subscriber to an amount not greater than $1,000 is sure to receive the bond or bonds subscribed for.

Subscribers to larger amounts will receive an allotment based on the amount of the bond issue and its proportion to the amount of subscription. What proportion of their subscription they will obtain will not be known until all subscriptions are in.

DELIVERY OF BONDS.

It is hoped that on or about October 10, 1917, a supply of these new bonds ready for immediate delivery to subscribers in amounts not in excess of $1,000 to any one subscriber will be in the hands of the several Federal Reserve Banks, to be delivered to subscribers who pay in full. Plans are also being perfected whereby banks all over the country can obtain these bonds for prompt delivery to subscribers for amounts not over $1,000.

The main differences between the bonds of the first issue and the bonds of the second issue of the Liberty Loan are: (1) They run for

only 25 years instead of 30, and may be redeemed by the Government in 10 years after date instead of 15; (2) they bear 4 per cent. interest instead of 3½ per cent.; (3) they are liable to surtaxes and excess-profits and war-profitss taxes (except as to the interest on $5,000 in the hands of any holder); (4) allotment may be made to the extent of half of the oversubscription, and (5) the installment plan of payment is slightly different.—*Washington Government Printing Office,* 1917.

PROFESSIONAL DIRECTORY

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Journal of Ophthalmology
Otology and Laryngology

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Editorial

WHAT IS BEING DONE IN AMERICA FOR THE POST-GRADUATE STUDENT?

DURING the last three years, so far as can be learned, practically nothing has been accomplished. Since the beginning of the World War the best schools for obtaining post-graduate instructions have been closed to American students. About two years ago a movement was talked over, if not actually begun, that promised to establish first-class post-graduate schools in the larger cities. What has happened to the movement I am not prepared at this time to say. There are certain facts, however, that can be definitely stated.

(1) That there are quite a number of post-graduate schools in America, none of which compare in the quality of courses given to those which could be had in Europe.

(2) That the Philadelphia Polyclinic, during my attendance of nine months—from October 1, 1904, to July 1st, 1905—was rated by the post-graduate students who came and went during that period as about the best in the United States. That many of these students who had visited other post-graduate schools in this country, either before or after that time, have since compared notes. The consensus of opinion was in favor of the Philadelphia school, at least, during that period. Those students who had attended the Philadelphia Polyclinic and afterwards found their way to Europe pronounced the European far above the standard of the American schools. They further agreed that they learned more in Vienna in a few weeks than they had learned in Philadelphia in six months. The principal complaint of the students against the American post-graduate schools was that with very few exceptions the teachers rather ignored them unless they intruded themselves upon the teacher by asking questions. Too often it was

a matter of the students standing around in bunches, looking on, and catching here and there what they could, and at most it was generally but very little.

(3) That at the present time, so far as I can learn, the New York Ophthalmic offers the best opportunities to the post-graduate student, in that it gives the only systematized graded course to be had in the United States. The one big fault that we hear against this school is that it has insufficient accommodation for a large number of students.

(4) That there is a real demand for schools in America since there are no less than 200 physicians annually who wish to fit themselves to the practice of the Eye, Ear, Nose and Throat specialties.

(5) That they do not wish to waste their time and money in schools of inferior quality. Besides, the beginner is hardly fit to judge for himself which school or what teacher is the best to go to for instructions. It, therefore, becomes the duty of those best able to judge to give honest advice to such as are seeking the information.

It behooves someone with authority, therefore, to look over the field to ascertain just what opportunities are offered here in America and improve them; otherwise, the present generation of quite efficient specialists is liable to be replaced later by relatively inefficient specialists.

To foresee such an occurrence and not attempt to forestall it is manifestly unpatriotic. Let all those who feel the need, get together and make some organized effort to confront the situation, for it is very doubtful if American students will be as welcome in Berlin and Vienna for many years to come as they were before the war.

I would suggest, therefore, that the organized bodies of Eye, Ear, Nose and Throat Specialists get together through a definite committee to look over the situation carefully and make a report of conditions as they actually are with recommendations for improvements very much after the manner the A. M. A. did with the medical colleges, which, must be conceded, has already accomplished a vast amount of good.

Let there be no politics practiced in the movement. Let those who are connected in any way with a post-graduate school volunteer to remain off the committee.

Let those schools which at present are established be encouraged and strengthened. Let the deadwood be pruned out and eventually replaced by livewood.

Many recommendations might be offered which by right belong to a committee rather than the editor of a single journal. However, I feel impelled to offer one other important suggestion, and that is compulsory autopsy in all patients who die in educational institutions, for it is by far the most important opportunity offered us to compare the clinical with the pathologic findings.

G. W. M.

EXAGGERATED CLAIMS.

GENERALLY speaking, everything should be accepted with a grain of salt, but when it comes to considering things medical, let the grain be good and large, for in no other field is the tendency to exaggerate so pronounced.

About a year ago I received a copy of the third edition of Vaccine Therapy in General Practice, by G. H. Sherman, M. D., of Detroit, Michigan. At the time, I read it over with the object of reviewing it, but changed my mind after reading half-way through; for I found the book redundant with exaggerated claims of numerous authors quoted by Sherman. Authors who had tried vaccines with remarkable success. For instance, on page 123, one author refers to a series of atrophic rhinitis, "Out of seven well marked cases, six were very much improved and one slightly so." It does not state whether the preparation used was a stock or autogenous vaccine, but the inference is that it was stock. On page 208 another author who had used vaccines for the treatment of chronic middle ear suppuration "reports in all 62 cases treated, with but one failure. Three cases were still under treatment." On page 211 still another author is quoted as follows: "For acute cases (middle ear suppuration), which fail to respond to ordinary measures and tend toward the subacute and chronic groups, the use of vaccines will usually straighten the case out in short order."

These are but examples of the exaggerated claims of the many authors whom Sherman chose to quote. I, too, had been experiment-

ing with stock vaccines to the tune of a considerable sum of money during a period of three years prior to 1916, but my results had been so unsatisfactory that I was forced to drop them. Incidentally, it might be added that my records fail to show a single success from the use of stock vaccines in the conservative treatment of twenty cases or more of chronic middle ear suppuration and but little better success was obtained from the autogenous preparations.

In a paper on the Prevention of Chronic Middle Ear Suppuration, presented at the Detroit meeting of the A. M. A. the Ear, Nose and Throat Section, I made reference to my failure to obtain beneficial results from the use of vaccines, especially the stock preparations, with no little timidity; however, before the day was over, was gratified to find that I did not stand alone in my views on the subject.

Now, wherein lies the fault? No one can blame a business concern for advertising its wares so long as it does not misrepresent. The book is well written and contains many good things that are worth reading, especially by those who had graduated years before the advent of the newer laboratory methods. Had some of the authors, quoted in the text, known as much of the subject as the book teaches, they would have hesitated before going into print or would have been less cocksure in their conclusions.

If there is misrepresentation, Sherman is not at fault. He presents an outline of the subject and quotes the medical profession. The misrepresentation is done entirely by the profession through carelessness in studying and compiling their cases. We are all so anxious for results in the treatment of obstinate conditions that with the slightest encouragement we rush it directly into print. This often prompts the other fellow to do likewise. The bigger the authority that endorses anything new, the larger is the list of the "me toos." This is contrary to the true scientific spirit that should weigh everything carefully before accepting it at its face value.

Medical literature has become very voluminous, too much so. The need is less for quantity than it is for quality. There is need for more critics, for the tendency is too much toward unanimity of opinion and thereby false ideas are fostered longer than they should be.

G. W. M.

THE ADVANTAGES OF REMOVING THE CATARACT IN ITS CAPSULE.*

De Wayne Hallett, M. D.,

New York.

IT is only necessary to turn over the pages of medical and surgical history to discover that it is ever changing. The views of yesterday are not those of to-day, and all the to-days are becoming yesterdays only too rapidly.

An author who inspects his former expressions of positive opinion made several years ago is surprised at the changes they have undergone, perhaps quite unconsciously.

The present method of cataract extraction may be said to have slowly developed to a more or less generally adopted standard still subject to varying opinion on the question of iridectomy, the retention of the capsule, the method of capsulotomy and the expression of the cataract.

If, then, in presenting the advantages of a method a few quotations are made of the opinions of writers, it is fully appreciated that these views may no longer express their present convictions.

Permit a quotation from Dr. G. F. Suker: "The extraction of cataract is the most delicate operation known to surgery, and the greatest drawback is the amount of capsule allowed to remain behind."

Dr. Tydings says: "The advantages of the intra-capsular method in its freedom from post-operative inflammatory troubles and from the after-cataract is admitted by all without argument."

Dr. de Schweinitz, in his work on "Diseases of the Eye," eighth edition, after describing the Major Henry Smith method of extracting the cataract in its closed capsule, says: "One of the objections to the Indian operation is that the percentage of loss of vitreous is much higher than in the ordinary extractions."

Dr. Duane in the 1908 edition of Fuchs' text-book says: "The danger of prolapse of the vitreous is considerable." Swanzy and

*Read at meeting of Amer. O., O. and L. Soc., Rochester, N. Y., June 20, 1917.

Werner, 1915, write: "The objection which has prevented the method from coming into general use is the great danger of prolapse of vitreous which must attend it."

Dr. Tydings recently said: "The dangers of which we have all heard so much all seem to center about the one fear of losing vitreous, and yet the reports from operators show about the same loss whether by the intra- or the extra-capsular method."

Dr. J. W. Millette, of Dayton, Ohio: "Loss of vitreous is a little more frequent, infections not more frequent, and post-operative inflammations are less frequent than by the capsulotomy method. The technique is more difficult to acquire but the intra-capsular operation is the one of choice."

Dr. D. T. Vail, of Cincinnati, Ohio: "The Smith-Indian extraction to be appreciated must be mastered. It surpasses any other known operation in expedition, brilliancy and satisfaction."

Dr. Dorland Smith, of Bridgeport, Conn., states, that "By the Smith operation the loss of vitreous is a little more frequent, but that the eye thus operated maintains its vision better, not only because of freedom from capsule thickening, but because of greater freedom from iritis, secondary glaucoma, irido-choroiditis, and all those slow degenerative changes which cause the eventual loss of many aphakic eyes months or years after extraction by methods in which the capsule is left behind."

Major Smith has reported a vitreous loss of 6.6 per cent. D. T. Vail in a series of uncomplicated cataracts did not exceed 2 per cent.

The statements of these surgeons of high standing are quoted in an effort to show their views as to the material dangers of the method as well as the favorable results when such dangers are reduced to a minimum. Evidently the fear of loss of vitreous is considered the greatest drawback, and the freedom to liability to iritis, and the avoidance of secondary capsular cataract and its surgical care are its good points.

The intra-capsular extraction is adapted and is applicable to the early stages, to the immature cataract, thus saving the patients from the weary months, even years, of waiting for a ripening as is the custom otherwise. The cataract patient is already advanced in years and liable to degenerative changes of the retina; they are often de-

prived of other physical joys and greatly depressed by loss of vision. Likewise they suffer in physical and mental tone by reason of this infirmity. Extraction of the immature cataract at a time when it has advanced only far enough to render vision no longer useful for ordinary practical purposes will often save a year to the patient, since to the period of ripening must be added the time, trouble and uncertainties of the secondary operations upon the opaque left-in capsule.

The technique of Major Smith was to use a lid speculum while making the corneal incision, then remove it and have an assistant elevate the upper lid with a strabismus hook and at the same time draw upward the eyebrow and upper lid with firm pressure of the fingers, while the lower lid is drawn down with the fingers of the other hand. The patient is to look steadily upward and the corneal section made. Then the point of a strabismus hook is applied to the lower third of the cornea with steady pressure toward the optic nerve till the lens tips forward and presents its upper edge in the wound.

Steady but lighter pressure is continued and gradually turned more toward the wound gradually sliding under the lens as it advances until it is delivered and the cornea is folded beneath it, the hollow curve of the strabismus hook sweeping along between the lens and the wound.

In India Major Smith had the opportunity of operating upon enormous numbers of people, since cataract is common, the population dense, and the surgeons few. His published reports excited so marked an interest that a considerable number of ophthalmic surgeons from all parts of the world made the journey there for the purpose of getting his technique.

Let us consider the matter of loss of vitreous. Its escape during cataract operation is considered a complication to be avoided. When of but slight amount and occurring after the delivery of the lens it is usually followed by no serious consequences, often by none at all, and many operators regard it lightly.

However, when it does occur, even though cut off with the scissors, it always prevents the immediate coaptation of the wound edges and thereby favors a possible infection, or delayed union, with the probability of an increased faulty corneal curve (astigmatism). When the loss of vitreous is greater these dangers are increased, and,

in addition, there is a chance that the retina may be detached, or a retinal hæmorrhage occur.

Should the vitreous escape before the cataract is delivered it constitutes a real serious situation, for the cataract must yet be extracted, during which there will probably be more loss of vitreous together with further injury to the eye or even its ultimate loss.

The chief cause of vitreous expulsion is from pressure of the patient's lids upon the eyeball when, together with the firm contraction of the orbicularis muscle, the eyebrows are forcibly drawn down. No eye speculum can withstand or prevent pressure upon the eyeball when the patient is so unruly as to put these muscles into effect.

Another cause of prolapse when using a lid speculum is the necessity that the patient rotate the eyeball downward. Even without any pressure of the eyelids the corneal incision will gape open in the extreme downward rotation of the eyeball from the traction of the inferion rectus muscle and the pressure of the stretched superior rectus upon the globe, and it is only in the turned-down position of the globe that the lens can be extracted when using the ordinary speculum.

Dr. W. A. Fisher, of Chicago, devised a two pronged lid hook (or elevator) for the upper lid and a wide loop shaped retractor for the lower lid, and it is these two, and particularly the hook for the upper lid, when held by a trained assistant, which constitute the necessary addition to the Smith method to obviate a liability to loss of vitreous.

The entire operation is completed with hooks held in position. They absolutely prevent the patient from putting pressure upon the eyeball. Not only that, but there is no occasion for requesting the patient to "look down." The cataract is extracted with the eyes directed straight ahead or even slightly rotated upward, the upper lid being held away from the globe to such a degree that the extraction is accomplished within the pocket beneath it.

Nothing less than violent rolling of the head or rising from the operating table will disturb the assistant's control of the eyelids. So far in my experience this has never happened nor has any patient complained of the traction of the hooks.

The hooks simply baffle any attempt at lid contraction, and no pressure comes to the eyeball. Neither are the lids put upon any un-

reasonable stretch; they are simply held away from the globe enough to afford room for the various steps of the operation.

Dr. Fisher also devised another instrument, a sharp needle for the better lifting out of the lens when vitreous precedes the delivery of the cataract, that is, when vitreous loss is imminent or has actually occurred, and the lens is partly in the wound, the needle is stuck into the edge of the lens and with just a little pull upward together with a slight pressure upon the cornea with the strabismus hook, the lens is lifted out of the eye. Often it is still in the capsule, but occasionally the capsule ruptures and remains within the eye. When the lens fails to come within reach of the needle the Smith scoop must be resorted to, inserting it behind the lens where it acts as an inclined plane up which the lens slides from pressure applied with the squint-hook on the cornea.

Serious as it seems, many such cases of pre-cataract vitreous loss still preserve very useful vision. Most of these deplorable complications are the consequences of the patient's squeezing of the lids together just as the corneal section is completed and before the ordinary speculum is or can be removed. With the lid hook it is almost impossible.

It is probable that no surgeon will ever be able to prevent an occasional loss of vitreous by any method whatever, but every operator endeavors to reduce its possibility to a minimum.

Of course, there is an enormous value in the perfect faith of the patient in the operator, and no pains or time should be spared in an effort to secure this trust and intelligent understanding on the part of the patient. A rehearsal of the instrumentation of holding the lids apart is of value. A friendly tone of voice and a wise choice of words together with an assuring manner while giving simple explanations will divert the mind and lead the patient to keep both eyes open and to feel sure that there will be no pain. They cannot see and they are fearful. Sudden motions are to be avoided as are loud commands. Failure to get the patient into this frame of mind is often responsible for their faulty conduct.

One of the good consequences of an iridectomy made some weeks prior to the extraction is that it promotes this cordial relationship. The patient learns that the eye can be operated upon without pain.

The experience is vastly superior to any amount of conversation. It is often their first experience in any hospital. They lose that tendency to make all of their muscles tense and are prepared to entirely relax and, therefore, they come a second time to the operating table in a favorable frame of mind and body.

Then also the preliminary iridectomy shortens the time necessary for the extraction and there is, I believe, less danger of a prolapse of iris or an entanglement of its cut edges. The corneal wound in making an iridectomy is small, and, therefore, affords less chance of ill effect from any faulty conduct on the part of the patient, and although it could be done at the time of the extraction, all in the one operation, there are material advantages and safeguards in a preliminary iridectomy made from ten to fourteen days prior to the extraction.

The advantages of the intra-capsular Smith-Fisher method may be summed up as follows:

1st. The conjunctival sac can be most thoroughly flushed because every fold is opened by the Fisher lid hooks.

2d. With the lid hooks in position there can be no pressure of the eyelids upon the eyeball.

3d. The patient is not required to turn the eyeball downward.

4th. The capsule is not left within the eye.

5th. The need of operations for capsular cataract is obviated.

6th. There is far less secondary iritis, since no particles of lens substance and capsule are left behind to induce it.

7th. In case of prolapse of vitreous the intra-capsular technique offers the safest method for its treatment.

8th. It is not necessary for the patient to wait for a total loss of vision in the ripening process, since the immature senile cataract is easier of extraction.

Dr. Fisher states that "the reason most operators prefer the capsulotomy method is that it is impossible to successfully perform the intra-capsular operation unless the whole technique is adopted, and if a competent operator attempts the removal of a lens in its capsule without understanding Smith's technique or having a good working knowledge of the Fisher lid hooks, the Smith spoon, the Fisher's needle, he will soon come to grief; because anyone thus beginning the removal of a lens in capsule will have an abnormal number of cases where

vitreous presents before the lens is delivered, and if he is not master of this complication, and must resort to the old method of removing the lens with a fenestrated loop, he cannot be expected to successfully perform the intra-capsular method."

The following is a list of all intra-capsular cataract extractions made by the writer to date, listed according to the visual results obtained. The cause for visual results of less than 20/40 is appended:

No.	Name.	Age.	Lens.	Referred by	Result.	Loss of Vitreous.
1.	Mrs. E. F.	60.	Mature.	Dr. Hallett's clinic.	20/15.	None.
2.	Geo. L.	72.	Immature.	Dr. J. L. Beyea, N. Y.	20/15.	None.
3.	C. E. T.	72.	Immature.	Private.	20/15.	None.
4.	Mrs. J. D.	61.	Mature.	Dr. Hallett's clinic.	20/15.	None.
5.	Mrs. C. C.	64.	Immature.	Dr. J. L. Seward (Orange, N. J.).	20/15.	None.
6.	J. A.	59.	Mature.	Dr. Hallett's clinic.	20/20.	None.
7.	E. K.	55.	Mature.	Dr. Hallett's clinic.	20/20.	None.
8.	Mrs. M. W.	67.	Mature.	Dr. Ritchie's clinic.	20/20.	None.
9.	F. S.	53.	Mature.	Dr. Hallett's clinic.	20/20.	None.
10.	Mrs. S. S.	79.	Immature.	Dr. Hallett's clinic.	20/25.	None.
11.	T. F. B.	58.	Immature.	Private.	20/25.	None.
12.	Mrs. R. Q.	76.	Mature.	Dr. W. N. Boynton, Brewster, N. Y.	20/25.	None.
13.	T. M.	64.	Mature.	Dr. Hallett's clinic.	20/30.	None.
14.	B. W.	67.	Mature.	Dr. Hallett's clinic.	20/50.	None.
15.	Mrs. M. W.	71.	Mature.	Dr. Hallett's clinic.	20/50.	None.
16.	H. Q.	59.	Mature.	Dr. Hallett's clinic.	20/100.	None.
17.	H. Q.	58.	Mature.	Dr. Hallett's clinic.	20/200.	None.
18.	S. C.	79.	Immature.	Dr. Hallett's clinic.	0	None.

SUMMARY OF EIGHTEEN CONSECUTIVE OPERATIONS.

In none of them was there any loss of vitreous.

The average vision of these cases was 20/25.

In two cases the capsule or part of it remained in the eye.

Glaucoma was a prior complication in three cases, one of which secured a vision of 20/25.

Irido-cyclitis was a subsequent complication in two cases.

Out of eighteen cases there were five who secured 20/15 vision, four 20/20, three 20/25, one 20/30, and five with an ultimate vision poorer than 20/40, one of whom lost the eye.

Number 14 on this list, with a mature cataract, was surgically perfect, but proved to have atrophy of the optic nerve. Number 15 also surgically perfect, had a prior myopia, with posterior staphyloma and opacities of the vitreous. Numbers 16 and 17 represent the right and left eye of the same individual in whom a poor visual result was fully expected and could not be otherwise, since he had an advanced state of chronic glaucoma which the writer had previously operated by the Elliot sclero-corneal trephine method. The faulty vision is in no wise incidental to cataract or the manner of surgical attention, for without such surgical care the patient would have been perfectly blind.

Number 18 had suffered from a previous iritis and was accepted for cataract extraction only after four months of observation. This was one of the cases in which the lens capsule ruptured and remained in the eye. A severe irido-cyclitis developed and the eye was lost. The method of operating had no bearing on this result, and if the retained capsule was a factor, then his only chance was by the method which aimed to remove it with the lens.

274 West 86th Street.

DISCUSSION.

PRESIDENT: Dr. Myers not being here, the paper is open to general discussion.

R. S. COPELAND: I confess this subject is one that always excites my interest; I am so thoroughly convinced it is the operation of choice that whenever anyone advocates it, I listen eagerly. In clinical work twenty years ago, even with the imperfect technique of that time, I convinced myself that it was the ideal operation. In incipient cataract there can be no doubt it offers a means of removal better than any other. It makes it possible to remove a lens without post-operative iritis.

When Smith first advocated this extraction I was in charge of a large clinic. I know I ought not to say it but it is nevertheless true that I have never felt the same freedom of experiment in private

practice as in clinical, and that is where I tried it. Accordingly, as long ago as ten years I made from twenty to thirty extractions by this method. There was almost entire freedom from iritis following the operation.

I was much interested in Dr. Fisher's late book on "Cataract." He brings out the point that the only reason the operation is not more commonly made is the timidity of the operator. Any young operator who will take the trouble to operate on animals, for instance, kitten eyes, as Foote suggests, and develop his technique in that way, will soon be competent to operate on the human species.

I take issue with the recommendation of a preliminary iridectomy; I have not changed my opinion about that and still maintain that with the preliminary operation you run twice the chance of infection without any particular advantage. I believe that the combined operation should be performed at one sitting.

Just one practical point, it is my belief that success is frequently interfered with by lack of thorough anæsthesia. I have seen many operations performed when the anæsthesia was not thorough enough to make the ideal operative condition. The test is the blanching of the conjunctival and scleral vessels; if they are not blanched the eye is not anæsthetized sufficiently. I make it an invariable rule, if the cocaine does not produce bleaching of the vessels, to use adrenalin in addition.

I have had one uncomfortable result following the extraction in closed capsule; a young woman, not over thirty-eight, had cataract; I made no iridectomy and readily extracted. Glaucoma followed and I recommended an iridectomy, but this was refused and the vision of the eye was lost.

I do not think that loss of the vitreous is of such great importance; I have seen the vitreous lost so completely that the eyeball collapsed like a deflected football. I replaced with normal sterile salt solution; the patient made a good recovery and after three years it was as good an eye as I ever saw. That is not a complication to be greatly dreaded.

R. I. Lloyd: It seems to me that we overlook one point in the removal of cataracts, although it is considered very important in general surgery. In every form of general surgery the surgeon looks

for the natural line of cleavage because the tissues separate better and less violence is done to them. In the old fashioned surgery this did not receive much attention and the usual manner of operating on cataract neglects it. There is left behind, the capsule that enclosed it, with the anterior part lacerated and the posterior part intact. It seems an unscientific procedure. It is a more workmanlike job to remove the lens *in toto*, and in doing that you are following the lines of cleavage. The natural line of cleavage is where the suspensory ligament is attached. I agree with what Dr. Copeland said about infection, being less frequent and less painful; I had one case that showed no signs of trouble, no pain or irritation but on removal of the bandage on the seventh day I found a large mass of plastic material blocking up the pupil. The patient was a diabetic with five per cent. of sugar in his urine. Notwithstanding this we got a good result. I have seen other cases go without pain and yet require a second operation because of the exudate. The extra freedom from risk of infection is attractive and, as a whole, the operation appeals to me. It would be a good rule to combine iridectomy with any cataract operation; I used to feel that the iridectomy should be done before the operation, but the last few years I have done it at the same time; at one time I did not agree with Dr. Copeland, but I do now. I have come to like the combined operation. There is one great thing we must not overlook and that is the hook; the hook has made the operation very much safer. I feel much more comfortable about any cataract operation since we have used the hook. More than once I have seen a strong orbicularis muscle just squeeze the eye contents out forcibly in spite of the speculum. When we have had that experience I believe we will appreciate what a useful instrument the hook is. It prevents that accident.

J. A. Campbell: One great cause of failure is not making the incision large enough. A too small incision is a great fault. It makes it more likely that you will have loss of vitreous, which is one of the great dangers of the operation.

C. L. Rumsey: It is an ideal operation, and I thank Dr. Hallett for bringing it to our attention again. I saw Fisher operate and I followed his instructions to operate on cats' eyes first, to develop a technique. In that way we can acquire technique and become skillful.

I speak in favor of the hook speculum; it certainly makes one feel safer and enables you to execute any intraocular operation much more successfully than the old eye speculum. I saw a well known operator at the Clinical Congress of Surgeons at Philadelphia last fall do the old style operation beautifully, but just as he turned his head to answer a question, the patient squeezed her lids together and ruined the eye. The contents of the eyeball were squeezed out. I recommend the hook speculum for any intraocular surgical operation, though I had previously always used Desmarre's lid holder.

Dressing After Cataract Operations.—To produce even pressure over the front of the eyeball after cataract extration, Maynard uses swabs of wet, sterilized wool. The wool should be pulled, not cut, into pads, about an inch thick and 3 inches in diameter. They are then sterilized by boiling in 1 in 5,000 biniodide solution. After the completion of the operation, two of these, sopping wet, not squeezed out, are laid on the two eyes. With the straightened fingers they are gently pressed down over the eyes, so that the swab becomes molded to the eye and fills in the hollows round it. Over this swab is placed a wet pad consisting of lint or six layers of gauze and then a figure of eight bandage is applied fairly firmly. On opening the dressing the next day the wool gauze will be found dry and forming a complete mold of the eyeball and orbital opening. This wet molding method is very comfortable and produces no feeling of uneven pressure while it allows the eye to move easily. It is almost impossible to open the eyelids.—*Practical Medicine Series,* 1917.

THE TREATMENT OF INCIPIENT SENILE CATARACT.*

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ONE of the most unfortunate things that can happen to an individual is to become blind. This is especially true of those in young or middle life, but is bad enough for persons of any age. If there is any method of treatment that promises relief to the individual threatened with blindness, by way of prevention of this unfortunate state, we should lose no time in adopting it. Preventive medicine is being advocated and practiced to-day more than in any period of the existence of the human race. Statistics show that more than 600,000 deaths occur annually from preventable disease, in the United States alone, and that the cost of this disaster is more than $3,000,000,000, and yet we shudder at the expense and casualties of war. This statement is startling and should awaken our most earnest efforts to prevent this wholesale loss of life.

While one may be blind and still live many years, yet it must be admitted that the individual who is so unfortunate has in a great measure lost his usefulness and happiness and must necessarily become a burden to friends or relatives or to the State.

In this paper I shall refer especially to senile cataract. The former method of dealing with this condition was to do absolutely nothing until the cataract reached the so-called "ripe" stage.

Given a case of diagnosed cataract there was nothing to do until it matured. In what follows in this paper it is not the intention of the writer to claim any originality for the treatment spoken of, but rather to call attention to a form of early treatment which promises much to the person who is so unfortunate as to become afflicted with senile cataract.

About three years ago Lt. Col. Henry Smith, of India, read a

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paper before the Ophthalmological Congress at Oxford, England, giving a new method of treatment of the earlier stages of senile cataract. Since that time little has appeared in ophthalmic literature regarding it. Just why I am unable to say. It may be possible that a number of oculists are trying out the treatment and are not just ready to report the results.

I was particularly impressed by the article referred to because when Col. Smith says anything about cataract it is well to sit up and listen, for his experience in the operative treatment of cataract is greater than any other person in the world. As the treatment of many diseases of the body is handicapped by not getting the patient early enough, so is this true of this particular treatment of cataract.

If physicians could get their patients to realize the importance of frequent physical examinations, how many lives might be saved that are annually victims of Bright's disease, diabetes, heart diseases, tuberculosis, etc. If those, especially who are past 45 years of age, would have the eyes more frequently examined many cases of blindness from cataract could be prevented.

To successfully treat cataract without the knife by the method herein mentioned we must get the case early. One of the first symptoms of incipient cataract is failing distant vision. The patient may see fairly well for close work, and this fact may cause him not to suspicion that anything serious is wrong, unless he is properly advised. The vision may be reduced to 6/10 or even as low as 3/10 for distance before he complains much of near vision.

The symptom of failing distant vision with near vision fairly good should cause the general practitioner to at once send the patient to the oculist. If this is done the vision may be restored provided we can exclude fundus or vitreous trouble or any pathological condition of the optic nerve; *i. e.*, if the lack of vision is due solely to beginning cataract. Where the distant vision has not fallen below 6/10 there is a good chance to restore normal vision in uncomplicated cases. Of course, if we can get the case before this period, the chances are more favorable.

The treatment consists in the subconjunctival injection of Merc. cyanide 1-4,000, -5,000 or -6,000, according to the age of the patient. The younger the patient the stronger the solution. The eye is cocain-

ized previous to treatment, and the patient may have a hypodermic of morphine ¼ to ½ grain one-half hour before the eye is treated. However, this is not absolutely necessary. The treatment is followed by quite a severe reaction, sometimes sufficient to cause the patient anxiety, but assurance can be given of no harmful results. After a few days the reaction subsides. In most cases the patient is quite comfortable the following day and no further inconvenience save possibly a feeling of fullness in the eye.

If the treatment is successful there will be noticed in 30 to 90 days a decided improvement in vision. Col. Smith reports a number of cases in which normal vision was restored in 30 to 60 days. In others 90 days. He reports one case of an officer in the Indian Army whom the Board of Examiners rejected as unfit for duty for any service on account of failing vision due to incipient senile cataract. He was given the cyanide treatment, and at the end of three months appeared before the same board with 6/5 vision; was passed for duty, and is still in command of his regiment when this case was reported, three years after treatment.

The colonel reports that he has a number of similar cases of sportsmen, railroad men, etc., in which he has had the same good results. The R. R. officials coming under his care are required to pass examination yearly, hence he has a better opportunity of getting these cases at the proper time—their vision seldom falling below 6/10 before they come under treatment. This again shows the importance of regular physical examination.

Col. Smith says that cases with sand-like opacities with clear pupillary area respond equally well to the treatment though he doubts the permanency of the results. Cases with as low as 10/30 vision with clear pupillary area improve greatly but are liable to relapse.

While the writer was associated with Dr. Dean W. Myers at the University of Michigan we tried the cyanide treatment on a number of cases. We were handicapped in that some of the cases were not referred early enough. Until the general practitioner's co-operation is secured by having him send the case early enough to the specialist, we will not be able to show the best results from this particular treatment.

Case 1.—Mr. C. C. S., æt. 66. Oct. 13, 1914. R. E. has been gradually failing for past five years. Can see to count fingers at 5 feet only. Examination of lens. Cloudy, can see light red reflex by direct ophthalmoscopic examination.

L. E. has been gradually failing for two years. Things look hazy in the distance. Ophthalmoscopic examination shows indistinct fundus as though being examined with a poor light.

Diagnosis: R. E., immature cataract; L. E., incipient senile cataract.

Nov. 15, 1914. R. E. operated for cataract by intra-capsular method. Uneventful recovery. Dec. 1, 1914. L. E., + .50 D. S. ⌒ + 1.00 Cax 180 = — 20/50. Reading + 2.50 D. S. ⌒ + 1.00 Cax 180 = 1. M.

L. E., 25 M. 1-6,000 Hg. Cyn. injected subconjunctivally.

May 4, 1915. R. E., + 12. D. S. = + 1.50 Cax 180 = 20/30. L. E., + .50 Cax 180 = 20/30.

Ophthalmoscopic examination shows fundus of both eyes clearly.

Nov. 4, 1915. Patient says left eye is fine, + .50 Cax 180 = 20/30. Lens clear.

Case 2.—Mr. V. A. C., æt. 57. Dec. 2, 1914. R. E., blurring of vision for distance and reading. Uses tobacco freely. Was given Nux vom. 1x and advised to stop tobacco.

March 1, 1915. Eye about same. Nux vom. continued.

April 10, 1915. Blurring still the same. R. E., — 20/50 — .50 D. S. ⌒ — 1.75 Cax 180 = 20/30. Hg. cyn. 1-6,000 injected subconjunctivally.

May 31, 1915. R. E., — 3.00 Cax 180 = 20/20. Reading, add + 2.25 D. S. = .37 M.

Case 3.—Mrs. W. W., æt. 66. Jan. 27, 1915. Vision in both eyes has been failing for some time. R. E., 20/00 + 2.00 D. S. = — 20/50. L. E., — 20/30 + 2.00 D. S. = 20/30.

Ophthalmoscopic examination. Lenses cloudy, disc. seen dimly. Deep phys. cup.

Diagnosis: Incipient senile cataract.

Jan. 28, 1915. R. E., .25 M. Hg. Cyn. 1-6,000 injected subconj.

Feb. 2, 1915. L. E., .25 M. Hg. Cyn. 1-6,000 injected subconj.

March 31, 1915. R. E., 20/00 + 2.00 D. S. = — 20/20. L. E., — 20/30 + .50 Cax 180 = + 20/30.

May 18, 1916. R. E., + 2.00 D. S. ⊃ + 2.00 Cax 180 = 20/50. L. E., + .50 Cax 90 = + 20/30.

Reading: R. E., + 5.50 ⊃ + 2 Cax 180 = 1. M. L. E., + 2.00 ⊃ + 50 Cax 90 = .50 M.

Case 4.—H. M., æt. 66. May 14, 1915. For past two years vision has been failing gradually. R. E., 20/120 + 1.00 D. S. = + .50 Cax 180 = 20/50. L. E., 20/120 + 2.00 D. S. = 20/50

Oph. Exam. Lenses cloudy. Fundus can be seen but not clearly. Incipient nuclear cataract.

May 14, 1915. Hg. Cyn. 1-6,000 subconj., R. E.

May 28, 1915. Hg. Cyn. 1-6,000 subconj., L. E.

Sept. 28, 1915. R. E., + 1.00 D. S. = + .50 Cax 180 = 20/30. L. E., + 1.75 D. S. = + .50 Cax 180 = 20/30. Slight nuclear cloud in each lens.

Jan. 1, 1916. Both eyes remain good. Same refraction = 20/20 o. u. Lenses clear.

Case 5.—Mrs. A. R., æt. 58. Dec. 9, 1914. R. E., — 20/80 + 2.00 D. S. = 20/30. Lens cloudy, fundus indistinct. Diag., incip. cataract. L. E., 20/00 —. Can only see light. Senile cat. Intracapsular extraction lens L. E. Uneventful recovery.

May 3, 1915. R. E., Hg. Cyn. 1-6,000 subconj.

Aug. 20, 1915. R. E., + 2.00 D. S. = 20/20. L. E., + 12.00 D. S. = + 1.50 Cax 15 = — 20/20.

Case 6.—Mrs. J. B. S., æt. 60. May 5, 1915. Vision cloudy, R. E. for some time especially for distant objects. R. E., 20/00 + 2.00 D. S. = 20/50. L. E., 00/00 + 2.50 D. S. = 20/20. R. lens misty, can see disc. as through a veil.

April 12, 1915. Hg. Cyn. 1-6,000 25 min. subconj. in R. E.

April 13, 1915. Violent reaction and much pain.

April 15, 1915. Pain and inflammation subsiding. Patient comfortable.

Nov. 17, 1915. R. E., 00/00 + 2.25 D. S. ⊃ + .75 Cax 45 = 20/30.

Lens still a little cloudy but vision is improved.

There were a number of other cases upon which I have not the reports of results. It is difficult, especially in clinical cases, to get patients to report. This is often true where the results are satisfactory.

However, the cases cited above are sufficient to convince the writer that the treatment is efficient in properly selected cases and especially convincing should be the testimony of Col. Smith.

While the cases herein reported were not all received for treatment at the proper stage of the disease, some of the cases being a little too far advanced, yet we find improvement in practically all the cases which improvement has remained permanent so far. I believe in those cases which show the least improvement that the progress of the cataract has been arrested, which is worth a great deal to the patient.

I would like to urge the members of this society to give more attention to this method of treating uncomplicated cases of incipient senile cataract and to report their results at our next annual meeting.

661-664 Reibold Bldg.

Serious Burn of the Eye From Liquid Caustics Used in War. —Two cases are reported by Paul Petit (abstracted in *Brit. Jour. Ophthal.*, February, 1917) in which the eyes and eyelids were seriously injured by some liquid caustic, which he supposes to be analogous to phosphoric acid. Both men were wounded by a bursting shell, which probably contained some liquid intended to generate asphyxiating vapors, and the contained liquid was thought to be the agent whereby the eyes were damaged. In each patient one cornea ruptured, and the eye had to be enucleated. He has not so far seen any similar cases, although his experience among wounded soldiers has been large.—*Pract. Med. Series,* 1917.

MORE ABOUT CATARACTS.*

C. Gurnee Fellows, M. D.,

Chicago, Ill.

I AM again led to take up the discussion of cataracts because of a recent talk with one of my confreres concerning the success of the intra-capsular operation, as compared with the usual operation, or such modifications of it, as are recommended by Dr. Homer Smith.

Since the discussion of the intra-capsular operation at the meeting of the Congress of Surgeons in Philadelphia last year, at which time the consensus of opinion was against the general adoption as an operation of choice in America, I have talked with a good many operators upon this subject.

When we hear some of the reports that are not published about things that are happening here, there and yonder, at the hands of those doing the Major Smith operation, we hesitate before operating upon our best friend by the intra-capsular method.

When perfectly performed, with good healing and fine results, it certainly looks like an ideal operation. But there is much greater liability of accident, danger of delayed healing and an added demand for delicacy of technique, than is liable to come to a man who is doing only occasional operations.

The opinion expressed unanimously by those discussing this subject at the Congress of Surgeons was, that the ordinary senile cataract operation was safest as now universally performed. But when we come to the discussion of immature cataracts, then only is there a question of choice as to method.

There are many surgeons who are still waiting for maturity before operation. They may want to do the intra-capsular operation and yet have not had sufficient opportunity to study it and perform it, so as to warrant the attempt to do it. Their patients must go elsewhere or wait.

*Read at meeting of Amer. O., O. and L. Soc., Rochester, N. Y., June 20, 1917.

Here is where the performance of the operation becomes possible and safe by the method of preliminary capsulotomy, which must receive wider and more general endorsement. It is safe, can be performed by any one who can do a cataract operation and saves the patient the months and years of waiting to which he is so often condemned.

The report of a recent case by Dr. Max Talmey, of New York, printed in the *New York Medical Journal*, of March 3, 1917, calls attention to the modification of the Homer Smith method of capsulotomy and the happy results following the operation, even when complicated by an acute attack of glaucoma.

I have lost vitreous during cataract operations and have seen many others do it and worry greatly about results. When Homer Smith's preliminary capsulotomy is made, we are supposed to wait a few hours before making the extraction. In this time, in younger patients, the lens swells and the intra-ocular tension is increased, so that when the incision is made for the extraction, the lens often follows the knife without waiting for an iridectomy, and the vitreous often follows the lens. This is perfectly natural, but not to be desired.

In the first place it is not necessary to wait so many hours after capsulotomy before extracting, and in the second place, the method of incision has a great deal to do with it.

I enter my knife, making counter puncture slowly and carefully, but when everything is ready, I push the point of the knife rapidly through and up, making a sweep of at least 1/3 of the corneal incision, so that my cut is above the border of the iris, which cannot become entangled in the front of the knife, and now the heel of the knife can be raised, making an incision on the other side of the cornea to match the one already made; then, by spreading the wound, allow the aqueous to escape before completing the incisions. This prevents the escape of the lens and the vitreous, and perfects the method of Homer Smith's preliminary capsulotomy.

Another great thing is the use of the "lid hooks" in any cataract operation, and I certainly recommend them, but they must be in the hands of a skilled assistant.

Years ago, when I used the speculum I removed it at once after making the initial incision, but for years I have used no speculum at

all. When I have had perfectly trained assistants I have had the lids held by them with their fingers or a lid elevator of the Desmarres type, but now, with the advent of the hooks made by Vail, Green or Fisher, I certainly should adopt them and recommend their adoption in all cataract operations; but I have seen accidents follow their use when held by inexperienced assistants. In operating in strange hospitals, with strange assistants, these go through the performance of using the hooks and holding them, but are apt to become so interested in the operation that they let the lid fall down upon the eyeball, squeezing out the vitreous just the same. The assistant must hold the hook so as to keep the lid away from the eyeball or the hooks are as useless and as dangerous as speculum.

The thing which happens once in a while and is very disconcerting to an operator is to find the iris falling over his knife, and then, of course, the great question is—what to do? I have seen operators withdraw the knife, hoping to get better counter puncture. I have seen others stop entirely and wait for the anterior chamber to reform.

We are told by some operators that we should insert a spatula and hold the iris back, etc., etc. My experience has been, that it is best to go along with your incision and carefully cut the iris as evenly as possible, thus making an iridectomy at the time of the incision. The patient is a little more apt to squeeze and there is possibly more danger from loss of vitreous; but this is taken care of by coming through very slowly at the finish of the incision and not allowing the vitreous to escape suddenly, and, of course, this is very much less liable to happen if the lids are held open by one of the up-to-date hooks and the attempt is not made to operate with a speculum. Another thing that happens is hæmorrhage, following the iridectomy.

This has happened many times to me and in the early years I did the capsulotomy in the dark, without much effort to coax out the blood by pressure or removal of the clot with forceps. Since I have been using a normal salt solution for washing out the anterior chamber whenever it seems necessary following the removal of the lens, I now wash out the blood from the anterior chamber, before doing the capsulotomy or removing the lens. This recourse is in order to insure clear vision and makes the subsequent steps much simpler.

The question of glasses is an important one in a cataract case.

I have any number of cases where they began to use almost anything from 9 to 12 for distance, and in such cases by giving stronger glasses for distance, they can even do some coarse reading with that same glass. Such a case occurred recently:

Mr. H. S. H., whom I operated more than two years ago, was sufficiently happy with a "plus 11" for distance and a "plus 16" for near, so that he has done his regular office work for two years without returning to me for a change of lenses. Coming back at the end of two years, he tells me that he can see blurredly at a distance with his distance glasses, but can do his office work with considerable comfort. In other words, his distance vision takes a less strong glass for correction, as he accepts a "9" now instead of a "11," and he gets on well for near work with a "12," which you see, is slightly stronger than the first distance glass. Such a case, especially when without astigmatism, will get along very well with a bifocal glass, and I have been greatly surprised when I have had kryptok bifocals made, to have them accepted so soon and worn with so much comfort.

I have one particular case that pleases me, in a man only 44 years of age, whose lens was removed in a very immature stage of opacity, who has gone back to regular work with a kryptok bifocal glass, making no complaint whatever, as compared with his former vision, before the lens started to bother him.

I have a school teacher who is equally happy with a kryptok bifocal, and yet I would not recommend them for miscellaneous use. They, of course, must be very carefully adjusted, as near the face as possible and ordinarily with a large scale, so the patient will have a good field of vision.

30 No. Michigan Bldg.

Severe tonsillar hæmorrhage, though often termed reactionary or secondary, is usually primary.

IRITIS.*

Le Roy Thompson, M. D.,

Chicago, Ill.

INTRODUCTION.—In presenting a paper on a subject on which so much has been written and with which we are all so familiar, I feel that some preliminary explanation is necessary. All ophthalmological text-books devote many pages to the etiology, diagnosis, pathology and treatment of iritis, and it is not my intention to bore you by quoting anything from them except as it relates directly to the subject in hand. I do not presume to give you anything new or original so far as the disease itself is concerned, but would rather make it the basis of a plea for the more careful scientific care and consideration of the patients who suffer from this ailment. In this day of strenuous, keen competition one can not afford to let anything interfere with the proper diagnosis of any illness, and it is only by giving your patient uninterrupted scientific concentration that success is crowned—by positive curative results.

To illustrate what I consider to a routine examination I will ask you to follow the procedure with which the patient is handled who has come into my office with what he describes as a "sore eye."

After the usual preliminaries, viz., taking the name in full (spelling it correctly), address, age, occupation, telephone numbers, both business and home, name of family medical adviser, if he has any, also the name, address and telephone number of his dentist, he is asked to remove his outer wraps and is seated in my consultation room in a comfortable chair, facing the direct light from a window which is located at my back; the door is closed and I begin to take the personal subjective history. My reason for placing patient in a comfortable chair and not in an uncomfortable one is that it tends to put him at ease. The door being closed gives him a feeling of security when questions are asked which he would not like to answer if there was present a stenographer or nurse assistant. The daylight flooding

*Read at meeting of Amer. O., O. and L. Soc., Rochester, N. Y., June 20, 1917.

the face of the individual tells me many things at the first glance. The patient feels that he is getting my undivided personal attention which is so essential in winning the confidence of those who come to have their sufferings alleviated.

I can not emphasize too strongly the care with which the personal history should be taken as tact and courtesy extended at this stage may save many, many experimental efforts in diagnosis. I take nothing for granted and give special attention as to the possibility of diseases which we usually find as existing etiological factors in disease of the eyes.

I make inquiry as to habits which include the use of tobacco, alcohol, quantity and kind of food taken, and if a hobby is indulged in, what it is. If patient has been under the care of another physician before coming to me his name and address are obtained. If glasses are worn they are turned over to an assistant for neutralization and record made for both distance and near, if both are worn.

We are now ready to obtain our objective findings and patient is placed in an examining room equipped for that purpose. I do not believe that any one of us would be impressed favorably if, on being entertained as a guest in one of our friend's homes, he would put us to bed in the drawing room or kitchen, and so it is with the patient who has come for examination the first time. He appreciates appropriate surroundings for his welfare and care. I do not believe in examining a patient in a room which is not properly equipped in every way to assist in rapid, accurate diagnostic manipulation. In other words, the examination should not be carried out in the consultation room or vice versa; history and business should not be discussed in the examining or treatment rooms.

Vision, tension, degree of inflammation, size and shape of pupil, condition of anterior chamber, cornea and lids, reaction of iris to light and accommodation, tenderness on pressure or photophobia are all noted on record. If a tentative diagnosis of iritis is now made by the aid of information already obtained, a drop of atropine is instilled into the conjunctival sac. While it is taking effect I examine the throat, observing the condition of the tonsils and health of teeth and gums; observing carefully the mucosa, on the lookout for specific patches or scars. The posterior naris is examined by means of

the electric naso-pharyngoscope. I wait a sufficient length of time for the Atropine to begin its action and watch for the appearance of synechia. If at the end of an hour I find an irregular pupil and adhesions I use drastic measures immediately, as I firmly believe that we lose valuable time trying to break up synechia with too weak solutions of Atropine. I use the pure powder, of course, taking precautions to keep the lachrymal ducts shut.

I examine the fundus with the electric ophthalmoscope. This completes my preliminary examination and treatment.

If history or findings point to any focal infection in the sinuses or teeth the patient is sent immediately to a roentgenologist for radiographic pictures. I always have a Wassermann blood test made regardless of the history. Where there is nasal discharge of any kind I send a specimen to laboratory for diagnosis. A twenty-four hour specimen of urine is saved and analyzed.

While these reports are being formulated I do not neglect the patient. Dionine is used in strength of 5 per cent. up to the pure powdered drug to relieve pain and reduce inflammation. However, I use great care not to give any internal medication which would interfere with the blood or secretory analysis until such specimens have been obtained.

Iritis is a local manifestation of a constitutional condition. In my own experience the percentage of cases in which I could find no cause is very small indeed. I would quote "Irons and Brown" in their report made after very careful investigation of 100 cases that in only 1 per cent. was no etiological factor discovered:

Infection.	Total.
Syphilis	23
Gonococcal infection	9
Tuberculosis	8
Dental infection	18
Tonsillar infection	16
Sinus infection	3
Genito-urinary (non-venereal)	3
Other infections	2
No cause found	1
Combined infections	17
Total	100

A report on 500 cases of iritis from the records of Wills Eye Hospital is given by C. W. Jennings and Emory Hill (*Ophthalmology,* April, 1909). Report shows that syphilis, rheumatism and gonorrhœa caused 92 per cent. of the cases.

This is where your careful history taking will show itself. A man may have a gonorrhœal discharge and a sore eye at the same time, but will never connect the two unless the ophthalmologist is keen enough to find it out.

I see my patient again within twenty-four hours, and in so far as the different laboratory returns are at hand, I govern my treatment accordingly, but until everything has been reported upon I withhold my final opinion and prognostication in the case.

I do not treat syphilis or gonorrhœa or rheumatism or infected teeth; in fact, I do not consider any oculist capable, regardless of what his reputation, experience and ability may be in his chosen line of work, of caring for properly and scientifically the complicating factors which we find in every case of iritis.

If my patient has a plus Wassermann I send him to a man who specializes in the treatment of syphilis; if he has gonorrhœa or prostatitis or cystitis he is referred to a genito-urinary specialist for treatment; if a rheumatic condition is proven to be present a physician who treats such cases is called in. Of course, it goes without saying that a dentist is always required to care for any faulty condition found in the teeth.

I would like to report just one case to illustrate:

NAME: G. G. ADDRESS: Illinois. AGE: 25 years. DATE: February 5, 1917. OCCUPATION: Prize fighter. HISTORY: Has had eye trouble for several weeks with almost unbearable pain for the past ten days. Recurrent attacks of iritis and irido-cyclitis, which had been treated at different times by different specialists (men of reputation) in different parts of the country with no results. FINDINGS: Pterygium in both eyes towards the internal canthus; marked tenderness over ciliary body; cataracted pupil which did not react to light and accommodation.

My routine examination was carried out and I found the man suffering from a gonorrhœa which had been improperly treated, in fact, had never been cured. As soon as the assistance of a competent

genito-urinary man was obtained the eye began to get well, and he has had no recurrence to date of any kind whatsoever.

This patient stated that in no instance did any oculist ever suggest any general examination or ask if he had ever had gonorrhœa, to say nothing of questioning him as to the present condition of his sexual organ.

The question might be raised as to the probable expense placed upon the patient in these numerous laboratory and other examinations required. I will say this, that I have never yet asked a favor from laboratory or consultants which has not been freely granted which makes it possible to obtain this service for the deserving patient either gratis or for a very small consideration.

Conclusions.—No physician who limits his field of work to the eye, ear, nose and throat should undertake to treat constitutionally anyone suffering from iritis without the assistance of the general practitioner or specialist who cares for the contributary factors in the case. Team work is absolutely essential, both in diagnosis and treatment, and without it very unsatisfactory results are obtained, both from physician's and patient's standpoint.

Systematize and standardize your examination; do not prognosticate until your search for etiological factors is complete. Take the proper time to care for each individual and that combined with a very small amount of research ability will save you many embarrassments.

30 No. Michigan Blvd.

Herpes Zoster Focal Infection.—Finding a constant association of zoster with alveolar and tonsillar disease processes, leads Lain to believe that true herpes zoster has its origin in a focal infection.—*Jour. of A. M. A.*

BLOODLESS TONSILLECTOMY WITH THE LaFORCE HEMOSTAT TONSILLECTOME.*

Everett Jones, M. D.,

Boston, Mass.

THROUGH recent research and investigation the tonsil as a source of systemic infection has become very prominent. The character of these infections and the permanent damage done by them to the heart, kidneys and many other structures demands an ideal operation to prevent a continuation of the infection.

We will consider briefly the relation of the tonsillar infections to general systemic disorders.

In order to determine the relation of tonsillar infections to various general disorders, as arthritis, myalgia, or myostitis, rheumatic fever, nephritis, and enlarged cervical glands, it is necessary to follow up and examine these patients months and years after their operation. It is recognized by investigators all over the country that the tonsil stands out as a most important point of focal infection. A focal infection in the tonsils may cause acute manifestations of a systemic poisoning, or it may be so slow in its action that months may elapse before the symptoms appear. The patient himself usually recognizes the acute focal infection, and with prompt and proper treatment the sequelæ, such as peritonitis from the appendix, meningitis, endocarditis, and ear infections from tonsil infection may be entirely prevented. It is the chronic tonsillar infections that disable many thousands of people every year. A chronic focal infection may never give rise to local symptoms, but if diligent search is made the signs are, as a rule, quite evident.

It may be stated as a general rule, that the focal infections that give rise to general systemic disorders are those with some obstruction of the natural channels of drainage. This I believe to be true in throat infections. Tonsils of the so-called "submerged" type, partly covered by the tonsillar pillars, which are usually very red and in-

*Read at Meeting of Amer. Hom. O., O. and L. Soc., Rochester, N. Y., June 20, 1917.

flamed as compared to the rest of the oro-pharynx, are more often the ones to produce systemic infection than the large prominent tonsils where the act of swallowing empties the crypts. The majority of the cases of arthritis and nephritis, the writer has observed, in which the end results were highly satisfactory, have given a history of one or more severe attacks of tonsillitis, several weeks or perhaps many months preceding the rheumatic or renal disease. In one case there was a partial removal of the tonsil where the orifices of the crypts became occluded with scar tissue. A tonsillitis usually begins as an abscess in the lumen of the crypts, and often these crypts are occluded, the toxines and organisms readily pass to the cervical lymph glands. In malignant endocarditis the streptococcus finds its way into the blood stream. Once in the blood stream, it lodges in the capillaries of the heart-valves, forming the characteristic vegetations. It has been the writer's experience that the patients with tonsils that have been damaged by infections, or partially removed, are more likely to have some disorder following, either an acute or chronic tonsillitis, than are those with fairly normal tonsils. This was brought to my attention by the following case:

Mrs. D. B., referred to me by her physician. She was 23 years old and had been married three years. Three months previous a severe tonsillitis; temperature of 103° to 104° for four days. This illness caused her to be confined to bed for one week. Two weeks later, or three weeks from the beginning of the tonsillitis she came down with rheumatic fever, the joints of the lower limbs being first involved, then the arms and shoulders. This was severe; she had severe pain in chest and cardiac region, and dyspnœa. This was undoubtedly an endocarditis. She complained of difficulty in breathing, tiring easily, and shortness of breath. She had the usual diseases of childhood, together with frequent attacks of tonsillitis until she was fourteen years of age, at which time her physician removed her tonsils. Patient was anæmic and pasty-looking, and was evidently suffering from toxæmia. The tonsils were of the submerged type, and the pillars much reddened, and when retracted quantities of cheesy material removed. The heart was enlarged with a prominent systolic murmur at the apex. Tonsillectomy advised, which was done the following week, and when she returned home from the hospital in five

days her entire condition had changed, saying, "she had not felt as well in years." The following two weeks gained eight pounds in weight, and twenty pounds in the following three months, and able to take long walks without fatigue.

That nephritis may be due to the tonsils was proven by the following case:

Mr. H. E., age 20, college student. Frequent attacks of tonsillitis; last one four weeks previous, in bed one week; but not feeling well since the beginning of the attack. Physician discovered albumen in urine, few red blood cells and granular casts. Diet, rest, and treatment showed only very slight improvement. Tonsils were large and left cryptic, while the right was nearly covered by inflamed pillars. Tonsillectomy advised and patient operated on the following day. Careful urinary analysis was done each day following the operation, and each day there was less albumen and casts, urine becoming normal on the sixth day, and has remained so since, which is more than fifteen months. Patient has gained twelve pounds in weight, and claims to be in the best of health.

From the above cases it is plain that the one great principle in the therapy of systemic diseases, secondary to focal infection, is a thorough removal of the primary focus.

A partial tonsillectomy, with obstruction of the crypts of the remaining portion by scar tissue, may transfer a possibly harmless hypertrophied tonsil into one that may give rise to serious general disorder, and for this reason, if for no other, we believe the operation that will remove the entire tonsil with a part of the capsule without injury to the surrounding structures is the *ideal operation.* If we agree, as I believe many of us do, with Dr. D. R. Patterson, of London, and Dr. G. Hudson MaKuen, of Philadelphia, that the capsule of the tonsil is a portion of the intrapharyngeal fascia or oponeurosis of the superior constructor muscle, and made up of several layers, the innermost layer being very thin and firmly adherent to the tonsil, we will better understand the technique of the operation I am about to describe. (Figure 1.)

I speak of this as a bloodless operation; and it is just this in probably more than 90 per cent. of cases. This instrument, the LaForce tonsillectome, was invented by Dr. Burdette D. LaForce, of

Ottumwa, Iowa. It is provided with a hemostat with two crushing surfaces similar to the blades of an artery forceps, a cutting blade is also provided. The fenestra into which the tonsil is engaged can be adjusted so as to take a very small or a very large tonsil. The instrument is so constructed that the tonsil passes through the fenestra, and when the fenestra is closed it is converted into a hemostat. The instrument is provided with a knife blade, so arranged that the blood vessels may be excised anterior to the tissues held in the hemostat.

TECHNIQUE.

The technique with slight modifications, is that used by Dr. LaForce. Enucleation of the faucial tonsil with the LaForce hemostat tonsillectome is performed under local or general anæsthesia. Under local anæsthesia the patient is nearly in the upright position, while under general anæsthesia the patient is flat on the back. The head may be steadied by the anæsthetist to prevent rotation and the mouth kept open with a gag, preferably Jennings.

The patient's throat should be well illuminated with reflected light, or, better, with an electric headlight worn by the operator. The surgeon takes his position on the right of the patient. It is a very great advantage to operate on the right tonsil with the instrument in the right hand, and on the left tonsil by holding it in the left hand.

Assuming that the surgeon uses his right hand for both tonsils, for the right one he faces the patient's head, for the left one he must turn around so that he faces the patient's feet and stands somewhat above the head. Before the instrument is introduced into the mouth, the operator should make sure the cutting blade has been turned so the sharp cutting edge has been retracted from one to three millimeters away from the crushing end of the hemostat blade. In operating upon the right tonsil, the instrument is grasped with the right hand, the tongue is depressed by a tongue depressor held in the left hand. The distal end of the tonsillectome is placed from below and between the tonsil and the posterior pillar, the shaft of the instrument should be in as near a horizontal position with the side of the throat that is being operated upon as possible. (Fig. 2.) At the same time that an effort is being made as if to force the end of the instrument back of the tonsil, it is at this point cleavage starts most easily. The tongue depressor is discarded and the tonsil is raised upward and the instru-

ment brought from the horizontal to the vertical position (Fig. 3), and with the ball of the index finger of the left hand placed against the anterior pillar over the tonsil it can be gently massaged through the fenestra of the tonsillectome. The handle of the instrument is now pressed together, which should force the hemostat blade down back of the tonsil, separating the tonsil with its thin innermost layer of the capsule. It is well to determine if all the tonsil has passed through the fenestra, and if this has been accomplished the end of the instrument can be felt quite distinctly by pressing the first finger of the left hand over the anterior pillar. If some of the tonsil has not slipped through a soft spongy feeling will be felt by the finger, as if pressing on a cushion. If it is believed that all of the tonsil has not passed through the fenestra, the handle of the instrument should be relaxed; but with the end of the instrument still in place between the posterior pillar and the tonsil, and another effort made to massage the remaining part of the tonsil through the partly opened fenestra.

When this has been accomplished the wheel which controls the hemostat of the instrument is turned forcibly to the left causing the wheel to be pressed firmly against the end of the instrument, which in turn causes the hemostat blade to press more tightly down upon the tissues, crushing all of the blood vessels. After the tissues have been so compressed for two to five minutes, the tonsil is grasped with forceps, the smaller wheel which controls the cutting blade is turned to the right as far as it will go. At the same time slight traction should be made on the entire instrument so that there will be no danger of forcing the cutting blades against the pharyngeal wall should the knife blade slightly protrude from the end of the instrument. Remove the forceps and enucleate tonsil, leaving the hemostat on.

After the hemostat has crushed the tissues from five to ten minutes the wheel which controls the hemostat is turned to the right and the instrument withdrawn from the mouth. Immediately upon withdrawing the instrument from the mouth, the tissues which have been compressed seem glued together, but will soon separate, leaving a very smooth fossæ. (Fig. 4.)

An occasional case is seen in which an incomplete operation or inflammatory processes have left the parts bound in a network of

rigid, unyielding scars with little tonsil tissue present. In such cases by using the tonsil spiral hook, or long tonsil forceps, to draw the tonsil out of the fossæ, with possibly a little dissection around the lower part of the tonsil, or separation of the anterior pillar, will allow the fenestra to engage the tonsil at its lower pole where the rest of the tonsil is easily engaged into the fenestra.

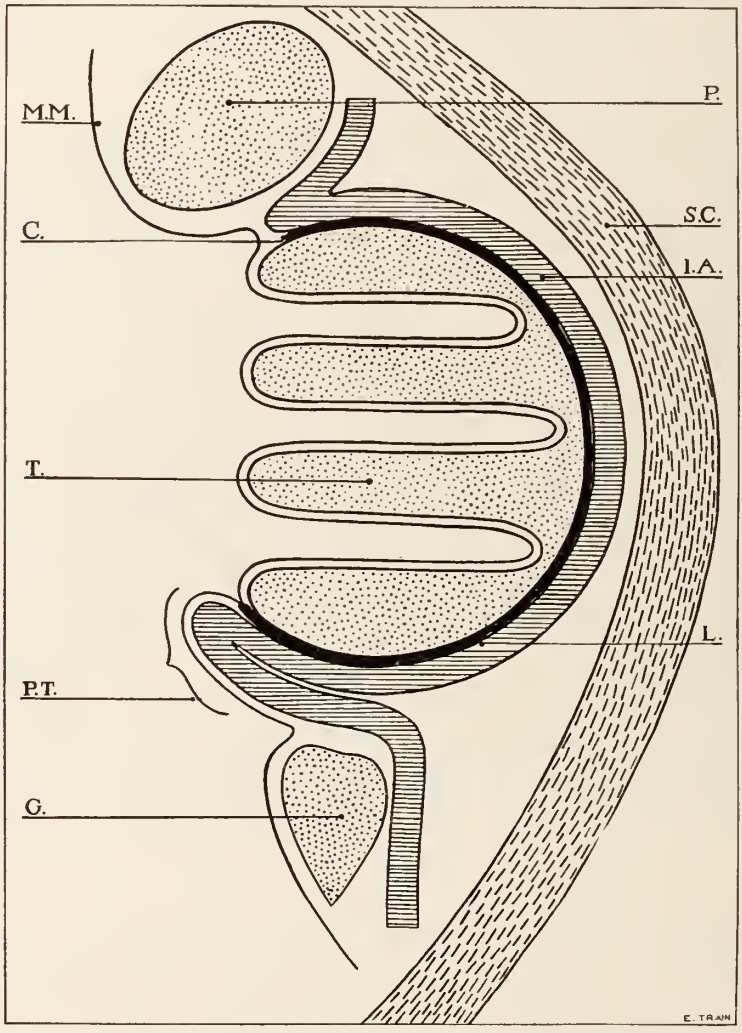

FIGURE 1.—Drawing of a horizontal section of the left tonsillar region viewed from above, showing the relation of the tonsil to its capsule. T. tonsil; P. palatopharyngeous muscle; S.C. superior constrictor; IA. intrapharyngeal aponeurosis or capsule; L. inner layer firmly adherent to the tonsil; G. palatoglossus muscle; P.T. plica triangularis formed by a fold of this aponeurosis; M.M. mucous membrane; C. point of cleavage or starting point in this operation.

In tonsillectomy by this method there often is not blood enough to color the mucus in the throat, occasionally a little oozing, but not a hemorrhage, primary or secondary, in several hundred cases we have operated with this method. Not only is this operation usually bloodless, but what is of greater importance, the larger part of the capsule of the tonsil remains to line the tonsillar fossa. Recovery is rapid, the patient usually taking solid food the day following the operation and able to leave the hospital.

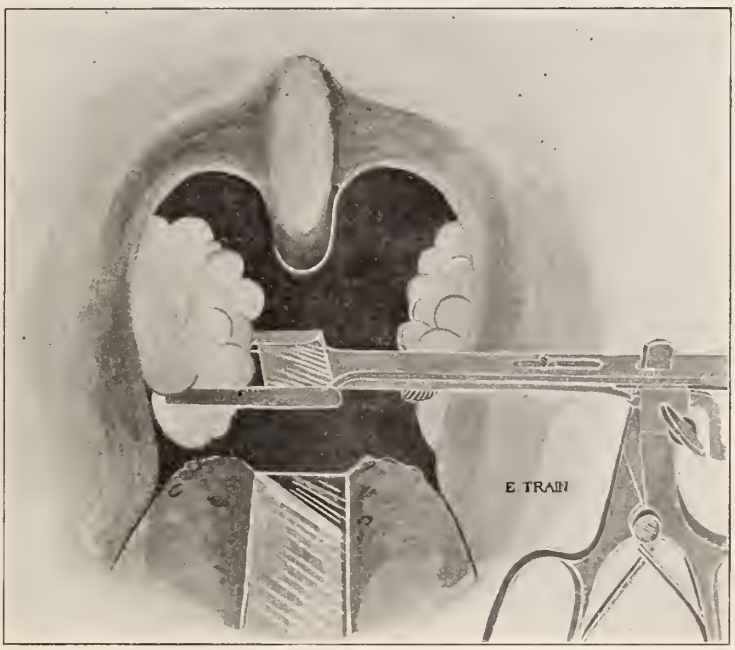

Figure 2.—The lower part of the tonsil is being engaged in the fenestra of the instrument.

CONCLUSION.

1. The faucial tonsil is the most common source of systemic infection in the body.

2. Because of its location, deep cryptic pockets, surface not uniformly covered with epithelium, it is easy for bacteria to find lodgment, traverse the gland and enter the blood and lymph streams, in acute infections easily recognized; but in the more serious systemic troubles without leaving marked evidence in the tonsil other than signs of chronic irritation.

3. While it is now generally accepted that many of the arthritic conditions, certain cardio-vascular degeneration, various forms of neuritis and kidney diseases most frequently owe their origin to some chronic latent foci of infection, there are other diseases of obscure origin in which the same etiology is suspected.

4. This operation is uninfluenced by the age of the patient or size or condition of the tonsil.

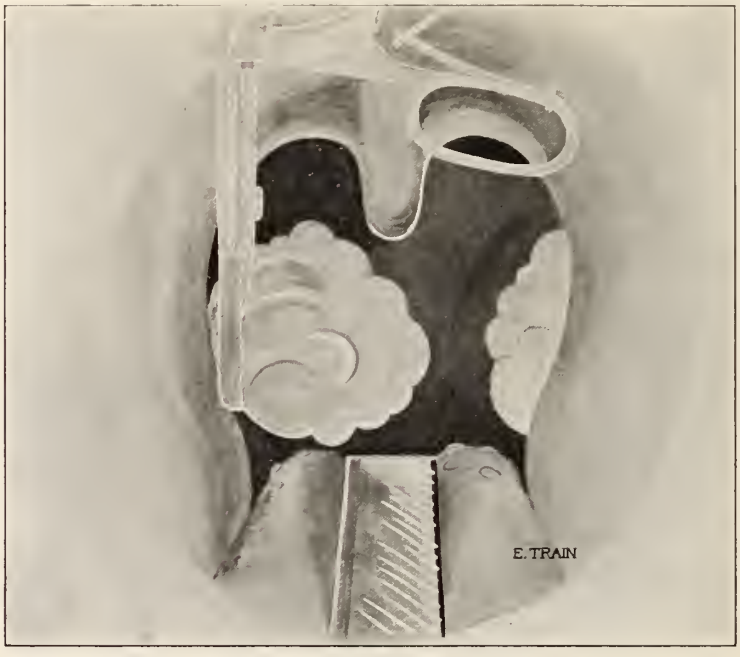

FIGURE 3.—The tonsil completely engaged and the hemostat of the instrument pressing tightly on the blood vessels.

5. The patient's throat should be well illuminated, to enable the surgeon to place the distal end of the tonsillectome between the tonsil and the posterior pillar at its lower part, as this is where cleavage starts.

6. The tonsillar fossa is left lined with the larger part of the smooth capsule, as a protection to the lymphatic area, the superior constrictor muscle and the anterior and posterior pillars.

7. This operation corresponds in every way to an ideal operation, namely, complete removal of the tonsils with a thin layer of capsule,

pillars uninjured with free mucous borders, a minimum amount of trauma, no hæmorrhage, no scar tissue, quick recovery, practically no sore throat, even in adults.

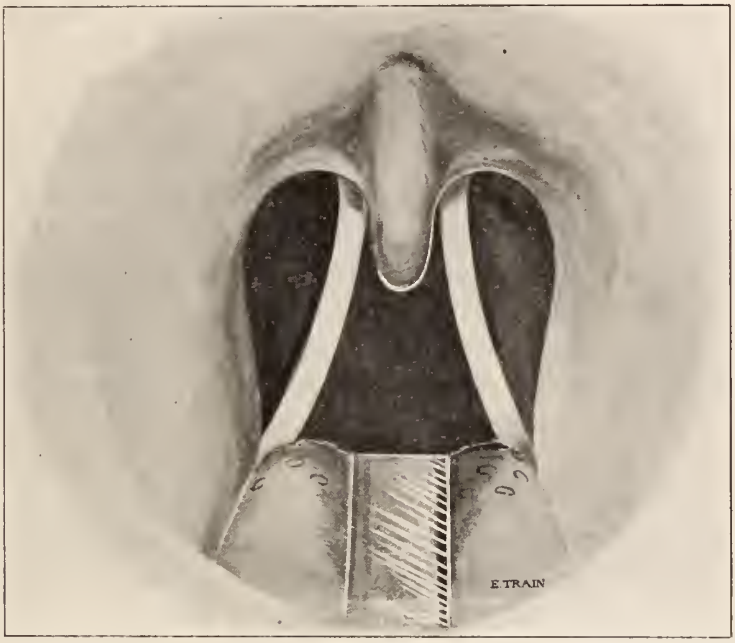

Figure 4.—The completed tonsil operation showing the smooth fossæ and the clean arches.

496 Commonwealth Ave.

DISCUSSION.

G. W. McDowell: I was under the impression that the modern way was to remove the tonsil with its capsule. This leaves the capsule in and Dr. Jones speaks as if this was an advantage.

Everett Jones: The advantage is that by leaving a part of the capsule in it protects the muscular fiber beneath, and there is not as much sore throat following. If you can get all of the tonsillar tissue there is an advantage in leaving a part of the capsule in. If the capsule is all taken out it often leaves a denuded area which in six months distorts the pillars of the fauces, drawing them together. If you can get all of the tonsillar tissue with the innermost layer of capsule, I believe there is an advantage in leaving the rest of the capsule.

W. M. Muncey: Are there two sizes to the instrument?

Everett Jones: No, there is only one size. It was last October

when I was at the Congress of Surgeons that Dr. Ross Skillern demonstrated this method and showed the instrument. All agreed it was very satisfactory. I saw Dr. Dickson operate in Dr. Palen's clinic two days later. Dr. Clay has told me at this meeting there was a hæmorrhage with one of Dr. Dickson's cases. I think the reason was that Dr. Dickson is a very rapid operator, and I believe he did not hold this hemostat more than half a minute. Dr. LaForce tells us we should hold it for from five to fifteen minutes and then we avoid hemorrhage. Dr. Dickson was showing how quickly he could operate with it. I think that this would account for the case in Dr. Palen's clinic having a hemorrhage. In children I hold the hemostat three to five minutes, adults five to ten minutes, one-half time before cutting off the tonsil. It is not only usually bloodless but little irritation or sore throat follows. Less than one case in ten needs any dissection before using the instrument.

G. W. McDowell: How do you get a large tonsil through that small opening?

Everett Jones: Massage the upper part through with the forefinger over the anterior pillar. The technique is similar to the Sluder technique, only we have the hemostat blade between the pillar and cutting blade which protects the pillars. The end results in every case I have examined since using this instrument have been all one could desire.

The After-Effects of Diphtheria on the Eye, Nose and Throat.—Gayland Hall says that in nasal diphtheria there is the characteristic membrane and discharges, with or without systemic disturbance or pronounced toxæmia—the higher the membrane growing in the nose or naso-pharynx, the more virulent the infection. Atrophic rhinitis is a sequel, and is now treated by vaccines. The patient is frequently a carrier.

Infection of the middle ear occurs, but not so frequently as in measles, scarlet fever, etc.—*Prac. Med. Series,* 1917.

OBSERVATIONS ON TONSIL SURGERY.*

JOHN J. MCDERMOTT, M. D.,

Chicago, Ill.

IT is with no small degree of tremulous fear that I stand before so critical and representative an audience to emphasize a few of the more important observations regarding modern tonsil surgery.

It is not my object to attempt either to condemn or revolutionize modern tonsil surgery or to ridicule the professional attitude, but rather my endeavor to crystallize both the radical and conservative internists and surgeons into such form as will best aid in solving the problem. Probably no other instance exists in which so many lives are involved by such a solution.

Medical inspectors of Philadelphia in 1912 recommended 37,000 tonsil operations, or 26 per cent. of the total defects in that year. Chicago in last school year advised 37,000 tonsil enucleations also. In New York, during the same year, 825,000 school children were supervised and 30 per cent. were advised to have tonsils and adenoids removed. Since it was the desire of the Health Department to fix a certain standard as to when operations should be recommended, a letter was sent to many eminent specialists in nose and throat diseases asking them what in their opinion were the exact indications for operative treatment of enlarged tonsils, and it is a very significant fact that no two of the specialists agreed as to the exact details. The question, therefore, involves the disposition of tonsils of millions of children in this rapidly growing United States, and should be sufficiently vital to demand our most exacting consideration.

I believe that we cannot be guided by any rule of thumb, but we should rather consider each case as a distinct problem to be solved in accordance with the symptom complex presented. Very few will dispute the propriety of tonsillectomy to-day: (1) When actually diseased beyond repair with possible systemic disturbances, either local or general; (2) when the hypertrophy is so great as to prevent proper res-

*Thesis. Read at Meeting of Amer. Hom. O., O. and L. Society., Rochester, N. Y., June 20, 1917.

piration, and, therefore, insufficient oxygenation of the blood; (3) when there is sufficient reason to believe that they are etiological factors in production of diseases. Every day I am more firmly led to believe that the size has little to do with the pathology; a small tonsil often proves to be more dangerous and harmful than a large one, and yet size is frequently, if not commonly, considered one of the chief indications for removal. Therefore, give the small tonsil closer observation.

Many of the most enjoyable results that I have witnessed have come after enucleation of a small, flat, buried, adherent, scarified tonsil, occasionally with calcareous deposits behind the plica. Many practitioners pass upon and call the throat normal when a further investigation by elevating pillars or plica would reveal to them a picture of disease not soon to be forgotten.

I would like to relate briefly a rather typical case of this variety. The patient was a young man, aged twenty-two, the family and past history up to recently were negative; for three months he has been treated for catarrh, malaria, typhoid fever and gonorrhœa by five different medical men, including two throat specialists. He had no ambition to work, was exceedingly tired at night, and even in the morning, after sufficient sleep, frontal headaches occurred nearly every day and his appetite was only moderate. He presented no history of sore throat, but had a slight fullness in the throat when swallowing. The physical appearance of the throat was normal upon first inspection, but on elevating the plica and pillars, many thick adhesions were seen covering two moderately enlarged cryptic suppurating tonsils. Streptococcus viridans hæmolyticus was the culture result of the pus. Later on the tonsils were removed and the patient made rapid recovery. Even the next day following the operation he felt better than he had for weeks before; he gained twenty pounds in four weeks and had no fever after. Last reports were that he is a completely different man.

In passing, it may be appropriate to mention the tonsil in relation to other diseases. The quartette, including tonsillitis, rheumatic fever, chorea and endocarditis is quite classic. Competent observers have considered and proved the tonsil as a focus from which may be disseminated tuberculosis, empyema of nasal sinuses, diphtheria, septic joints, adenitis, cerebro-spinal meningitis, gall bladder diseases, appendicitis, gastric ulcer, urethritis, rheumatism, etc. However, we

must agree that the uterus, breast, stomach, prostate, are organs which are and do become seats of malignant growths, which in turn produce metastases, although no one has, as yet, had the nerve to advocate wholesale removal of them, as a prophylactic measure. Furthermore, in our every day haste we must not lose sight of the fact that tonsil enucleation is not so simple a matter as is commonly supposed. Although many deaths, complications and unpleasant sequelæ never reach the medical press, very recent literature from skilled specialists and personal observations give abundant evidence of many deaths (usually from the anæsthetic) and complications resulting from serious hæmorrhages, local traumatic disturbances, gangrene, diphtheria (from auto-infections), aphonia, otitis media, phlebitis, cervical abscesses, surgical shock, asphyxia, hyperexia, septicæmia, surgical emphysema, pulmonary infarct, septic infection of lungs and its serous membranes, latent tuberculosis of lungs and adjacent glands, status lymphaticus, serious disturbances of the nervous system, amygdalotomy, rash, etc.

Other things being equal, how young should we operate for diseased tonsils? Children with lymphatic dyscrasias often have large thymus glands and some unpleasant results are, occasionally, encountered following a tonsil operation. Some of these children fatten to everyone's delight and apparently seem to do well for a short time, but later the operation is charged with impeding a child's mentality and subjecting him to frequent colds, malnutrition, etc. Occasionally a child with enlarged thymus passes away immediately following the anæsthesia and operation and post-mortem reveals status lymphaticus as the cause. Other young children of the same type have shuffled off by the marasmus route, resembling the last stage of rachitic children, four to eight weeks following the operation. Two of several I have observed were of syphilitic parents. If the case must be operated before two and one-half years we feel much safer in performing it without profound anæsthesia, as it is usually the adenoid alone which does most harm in very young children.

The best tonsil operation should be the one which is: (1) most efficient or complete; (2) which causes the least hæmorrhage; (3) which consumes the least amount of time; (4) which is least distress-

ing to the patients, both during and after the operation while fossæ are healing in.

Many points of interest could be mentioned regarding the various technique of the operation, but time will not permit. With the above points in mind, I have in the past attempted to settle upon some definite technique of operation, and after having witnessed and assisted at several thousand tonsil operations, and after performing several hundred myself, by various standard methods, my Sluder modified, was, and after two and one-half years, still is my choice, and La Force hemostat tonsillectome a close second choice. Many men criticise it from the standpoint of hæmorrhage, but as yet the method has treated me kindly in that regard, as two hæmophiliacs, whose coagulation tests were eighteen minutes the week before the operation and four minutes on the day of the operation, following a week's treatment, have been the only cases that caused much worry. It has been said that the flat, buried tonsil cannot be enucleated by the Sluder modified method, but in my experience, it has been the easiest and most gratifying method of enucleation. Much success, however, depends upon the proper adjustment of pressure and the angle of your instrument while operating.

Hæmorrhage is always a very important factor, so we shall say a word in regard to it. By using ferropyrin in the fossæ *immediately* after removing tonsil I have met with very little distress. Hæmorrhage other than in hæmophiliacs usually results from anamolous arteries or veins, a partially removed pedicle or a bilobed tonsil, as there are no muscles in the tonsil vessel walls; or from a denuded muscle in or about the fossæ, and from tags of membrane hanging from the pillars, plica or fossæ cavities.

Calcium, coagulose, thrombin, horse serum, antitoxin, gelatine, ipecac, ferropyrin, adrenalin, pituitrin and kephalin have their ardent advocates. At present we are trying out kephalin 10 per cent., as a hæmostatic following tonsil enucleation, and also in nasal surgery. In several cases it has performed excellent work, but again we have not used it enough to determine its real value. At Johns Hopkins Hospital it has been used very widely in their genito-urinary surgery with much success.

Why is it not best to give your patient intelligent after-treatment,

thereby obtaining for yourself and for the patient the best ultimate results? Many advantages would result if every patient could have his urine examined a week after the general anæsthetic, in this way preventing many nephritic cases from developing.

Especially, when the thickened plica is found and only partly or unwholly removed, should the after-treatment be vigilant to prevent adhesions and pockets forming between the plica and the inferior fossæ, thereby preventing foci of infection from future development. Let us remember also that the drawing sensation in throats when swallowing, following tonsil enucleation, may be entirely removed very frequently by severing the plica, thereby liberating the excursion of the tongue.

In conclusion, I wish to thank Dr. C. Gurnee Fellows for his suggestions and kindly co-operation.

30 No. Mich. Blvd.

TONSIL TALK.

The tonsil's the door
For troubles galore
That enter with germs
On intimate terms,
To take up their station
Without hesitation
In tissues and juices
Of various uses,
And rack the poor people with pain,
And drive the poor people insane.

The germ diphtheritic
And others mephitic
Get in through the tonsillar crypts,
Get in past the rosiest lips.
There's appendicitis,
Iritis, neuritis,
An ulcer or so
Of stomach or toe;
Arthritis rheumatic,
Or abscess hepatic,
Carditis, pleuritis,
And grave pneumonitis.

And these are but few
Of the ailments that brew
In tonsils of worker or tramp,
In tonsils of good man or scamp,
In tonsils of fool or tonsils of sage,
In tonsils of youth or tonsils of age.

—Arthur M. Corwin, M. D. (*Medical Pickwick*, Sept., 1917.)

PHYSICAL FUNCTION IN VOICE PRODUCTION.*

J. R. McCleary, M. D.,

Cincinnati, O.

YOU readily recall that the gross anatomy of the vocal apparatus consists of the chest, the larynx and the resonant cavities of the head, and that the normal voice can only be produced when the physical function of these structures properly co-ordinate in voice production.

There is just as much difference in voice as there is in prose and poetry. The speaking voice is an articulated tone. Singing is a sustained tone, depending upon the synthetic vibrations in the resonance cavities.

It is this particular point that I wish to emphasize. These cavities are of such different sizes and shapes that they modify the color, quality and timber of the singing voice, just as much as pathological hindrances of enlarged or diseased tonsils, adenoids, enlarged turbinate bodies, deflected septums and nasal growths do in crowding out the amount of vibrations that should pass through the post-nasal space.

When we consider the post-nasal space or more especially the soft palate and the great importance it plays in phonation and articulation, we will appreciate its automatic valve action in controlling the vibration of air passing between the pharynx and nose while the speaking or singing voice is in action.

I believe it is a unanimous opinion among modern rhinologists that diseased conditions and abnormal growths should be removed. For a more comprehensive and detailed report along this line, I take pleasure in referring you to that most excellent symposium on "Speech, Voice and Hygiene of the Vocal Tract," published in the April (1916) number of The Journal of Ophthalmology, Otology and Laryngology. This issue is a classic in itself, and is being quoted in literary as well as medical journals.

*Read at Meeting of Amer. Hom. O., O. and L. Soc., Rochester, N. Y., June 19, 1917.

It is the correcting or more probably the post-operative physical function for which I wish to make my plea. The rhinologist should be able to differentiate between the physical and the cultured voice, which means that his auditory apparatus must be as well trained to detect flaws in the tones as the ophthalmologist is in noting the delicate pathological changes in the fundus.

The operative work in this field is like all high class work, it must be individualized and should represent the highest skill of a specialist in nose and throat work.

Deviated septums must be properly corrected to balance and equalize the vibrations for tone formation.

Hypertrophied turbinates should be surgically corrected, especially the posterior third of the inferior, not ony to remove obstruction in breathing and singing but to assist in creating a better condition in the resonance of head tones.

The diseased accessory sinuses should be absolutely corrected. The infiltration nearly always affects the bony structure, causing the cavity to become smaller and much less resonant. The mucous lining becomes thickened, thus dulling the resonance from that source just as a violin if it was water soaked.

The chronic inflamed or enlarged tonsil should be carefully and completely removed. They influence the palatal muscles. These muscles have their attachments in the superior corner of the thyroid cartilage. They are often called the thyroid pulling or cord stretching muscles in voice production. In said location when the up and forward direction of their pulling forces are acting and the levator muscles are in contraction, we readily understand their delicate function and realize that the slightest interference will cause an injurious effect upon the character of the voice.

I believe that the anterior-posterior measurements of the tonsils to be the greatest, thereby producing a curving of the palato-pharyngi and palato-linguo muscles while in action. This abnormal extension or fulcrum action, so to speak, is an over-action interfering with the levator in accurately and delicately closing the palatal valves, *i. e.*, the proper escape of air or sound vibration through the nasal cavities. The action of the levator and its complementary muscles of the palate is capable of making adjustments and must be explicit in their action for

position. I fully believe that on the accuracy of these palatal positions depends the pitch or class of these synthetic vibrations, upon which the resonant cavities base their timber and tone quality.

With the diseased or abnormal conditions removed the most important point is to have the vocal muscles work normally. We find seventy-four muscles and sixteen nerves capable of producing some sixteen hundred adjustments and readjustments. It is our place to know that these muscles are working normally before the patient is passed on to the voice teacher. Physical voice, then, being the basis of natural muscle action, we should pay attention to these points:

First: The ability to completely relax. Naturally we find the patient's muscles are kept within a certain limit or range but the two extremes, the relaxation and the tension, are not as true in action as the range mostly used. Yawning is nature's best way in developing a relaxation, so if we lay as much stress upon training or cultivating this yawn, as much as the teachers do in producing a certain tone, then the muscles will be under better control in relaxation. This control really furnishes a base for natural action.

Second: Normal muscle positions for head tones. Too many speakers, and especially singers, allow themselves to use certain methods in ordinary conversation and immediately change when they take part in speaking or singing, especially the latter. One system must be the result, and, if the patients are taught the secret of utilizing the proper muscular action in speaking as well as singing, it will make either one easier to develop.

The most important point in muscle position is the method in which it is taken. For many tones are made which are produced under muscle strain rather than the co-ordination of normal function. Muscle strain here is not different from muscle strain in the eyes. For instance, you have twenty degrees of exophoria in accommodation. We do not exercise the muscles to overcome the twenty degrees. On the other hand, we exercise the muscles to overcome forty to sixty degrees above normal. When this is accomplished, their relaxation is to a normal condition instead of a phoria.

With the educated muscle relaxed in a position similar to its condition while yawning, it is much easier to take a tone rather than have the muscles pull or strain for a position to produce a tone.

Third: "Exercising the muscles to secure the best resonance for carrying qualities." The patients should be taught to utilize the basic principle of relaxation and the active principle of taking head tones. Then to so adjust these parts that the voice can be placed with as much ease and freedom at fifty feet or one hundred feet, as it would be at twenty-five. Or, in other words, if our pupil patients would exercise this method in their practice and speak or sing at a hundred foot object, the carrying qualities would be much better trained than that of practicing at a piano or in a room and then in real delivery not have the exact training for the distance needed.

With the function of the physical voice working normally they are ready for the music teacher.

410 Mercantile Library Building.

DISCUSSION.

Irving Townsend: Dr. McCleary's paper covers some points which in my mind need to be strongly emphasized, viz., the importance of co-operation between the laryngologist and the vocal teacher. Oculists have long been familiar with the effects of eye strain and the conditions arising from the overuse or improper use of the delicate eye muscles.

It is obvious that the best results in vocalization can only be obtained by a method combining the natural exercise which strengthens with perfect co-ordination of the muscular apparatus.

I. O. Denman: I have talked with Dr. McCleary on this subject and know that he knows a good deal more about it than he has put in his paper. He tells me that he wrote the paper only last night; I think that if he had taken more time to it he would have given us a still better paper than it is. He has worked along a line with vocal teachers that is a new thing in the profession; it opens a new field for the specialist. The leading vocalists are beginning to seek the co-operation and advice of laryngologists to remedy defects of an organic nature. They have been studying the subject from the psychical side and see that more than the other. The physical side, however, is of great importance and frequently presents handicaps to their efforts to achieve certain results. By consulting specialists in all probability such physical handicaps could be removed.

If parents who design their children for a musical career would first consult the laryngologist they would be saved much subsequent

trouble and disappointment, not to mention the expense of the vocal training. Success in the vocal art requires healthy throat muscles and organs, and I think we should all bear this in mind in our respective fields and try to assist the leading vocal teachers both to their benefit and our own.

Ralph I. Lloyd: There are a number of points about the subject connected with the proper use of the voice that we can utilize. Anyone who has been called upon to teach a body of students will realize the vaue of properly placing the voice so as to be heard by all. We can place our voice in the back part of the room and reach the sleepy students as well as the wide awake ones and the voice need not be loud to accomplish this.

Ella G. Hunt: In removing the tonsils of a singer the question of an increase or decrease in range is important. With a soprano voice you can expect an increase. With contralto the operation may interfere for a time, but with proper use it will come back to what it was at least. I begin the use of the voice very soon after operation. I find "the hum"—a useful exercise. With children it is well to be explicit, so I order them to hum loud, while running twice around outside house. Next I ask them to hum with mouth open, and change sounds from *m* alone to ma, me, mo—always with mouth open. This humming relaxes palate and helps regain its elasticity. By keeping palate relaxed we get a voice that will carry well and also avoid a nasal tone.

Thomas L. Shearer: A most embarrassing position for a laryngologist is to have a pupil referred to him by a singing teacher to correct some physical defect in the throat, and to find, after examination, that the whole trouble is due to faulty voice production. I have been in such a position. It is a ticklish thing to send back the pupil with statement which involves the idea that the method of teaching is faulty. It is unfortunate, but it is true, that much of the voice training is conducted upon incorrect methods, and no matter how good the work of the laryngologist may be the result will not be satisfactory, or permanent, under faulty vocal instruction.

Wm. M. Muncy: The preceding speaker has brought attention to the importance of co-operation between the laryngologist and the singing teacher. I have seen two cases of laryngeal difficulties of a

persisting nature which have been due to the presence of cauda nosoda, caused by a faulty method of voice production. These disappeared upon changing of teachers, as a frank co-operation was not possible.

Dohn: The important part that the faucial pillars take in tone production should be borne in mind in all tonsil operations. When we consider that most of the general practitioners do tonsillectomies without special training it is no wonder that the pillars are injured or sacrificed to the lasting injury of the voice, especially the singing voice. Special care should be taken that the pillars are not mutilated in the case of singers. I know of a case here in Rochester of tonsil removal; the operation was done by a man who did not understand the technique, for only the ends of the tonsils were chopped off and the pillars were sacrificed. It is a great injustice to the voice to do it in that way. We as throat men should emphasize that point and let it be known to voice culturists.

G. J. Alexander: Up to the present time I have not experienced any trouble with singers suffering the loss of their singing voice after tonsillectomy; on the contrary, they have all been much pleased with the clearer tones, and improvement, especially in the higher registers that resulted. Exercise of the voice soon after removal of the tonsil is most important in my opinion, and all my patients receive careful instructions to this point as to method, although I have not been quite as systematic in these instructions as is Dr. Ella G. Hunt, according to her routine, which she has just given us. I remember several years ago advising the removal of the tonsils of a certain young lady patient who as a singer was greatly exercised over the possible loss of her voice following the contemplated operation. This was her one great fear. I finally overcame her fear by promising no damage to the voice if she would carefully follow instructions. She began using her voice immediately after the operation, and the result was entirely satisfactory. At first she practiced the scales very softly, accompanying herself on the piano. In a couple of weeks she returned to my office in great glee saying that her voice was improved in quality and richness of tone since the operation, the result being as pleasing to me as it was to her.

I have had the opportunity at different times of seeing some unfortunate results following the removal of tonsils by some of the best men in Philadelphia. One young woman, for example, came to me

several years after such an operation claiming that before the operation she had a very nice singing voice which she had lost as a result of the operation; she could no longer sing, and along with that she complained of a number of other symptoms, such as a pulling sensation in the neck and throat, and pain extending from the right side of throat to the right ear and down the right arm, also involving the face. I found marked adhesions in the throat, especially on the right side in the tonsil fossa where the cut surfaces of the pillars had grown together, causing contracted adhesions between which were being squeezed a small round body of tonsil or alveolar tissue, which was tender to the touch. I could not tell exactly how much of the symptomatology was due to this condition but was inclined to think that it was largely responsible for the symptoms. I would, however, be glad to have the opinion of others here who probably have had more experience than I. After considering the matter closely I took the subject up with Dr. Mackenzie, asking him if he thought the removal of the adhesions, etc., would help the case. He thought not. In spite of this, I decided to remove them, this procedure being followed by gratifying results, not in the restoration of the singing voice, but in the removal of the disagreeable sensations of pulling and pain. It also greatly improved the patient's state of mind, whether it was the result of physical or psychical conditions, I do not know. There was also present a chronic pharyngitis indicated by many lymphoid thickenings and well-developed lateral folds on the post-pharyngeal wall. As this condition responded to treatment, I noticed still further improvement in the patient, which would seem to prove my suspicion that this condition was a factor in the causation of the group of symptoms experienced by the patient.

Burton Haseltine: For the comfort of Dr. Alexander I will say that the kind of tonsil work that he does will never result in any such adhesions as those he speaks of. We see such work coming from other hands often and perhaps sometimes do them ourselves. I want to compliment the manager of the Journal for the good missionary work it is doing. I think our symposium is absolutely unequalled in the literature of the subject. I have had one thousand copies printed and will be glad to supply a few to anyone wanting them.

J. S. Gaines: I believe that adhesions after operations are re-

sponsible for much trouble. A lady of 35 came to me in New York after enucleation of the tonsils. There had been diphtheritic infection after the tonsil removal, with fever and systemic involvement. The whole palate was adherent, voice husky, throat muscles always tired. The adhesions of the palate were so extensive that a small probe could scarcely be passed up.

President: Dr. McCleary, will you close the discussion?

J. R. McCleary: There is hardly anything to add to what has been said. I am very much pleased at the spirit in which the paper has been received. It is true that we have devoted an immense amount of attention and study to the subject of the muscles of the eye, but we have not done our duty fully in regard to the delicate muscles of the throat upon which so much money has been spent in the training for music. This is a department in which we can very well aid the efforts of the teacher of vocal music.

The Deaf Soldier Is a Crippled Soldier.—Do not forget that the defenders of our country who may lose their hearing will be more seriously "crippled" through deafness than many a defender who loses a limb. The latter will have a visible appealing loss, that awakens sympathy and a desire to aid, but the deaf man will have no outward sign of his heavy loss to aid him in winning sympathy and co-operation. Yet deafness may be the cause of reducing a defender's wage-earning ability to a minimum, and force him to accept subordinate positions, with small pay, unless he becomes a lip-reader.—*The Volta Review*, November, 1917.

ACUTE NASAL AND LARYNGEAL INFECTIONS: THEIR TREATMENT AND MISTREATMENT.*

C. A. Harkness, M. D.,

Chicago, Ill.

THIS subject is neither new nor especially interesting to many perhaps, but it has come to me again and again that not only the general practitioner but also the specialist was very lacking either in his knowledge or his ability to apply his knowledge of the care of these cases. Consequently it is possible that I should have added to the title of this paper, "Mostly Their Mistreatment."

I have been surprised and often almost startled by the lack of care given to these cases. Most of the general men seem to think that they are simple things unless they find the diphtheritic bacillus, and they send the patient out to suffer and to infect others.

The common cold is in my opinion as dangerous as is a case of diphtheria. From it come as many serious results as from diseases that are given the most careful attention. From a cold in the head come many cases of pneumonia, chronic congestion of the Eustachian tube with resulting middle ear deafness, most if not all of our sinus cases, all our mastoids with their complications and the so-called catarrh of the head. And yet we neglect to care for this condition till we get one of the serious complications.

How many general men give the patient any care except to prescribe aspirin? How many laryngologists treat a cold the same way? I am free to say that most of them do judging from what I see of these cases. I believe that it is the work of the specialist to care for these patients and to treat them seriously and not as a simple condition which is beneath his notice. It is an unfortunate thing that most of us are interested only in the so-called big things. It is difficult for the doctor to realize that a patient may be really sick and still be able to come to the office. Perhaps the specialist realizes it more than the general man, but frequently he does not. I am glad to say that there

*Read at Meeting of Amer. Hom. O., O. and L. Soc., Rochester, N. Y., June 19, 1917.

are some who do. One of the most successful men I know is a man in Chicago who treats an apparently trifling case as a big one. And so with this in mind I have chosen this subject and shall try to show the fallacies in some of these methods of treatment and the good in others.

Acute rhinitis or the common cold is an infectious disease due, as a rule, to a mixed infection. Microscopically, we find the streptococcus, the pneumococcus, the staphylococcus, the diphtheritic bacillus, the micrococcus catarrhalis, the influenza bacillus and many other bacteria. Those mentioned are the most common and, with the exception of the Klebs-Lœffler, we usually find them all. As a rule, the bacillus influenza, the staphylococcus and the micrococcus catarrhalis are most abundant. The severity of the attack is probably somewhat indicative of the presence of the other bacteria. To cure such a condition we must resort to several lines of treatment. We must treat it locally, internally and eliminatively.

Locally, it must be met with antiseptics. Here we find the great difficulty of keeping solutions in contact long enough to be of value and of using strong enough solutions without injuring the mucous membrane. The nasal tampon with which we are all so familiar meets this difficulty. I have made some change in the original suggestion in that I use a strip of gauze saturated in silvol, 5 per cent., and pack into the nose. I have found that a narrow strip of gauze can be more easily introduced into the swollen nose than a large pledget of cotton. Also I find that silvol does not produce as great discomfort to the patient as does argyrol, and apparently the results are even more satisfactory. Laboratory tests show that silvol has a greater bactericidal action than any of the other silver salts. It is also more stable and can be made up and kept indefinitely. It is also more active in weaker solutions. It destroys and inhibits growths of bacteria better in a five per cent. solution than in a stronger one. This packing can, however, only be left in for ten or fifteen minutes, and so it is necessary to add some other antiseptic to our treatment. It is here that I differ from many men. I do not believe that the use of oils is indicated. In fact I believe that they are scientifically and physiologically contra-indicated. The secretions from the nose are watery, and as oil and water do not mix, it would seem that when an oil is put into the nose that it would

be floated off and would be of no value. On the other hand, an aqueous solution similar to the blood plasma should carry off the bacteria and help free the nose of infection. There are numerous alkaline solutions on the market, and the one chosen should depend on the condition present. In the early stages, with much swelling, glycothymoline or alkalol seems to be the best. Later, when the discharge has become profuse, but is still watery, lavoris seems to be the one of choice. In the last stages I believe that salugen gives the best results because of the hydrastis in it. And here let me say that this seems to be a field for Homœopathy. The indicated remedy can be applied directly to the part affected. It has long been my custom to use hydrastis in a spray in chronic catarrhal conditions with copious thick yellow discharge, and I have found that the results are much better than when the hydrastis is omitted. Further evidence of the fact that aqueous solutions should be used is found in the fact that nature attempts to wash away the infection by pouring out great quantities of an aqueous fluid.

I believe, however, that there is a place for an oil and that is when there is marked crusting, and it is desired to keep these crusts soft so that they can be easily removed. After cleansing the nose and making any application desired, an oil can then be used to protect against dust and to keep the crusts soft. For this purpose there is nothing better than vaseline.

Internally, I believe we make our greatest mistakes. The great misfortune of to-day is that people want relief and not a cure. They demand that the secretion be stopped at once, and, as a result, the market is well stocked with rhinitis tablets, which dry up the nose but do not remove the infection. The use of aspirin indiscriminately is as much to be avoided as the running to the rhinitis bottle. I can find no reason for thinking that aspirin cures colds. Rather it tends to make the user more susceptible to them. It does relieve the aching, and in large doses will reduce the temperature. But reducing the temperature is not always so desirable, as fever is nature's effort to destroy toxins. It is a much better way to reduce temperature by helping nature to free itself of these poisons by increasing the elimination. Further, aspirin has a very destructive action on the blood, and the use of it makes the patient less able to fight the infection, and its inroads

upon the system. Sajous says that it should be avoided in acute infections because of its depressing effect upon the heart. In people especially susceptible to it an œdema of the nose, throat and eyes may result, thus complicating the case. Franke, in the *Muench. Med. Woch.,* has noted such a condition after giving only fifteen grains of the drug. Borri also has called attention to a similar case after taking ten grains. Cooper, in the *West Virginia Medical Journal,* reports a case of poisoning from 7½ grains with marked œdema, general cyanosis and weakened heart action. Just why these conditions result is not known, but it has been suggested that aspirin acts upon the smooth muscle fibers, and that the œdema and cyanosis are manifestations of a vascular spasm.

Sajous also calls attention to the fact that aspirin should never be given to reduce temperature except in hyperpyrexia, *i. e.,* when the temperature exceeds 105° F.

So the use of aspirin is to be avoided except when it is absolutely necessary to give some relief from the neuralgia so often present, and for excessively high temperature. Then it shoud be a last resort remedy, and should not be given to the patient as aspirin, but under its true name of acetylsalicylic acid, and if given on a prescription the druggist should be forbidden to refill it.

Another drug frequently used and one to be preferred to the one just mentioned is phenacetin. I cannot say that I believe in its indiscriminate use any more than I do that of aspirin, but I believe that it is safer and that the results are of greater value. It does not depress the action of the heart, but rather increases the blood pressure, and so, of course, should be given with care in cases of high blood pressure. Even here, however, there may not be as great danger as might be suspected, as this increased blood pressure may not be so much due to an increase in the action of the heart as to the fact that the smaller blood vessels are contracted by it and so produce a simulated increase in pressure. Its analgesic effect is as great as that of aspirin, and, in addition, it stimuates the sweat glands and so eliminates the toxins. It also lowers the temperature without depressing the heart's action, according to Cerna and Carter. Sajous states that this temperature reduction is due to the inhibiting of both the functional activity of the adrenals and thyroid and tissue metabolism

While this drug does produce changes in the blood such as the formation of methemoglobin, according to Kroenig, it is necessary to give excessive doses to produce such changes. Even in people especially susceptible to it I can find no record of any bad results until at least forty grains had been given in a very short period of time. For this reason I believe that it is the safe drug to be used for the relief of pain, to produce profuse perspiration and to reduce the temperature.

A great favorite with many physicians is acetanilide. I must confess to having for a long time thought that it was one of the most valuable drugs that I knew of in curing a cold. Study of its effects on the system has led me almost to discontinue its use. It depresses the heart, lowers the blood pressure, changes the hemoglobin into methemoglobin and causes the arterial blood to resemble venous blood. It thus takes away from the blood its ability to fight contagion and not only prevents throwing off the infection then present but also makes the patient more susceptible to other infections owing to lowered vitality and resistance.

What, then, are we to use internally? I believe that I am absolutely right when I say that there is nothing so efficient as the indicated homœopathic remedy. It not only does not lower body resistance but it rather tends to build up that resistance. It also goes to the part involved, and assists nature in throwing off and overcoming the bacterial invasion. I would not attempt to give you the indications for the selection of the homœopathic remedy, as that is the business of the materia medica man. Each one must study his case and prescribe the remedy found indicated. I know of but one other thing that we can use internally that is of value, and that is the vaccine treatment. I believe this is somewhat questionable, although I know that many will not agree with me in this. I have never seen a case cured by the vaccines alone. I have seen an immunity developed by the administering of the vaccines in cases where there was great susceptibility to infection and where nasal malformation had been corrected. I do not believe that the administration of the vaccines does any harm, and in this day of scientific medicine I believe that we fail in our duty if we do not use them. I believe that it is better to use a stock vaccine rather than to try to get an autogenous. The bacteria change too fast in form for an autogenous one to be as valuable as a

stock. The manufacturers are constantly keeping up the various strains and the virulence of them. In the making of an autogenous vaccine an entirely different strain may be developed, and so we would get no result from its use.

The third, and, I believe, one of the most important steps in treating rhinitis, is the increasing of the elimination The bowels should be thoroughly cleansed with salines. Hot drinks and hot packs should be employed to produce profuse perspiration. In fact, a genuine old-fashioned sweat is advisable. Could a Turkish bath be given at home it would be one of the most valuable weapons in fighting a cold. The kidneys must be kept active by the use of such waters as Bokert or Poland.

Lastly, rest in bed and plenty of easily digested and easily assimilated food are required. With such treatment the patient should not only be relieved but should be cured of the cold in forty-eight hours, and should be in better condition to resist reinfection.

Involvement of the sinuses is one of the complications of an acute rhinitis. When this condition arises there is, as a rule, enough pain so that the patient is glad to consult the physician and the result is that there is less carelessness manifest in its treatment. Even doctors readily recognize the seriousness of this condition. Consequently it is not necessary to go into it as thoroughly as into the treatment of the cold. The silvol pack will give very early relief. Following this with astringent sprays will cure practically all cases. I have found during the past winter that after cleansing the nose with an alkaline spray it seemed to give good results if silvol was sprayed into the nose and allowed to remain there. Another excellent application is a preparation known as antiseptigen. It is a mixture of iodine, tannic acid, compound tincture of benzoin, hamamelis and stramonium leaves in glycerine. Used in a fifty per cent. solution it can be sprayed into the nose with a DeVilbiss atomizer. I believe that this will reduce swollen mucous membranes faster than any other preparation. It also has the marked antiseptic value of its constituents.

As far as possible all medication should be by means of the atomizer. Douches are contra-indicated at all times, and especially in these cases where the membranes are hypersensitive and so more liable to produce sneezing and strangling with the resulting forcing of solu-

tions and infection into the ears. Swabbing is unpleasant to the patient and I believe that the trauma produced by it opens up more avenues of infection and also makes the patient less able to resist the bacterial invasion.

Infected throats are now being treated more carefully than formally. These infections are due to the same organisms as those that produce rhinitis. The diphtheritic throat needs not to be discussed here. It has but one treatment and that is antitoxin. I believe that no one disputes that the use of antitoxin early and in large enough doses will cure diphtheria. The effect of it upon the general system is, of course, a matter of discussion, and is being investigated. I might just mention a fact that recently came to my attention. It is that in fifteen cases posted after death that all that had antitoxin showed marked congestion of the liver, and those that had not had it did not show this condition. From this there has been advanced a hypothesis that death resulted from a portal congestion when death follows the administration of antitoxin. This is, however, so uncertain that it cannot be given with any certainty.

Recently there has come to be recognized the so-called streptococcus throat. While there may be other organisms present the predominating one is the streptococcus. Its effect upon the throat is peculiar to itself and demonstrates its manner of growth. It travels right across the tonsil or the mucous membrane and when a tonsil is present it burrows down into it and is at once taken up by the general system. As a rule, these cases carry a subnormal temperature and are not confined to the house. A dirty membrane covers the path of the organism, and this membrane is removed with difficulty. These characteristics frequently lead to the belief that it is a Klebs-Lœffler infection, and only the laboratory makes the differentiation possible. We have had in Chicago and its suburbs an epidemic of these cases the past winter. Efforts to find the source of infection have proven unavailing. The use of the ordinary treatment has proven of little value. Gargles have only seemed to spread the infection. Strong antiseptic applications have irritated the throat and have opened up new points for attack. Iodine, silver nitrate, argyrol or silvol not only did not help but rather seemed to furnish food for the growth of the bacteria. Only one treatment has availed, and it has been so uni-

versally satisfactory and so rapid in clearing up these cases that I have formed a rule that in streptococcus throats and in anginas all irritants should be avoided, and that gargles were to be shunned. This treatment is to wipe off the membrane with glycothymoline and then apply a coating of simple syrup. Then the entire throat is painted with a solution of Bulgarian bacilli. This application with the syrup is made every two hours. Case after case has responded to this treatment and has been cured in twenty-four hours. The action of the Bulgarian bacilli is to prevent the growth of the other organisms. Frequent application is necessary. Avoiding trauma and opening up new fields allows nature to throw off the accumulated toxins. I realize that here is perhaps a field for the vaccines. But since using this treatment I have not found it necessary to give the vaccines. I do not know that this treatment is original, but I do know that it has cured cases that I had been unable to cure with any other method, and I have not known of its being widely used.

Another condition that we frequently meet with in Chicago is a loss of voice with or without cough. I have had several rather troublesome cases of this kind. And from the fact that they have all been under the care of other well known and excellent men I have come to the conclusion that the condition has been as hard for them to treat as I have found it to be. In all but one of them, however, I have found that the condition, as a rule, had some constitutional condition back of it. Correcting this has, as a rule, benefited them, although it has been necessary to use some local treatment. There is usually not much to be seen in the throat except a congestion of the vocal cords. Occasionally there is some redness of the throat and a little secretion. Spraying has been of no value. I have found that application of pure antiseptigen has reduced the swelling and inflammation of the vocal cords, but most important in the treatment has been the applying of vibration over the larynx and upper part of the lungs. Almost immediately after such a treatment, which is usually of five minutes' duration, the voice has returned. Two cases illustrate this especially. Mrs. L., aged 60, has had periodic attacks of loss of voice for eleven years. There was no apparent reason for it, and there were no signs of cold or infection in the throat. She had finally gotten so that she could not talk above a whisper for more than a couple of minutes.

There was so little pathology manifest that I was inclined to think it a case of hysteria. However, believing that all cases of hysteria have some pathology back of them, I took a very careful history of the case and found that there was a chronic indigestion. She was then under the care of a noted stomach specialist, who was regulating her diet, as he had for several years. She was taking no medicine. I was not skilled enough in such diseases to diagnose the gastric difficulty, but the remedy was plain, and I put her upon lycopodium, later changing to sulphur, giving both high. Her gastric condition was remarkably improved, and there was some improvement in the voice, but it was not permanent. So I began the local treatment already mentioned, and her recovery was almost immediate. It seemed wise to continue the treatment for about a month giving two treatments a week. Her last treatment was a year ago. I have seen her but once since when she had a cold and lost her voice for two days.

The second case is also a woman. Mrs. J., age about sixty-five, who called me for what she called an attack of croup. The acute attack was practically over when I saw her, but the loss of voice was present. She states that any extra exertion or worry brought on a loss of voice, and that her tones were always husky, and had been for about two years. She had been treated by several men, among them some of our school. I could find absolutely no reason for this loss of vocal power. The cords were almost normal in appearance. Vibration restored the voice to its normal quality in six treatments and there has been no further trouble except this winter when she had an attack of grippe. Then there was enough pathology to account for it. However, even after she recovered from the grippe the huskiness remained till after a few vibratory treatments. This case, so far as I have been able to find out, had no constitutional condition back of it. It is the only one of about twelve that did not have. In all the others I believe that the remedy was exceedingly valuable, but still it was necessary to use the vibration before the throat symptoms disappeared.

In conclusion, then, let me emphasize the necessity of accurate homœopathic prescribing, the use of alkaline sprays in preference to oily ones, the use of the silvol tampon, the avoiding of aspirin and acetanilid, and most important of all the absolute necessity of considering nasal and laryngeal infections as serious conditions to be

treated as carefully as the so-called dangerous and big infections. Remember that from the common cold come many most serious complicating diseases.

29 E. Madison St.

DISCUSSION.

H. W. Hoyt: Many acute cases could be cured quicker if the specialists had charge of them instead of the general practitioner. My experience with silvol has not been so satisfactory at that with argyroi. I think better of using oily sprays in the nose than Dr. Harkness. I have good success with them. Some years ago I advised the use of a spray consisting of two parts of the oil of thuja, one part of hydrastis and one-half per cent. each of menthol and camphor. This has been a very successful application in both acute and chronic cases; before the oily spray is used the nasal passages should be thoroughly cleansed. The spray then attaches itself directly to the mucous membrane. I was glad to hear the doctor speak against aspirin and acetanilid. Aspirin is advertised very extensively in all our journals, and I think in the daily papers, or, at least, in popular magazines by Bayer. I am sure that much damage has been done by its use, especially by the laity who use it largely in headaches and colds. The homœopaths have a better chance of treating colds successfully than the other school; with arsenicum iodide, gelsemium and belladonna we certainly can give great help to the majority of such cases. Mercurius iodide and belladonna are very successful in other inflammations. From what I have heard and read I am inclined to think that the vaccines are not so successful in acute colds as in chronic cases. I think it is a great help to flood the system with water, especially distilled water. This greatly aids elimination; if you do that it is not necessary to take so much of the cathartics. In sinus inflammations I have used the suction treatment with argyrol tampons. In that way you draw out what secretion there is with the vacuum pump, and you are giving the best cleaning out possible in that region. I think the nasal douche is a dangerous remedy in unskillful hands and in the majority of cases. If the douche is used the nose should not be blown for several minutes. Much harm is done by blowing the nose during a running cold; the infective material is forced into other cavities. The proper, though inelegant, way to blow the nose is to hold one nostril while blowing the other. The doctor's treatment of strepto-

coccus is unique, I never heard of it before. I have used argentic nitrate and potassium permanganate with fair success. Vibration and galvanism are very satisfactory with the electrode on the sides of the larynx and also a laryngeal spray of a five per cent. solution of aceto-tartrate of albumin. This is about as sour as unsweetened lemonade.

Alfred Lewy: Were these cases of streptococcus sore throat without fever?

C. A. Harkness: There was very little fever.

Alfred Lewy: Was the diagnosis made by making a culture?

C. A. Harkness: A smear was made.

Alfred Lewy: One cannot always be sure of the laboratory distinguishing the different kinds of pus germs. They always report the streptococcus but frequently fail on the fusiformis. The description of the symptoms with little or no fever is suggestive of Vincent's angina. I have never tried his treatment but have always used the sulpho-carbolate of soda. I have also tried silvol, but I think it and all other strong preparations should be avoided during the acute stage. I avoid them until several days have elapsed. I use in preference powdered kaolin or zinc oxide at that time because the others are too irritating.

H. W. Hoyt: I should have mentioned that the aceto-tartrate of albumin must be used in glass atomizers only; it will corrode any metal it touches.

W. H. Williams: I have had several cases of the Vincent angina, and I failed to find much about it in our literature. One man in New York suggested salvarsan, but as that was not obtainable at that time I tried the cacodylate of sodium with very good results.

C. A. Harkness: I wanted to mention the suction method of treatment spoken of by Dr. Hoyt, but my paper was getting near the time limit and I left it out. There is no question but that it is a valuable method of treatment. I freely confess that I thought that some of these cases were Vincent's angina, but at the laboratory they were unable to find anything but the streptococcus; also I found that after the throat symptoms cleared up some of them developed streptococcus pneumonia. The matter of making these patients rest is of importance in all of these acute cases. Patients should be put to bed. I approve of the flushing of the system with water. The Poland water is excellent as it does not have strong cathartic properties.

A SEVERE CASE OF LARYNGEAL SPASM.*

THOMAS L. SHEARER, M. B., C. M., EDINBURGH,

Baltimore, Md.

ON October 16, 1916, Mrs. C———, aged 42 years, called at my office and gave the following details concerning the history of her recent illness: About one year ago her husband was operated upon for cancer of the bladder, and for a long time his life hung in the balance. When the crisis was passed he underwent radium treatment, and in the course of some months he was cured. The prolonged anxiety and loss of rest attendant upon this serious illness completely upset Mrs. C.'s nervous system. She and her husband went to a northern summer resort about the first of August and almost immediately upon their arrival there, Mrs. C.—who had kept herself under excellent control during the entire period of strain and anxiety, now broke down completely, and, among other nervous symptoms, developed violent paroxysms of coughing, with "spasms of the throat," as she expressed it; sensations of choking and of impending suffocation were very marked. These attacks occurred at times as frequently as every twenty minutes to an hour. Although she consulted a physician promptly and received both local and general treatment, the paroxysms continued with great violence during August and September—only diminishing in severity towards the latter part of September. On October 16th, I found Mrs. C. very nervous, in constant dread of the coughing attacks, with the attendant spasmodic and suffocative symptoms; she complained of a sensation of fullness in the region of the larynx; she had lost considerably in flesh, and was very much worried about her condition. An examination of the throat did not reveal any relaxation of the uvula, enlarged tonsils or any evidence of follicular pharyngitis. The larynx, on inspection, showed normal vocal cords, free of nodes or growths of any kind, but the lingual tonsil was greatly hypertrophied, at times impinging upon the upper part of the epiglottis. As this latter growth was apparently the only

*Read at Meeting of Amer. Hom. O., O. and L. Soc., Rochester, N. Y., June 20, 1917.

point from which irritation was arising, I decided to make a test application of Iodin to the part, and thus convince myself that such was the case. Accordingly, a laryngeal brush was dipped in a solution composed of Iodin, grs. viii; Potassium Iodid, grs. xxxviii, and glycerine ℥viss and the region of the lingual tonsil lightly painted. In doing this, of course, the tongue was drawn well out of the mouth, in the usual way, and care taken not to touch the epiglottis with the solution. This application was immediatey followed by a typical paroxysm of spasm of the larynx, which lasted fully five minutes, and I can truthfully say that it was the severest attack of its kind that I ever witnessed. After using this solution several times during the first week, to diminish the irritability of the part, and, as the patient was opposed to any surgical measures, applications of the electro-cautery with a curved electrode were made to the most prominent portions of the lingual hypertrophy where they came in contact with the epiglottis. A four per cent. solution of novocain was applied to the part three times, at intervals of a minute, then three minutes elasped before the use of the cautery. These treatments, on an average, were given at first once or twice a week, care being taken to avoid severity in cauterization. The patient began to improve at once and the paroxysms not only were gradually reduced in violence, but in frequency, until by December 1st Mrs. C. was well. It may be of interest to note that the two remedies, which were of the greatest service to her in modifying the suffocative attacks, were a trituration of Moschus 3x, a three grain powder of which was taken three times daily at first, and as the paroxysms improved a powder at bed time; the other was a tablet composed of Nux moschata 2x, Ignatia 3x, Asafœtida 2x—one tablet being given every three hours during the day until the patient was less nervous, then a tablet three times daily before meals. Hypertrophy of the lingual tonsil may vary in size as well as in character. Sometimes the growth is divided into two distinct halves with a median raphè separating them; in other instances there is only one mass extending across the base of the tongue. The growth is either granular in appearance or presents a fairly smooth surface. It is not at all uncommon to encounter extensive lingual tonsillar hypertrophy in people who do not complain of any special symptoms, while a much smaller tonsil in others will occasion very pronounced and severe symptoms. In other

words, the condition of the central nervous system, in which stimuli arriving at the main switch board produce excessive degree of irritation and permit of the release of an undue discharge of nerve force to the periphery, only requires an irritant to start the combination such as we had in this case, with its exhausted excitable nervous centres. The treatment which this lady received in the north was, evidently, entirely directed to the interior of the larynx, and in the course of a throat examination nothing is easier than to overlook enlargement of the lingual tonsil. This happens more readily when the tip of the tongue is not sufficiently well drawn out of the mouth during the examination with the laryngeal mirror. Patients may interfere, on some occasions, by complaining that the teeth in the lower jaw cut into the under surface of the tongue when it is made tense enough to be of any service in examining the larynx. This objection can be met by placing several layers of gauze over the edges of the offending teeth and thus protecting the tongue from their sharp edges. The action of the electro-cautery in these cases is prompt and efficient in results. All that is required is to be persistent in the treatment and not to make the applications too close together. In acute cases with symptoms as urgent as that of Mrs. C., the cautery may be used twice a week, selecting a different area each time for the treatment and, in this way, the enire region of hypertrophy can be gone over thoroughly. My only object in reporting this case is to emphasize the necessity of looking into the condition of the lingual tonsil in every instance in which the throat is systematically examined. By so doing, one may save one's self from embarrassing situations when the sufferer wanders into the pasture and care of another medical man who is either more lucky or more careful in his work.

905 No. Charles St.

DISCUSSION.

Jos. F. Roe (read by the Secretary): Dr. Shearer has again very forcefully brought to our minds the necessity for careful investigation of the minute things in our work in making diagnoses. In the most severe cases we are apt to look for the greatest pathological changes which experience teaches us is exactly contrary to the rule. So many times a nose, absolutely filled with hypertrophies or polypi, gives comparatively little discomfort, while single infected ethmoidal cell will

occasion the most intense headaches at the base of the brain or in the occipital region.

It is the old story of "look for the mouse as the elephant will show himself." The case reported is unusual in the severity of the paroxysms, but in all cases of spasmodic coughs in grown people we would be neglecting our duty not to carefully examine the lingual region.

Especially true is this in so-called "smoker's sore throat" and "clergymen's sore throat." Many times the constant gagging will be the signal that will call our attention to the presence of linguals, and we will find the epiglottis deeply imbedded at its upper edge in these bead-like structures. I have used the electro-cautery in many cases, but I much prefer the lingual guillotine. As a rule, at two sittings the most severe cases may be entirely cleaned, and I think the scarification presents a much better surface than that left by the cautery, and the soreness is not nearly so severe. I must confess that I have been disappointed in using Novocain locally in this work or in nasal work; in fact, I prefer a twenty per cent. solution of Cocaine with Adrenalin. Rub carefully into the part two or three times within ten minutes.

In former years I used a forty per cent. solution of Carbolic acid as a local anæsthetic for this part. This I have abandoned, as it must be used with such great care not to get any into the larynx. Novocain in two per cent. solution, has served me well in both tonsils and submucous septum work used hypodermically on the floor of the nose and in the pillars of the tonsil and, of course, it has none of the reactions for which Cocaine is so famed. I mean by this to use the Novocain only for making the external incision, as Cocaine must be used above on the septum.

I think that it is well here to note that both Iodin and Silver nitrate solutions are very apt to bring on very severe spasms of the larynx if only a little touches the false vocal cords. If I use Nitrate of silver in the larynx I prefer to use it fixed on a bent applicator, and with a mirror carefully touch the spot, having the patient hold the tongue with a towel.

I am glad to hear Dr. Shearer speak of Muscus, as it is also a favorite remedy of mine as also are Ignatia and Chamomilla.

Everett Jones: I had a case referred to me with spasms of the

throat; the patient was a public speaker and the attacks incapacitated him for his work. At first they came only once in about three weeks, but the frequency increased until they came every day or two. They lasted about half an hour. He had to take a substitute along with him to help him out in case an attack came on. He had no warning. Examination showed pharyngitis and very large tonsils. I removed the tonsils and he has had no trouble since.

President: If there are no further remarks Dr. Shearer will close the discussion.

Thomas L. Shearer: Naturally, I thought first of removing her lingual tonsil surgically. The patient was very much opposed to an operation of any kind; moreover, the tonsil was not raised in two sections with a medium raphè, and it would have been a difficult matter to get the tissue in the grip of the guillotine; in fact, the hypertrophied tonsil tissue was evenly distributed over the base of the tongue, presenting nearly a flat surface. A 4 per cent. solution of Novocain is used to secure anæsthesia of the part. Novocain should be given a longer time than Cocaine to take effect. I usually wait five minutes before using cautery, and I never combine adrenalin with it because it seems to prevent the rapid absorption of the Novocain.

Mrs. Brown's peer husband had unfortunately been laid up for six months now. But the glad news that he was on the high road to recovery had come at last.

"I'm so glad to hear that your husband is getting better," remarked a kindly lady to Mrs. Brown one day.

"Well, so I am, mum. He was getting along so nicely last week, and now the doctor says he's got the convalescence! Isn't is hard lines, mum?"—*N. Y. Globe.*

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220 Clarendon Street

BRADENTOWN, FLA.

F. C. WHITAKER, M. D.
EYE, EAR, NOSE AND THROAT

BROOKLYN, N. Y.

MARY L. LINES, M. D.
EYE, EAR NOSE AND THROAT
285 Washington Avenue

HERBERT DANA SCHENCK, M. D.
EYE AND EAR EXCLUSIVELY
75 Halsey Street

ALTON G. WARNER, M. D.
EYE AND EAR EXCLUSIVELY
19 Schermerhorn Street

BUFFALO, N. Y.

FRED. D. LEWIS, M. D.
EYE, EAR, NOSE AND THROAT
188 Franklin Street

CHICAGO, ILL.

CLINTON C. COLLIER, M. D.
EAR, NOSE, THROAT, ESOPHS. AND BRONCHOSCOPY
25 East Washington St.

C. GURNEE FELLOWS, M. D.
EYE, EAR NOSE AND THROAT
30 N. Michigan Boulevard

EDGAR J. GEORGE, M. D.
OCULIST AND AURIST
801 Marshall Field Bldg.

BURTON HASELTINE, M. D.
EYE, EAR NOSE AND THROAT
122 S. Michigan Boulevard

ALVA SOWERS, M. D.
EYE, EAR, NOSE AND THROAT
122 S. Michigan Boulevard

RICHARD H. STREET, M. D.
THROAT, NOSE AND EAR
25 East Washington St.

LE ROY THOMPSON, M. D.
EYE, EAR, NOSE AND THROAT
30 North Michigan Blvd.

A. H. WATERMAN, M. D.
INTERNIST
122 South Michigan Blvd.

CINCINNATI, OHIO

J. R. McCLEARY, M. D.
EYE, EAR, NOSE AND THROAT
409-10-11 Mercantile Library Building

WM. F. REILLY, M. D.
EYE, EAR NOSE AND THROAT
904 Union Central Building

W. H. SMITH, M. D.
EYE, EAR, NOSE AND THROAT
409-10-11 Mercantile Library Building

THOMAS M. STEWART, M. D.
EYE, EAR, NOSE AND THROAT
901 Union Trust Building

CLEVELAND, OHIO

W. J. HULTENSCHMIDT, M. D.
EYE EXCLUSIVELY
11 Taylor Arcade

A. E. IBERSHOFF, M. D. (Mich.)
EYE, EAR, NOSE AND THROAT
822 Rose Building

WM. H. PHILLIPS, M. D.
EYE, EAR, NOSE AND THROAT
1018 Rose Building

Journal of Ophthalmology
Otology and Laryngology

Vol. XXIII DECEMBER, 1917 No. 12

Editorial

A MESSAGE FROM THE EDITOR.

IT is with no little regret that the Editor announces the discontinuance of the JOURNAL OF OPHTHALMOLOGY, OTOLOGY AND LARYNGOLOGY after January 1st, 1918. During the three years and three months that he has served the JOURNAL as its Editor, it has been a real pleasure. His task has been made easy and enjoyable because of the hearty co-operation of the Business Manager, Journal Committee, Associate Editors, Contributors and Subscribers.

The Editor takes this opportunity to thank them, one and all, for their generous aid and unselfish devotion to the cause of the JOURNAL. To all the Editor wishes to extend his congratulations, for their having succeeded in making the JOURNAL second to none of its kind. The character of its contributions are comparable with the best found in the foreign and domestic journals devoted to eye, ear, nose and throat subjects. Many of the symposiums are recognized as up-to-date classics. The Associate Editors, who planned and arranged them, spent a great deal of time and money to bring them to perfection. These gentlemen deserve special mention and commendation. I refer to Dr. Burton Haseltine on his symposium "Speech, Voice and Hygiene of the Vocal Tract," April, 1916; Dr. Dean W. Myers on his symposium "Glaucoma," May, 1916; Dr. Gilbert J. Palen on his symposium "Acute Mastoiditis," July, 1916, and Dr. Jos. V. F. Clay on his symposium "Chronic Suppurative Otitis Media," April, 1917. If the Editor was to mention the names of all the gentlemen who did excellent service for the JOURNAL, this editorial would assume more the proportion of a directory than an editorial. The Editor feels the greatest pride, however, in announcing that the most liberal contributors to the pages of the JOURNAL have come from his own home-town, and, accordingly,

he feels it his bounden duty to mention their names. They are: Dr. G. J. Alexander, Dr. Douglas Macfarlan, Dr. Gilbert J. Palen, Dr. Jos. V. F. Clay, Dr. Frank O. Nagle.

For a while at least the Editor will assume the duties of Associate Editor for the *American Institute Journal* in the Department set aside for O., O. and L. matter, and will welcome further contributions on these subjects.

In conclusion, the Editor sincerely wishes you all a Prosperous and Happy New Year.

G. W. M.

A MESSAGE FROM THE BUSINESS MANAGER.

THE December, 1917, number, being the last issue handled by the Editor and his Staff, I take this occasion to express my sincere appreciation to the Editor, Dr. George W. Mackenzie, and his special staff, Drs. B. Haseltine, D. W. Myers, I. O. Denman, and W. H. Phillips for the hearty co-operation and loyal support given in assisting me in the business end of the Journal.

You who have had journal experience, thoroughly understand these responsibilities and my present feeling in this matter. I also want the readers to know that I appreciate the work and assistance they have given the Journal. It is this loyal co-operation that develops good team-work, and this team-work is the modern cry for efficiency.

At the O., O. and L. meeting (June, 1914) a special committee was appointed (Drs. Burton Haseltine, Chairman; Herbert D. Schenck, and George W. McDowell) to secure some one to continue the publication of the Journal of Ophthalmology, Otology and Laryngology. Dr. Mackenzie and myself promised to do so for three years, and we feel that we have fulfilled our obligation and will now let the result of our work speak for itself.

The Journal will be taken over by the official *Journal of the American Institute of Homœopathy*. This merger will be right in line with the work going on in the Institute in developing the affiliation of the state and county societies under the national organization. This combination will give the Journal of Ophthalmology, Otology and Laryngology a special department in the *Institute Journal,*

and it is the desire of the present staff that the men who are doing special work will continue the same keen interest in the new journal team-work as they have always shown in the past. This federation of the state societies by the Institute is proof of advanced business methods to develop strength by our homœopathic practitioners.

It is also ideal to federalize these two publications so that this speciality will be brought before more general men. The *Journal of the American Institute of Homœopathy*, by adding this Eye, Ear, Nose and Throat department, will be able to present excellent scientific articles to the profession, and this will do more to bring the general practitioner and specialist into closer proximity. Everything possible in behalf of the patient is a worthy step to take.

McC.

THE AGE OF EFFICIENCY.

COLONEL ROBERT G. INGERSOLL said, "an argument remains young until answered." To say that "*this is an age of efficiency*" may sound somewhat trite, but it must be repeated until *efficiency* is the order of the day. Nowhere is the need more apparent than in the realm of therapeutics.

This has been recognized in the reorganization and standardization of Hospital records, in the adoption of follow up systems, and in the end results reports required by the Clinical Congress of Surgeons. The value of the treatment of incipient cataract will never be determined until the results obtained in the treated cases are compared with the results in a large number of untreated cases. How can one decide which is the best of the various methods of correcting heterotropia? There are so many different forms of tenotomies, tuckings and advancements advocated by equally efficient operators, that the honest truth seeker is simply bewildered. If case reports were presented on uniform schedules so as to make comparison possible, the most *efficient* would speak for itself, and would be universally adopted. He who doubts this must believe that scientific medicine is either unattainable or undesirable.

D. W. W.

A ROENTGENOLOGIST'S REPLY TO "ARE ROENTGENOGRAMS AND ROENTGENOLOGISTS INFALLIBLE."

I HAVE had occasion to read the esteemed editorial in the June issue of the Journal, the subject, entitled "Are Roentgenograms and Roentgenologists Infallible." In reply I would state emphatically No! Until medicine becomes a definite science nothing in it will become infallible. It is a truism "that he who has made no mistakes has made nothing." Very often I think the things that are the most brilliant are often savored with gravest error: for example, if anyone has seen the original or any reproduction of that celebrated painting, Rembrant's Anatomist, they will note that the demonstrator is seen holding up the flexor pronator group of muscles of the forearm and demonstrating that they have their origin from the external condyle of the humerus, obviously an error. I quite agree with the writer that the Roentgenogram should be tallied up with the clinical findings, and in all my writings on Roentgenological subjects I have insisted that the Roentgenologist should not attempt this field of scientific work unless he is experienced in all branches of medical science.

Undoubtedly it may be necessary at times for the Roentgenologist not to be influenced by clinical data until he has made definite conclusions from the Radiological standpoint, but I positively believe in the cases cited in the editorial if the Roentgenologist had consulted his clinical findings or gone over the histories with the Ophthalmologist he probably would not have been misled in his error. However, to be fair, his subject matter is one of the most difficult fields of X-ray work, that of the brain. We are just beginning to understand something of cerebral Roentgenology. If we have certain definite intensified shadows associated with calcareous deposits and possibly bone rarification of the osseous walls due to pressure of an internal nature we are then doubly sure of a brain tumor aand not otherwise. If we haven't these positive facts our conclusions should only be relative and based only on the field of possibilities.

I am sure the internist or even the surgeon would not expect that the Roentgenologist make a bacteriological or pathological diagnosis from the Radiograph. The natural tendency is always when in doubt

refer the case to the Roentgenologist, hoping that he will clear up the diagnosis; he very often does, but unfortunately if he fails, like all human mortals, then condemnation falls on his shoulders, and the Roentgen ray is in obvious error. So it is with anything in its formative stages like the Roentgen ray has been the past few years. However, without a question, there are positive things shown on the X-ray plate, such as a filled maxillary or frontal sinus, a fracture skull, pituitary enlargements and destructive changes in the sella turcica, but allow me to add, it is necessary as always to be thoroughly conversant with the normal contour with its variations of the individual type to be able to diagnose the abnormal. Then, again, it would be hardly possible for the Roentgenologist to tell whether the sinus contained pus of a streptococcic nature but he could positively state that sinuses were filled with the products of inflammation. Syphilis of the long shafts of the bones is absolutely characteristic in its Roentgenographic appearances when differentiated from osteomyelitis and that without any clinical backing. A miliary tuberculosis, as shown on the Roentgenograph, is positive, but when we observe an increased vascular infiltration in the lower right lobe of the lung it is impossible to make a positive diagnosis without the correlated clinical findings. A small defect or bud on the gastric outline as portrayed by the fluoroscopic screen or X-ray is positively diagnostic and characteristic of ulcer or tumor of the stomach, possibly cancer, but it remains for the surgeon and the microscope to reveal whether it is malignant or not, and so on I could cite similar cases ad infinitum.

In conclusion, I believe the Roentgenological findings, either those as shown on the plate or by fluoroscopic screen technic, should never be considered other than contributory evidence toward a positive diagnosis

C. WINFIELD PERKINS, M. D.

THE SCIENTIFIC AND BUSINESS SESSION OF THE THIRTIETH ANNUAL MEETING OF THE AMERICAN HOMŒOPATHIC OPHTHALMOLOGICAL, OTOLOGICAL AND LARYNGOLOGICAL SOCIETY HELD AT ROCHESTER, N. Y., JUNE 19, 20, 21, 22, 1917.

HOTEL ROCHESTER, ROCHESTER, NEW YORK.

FIRST SESSION, JUNE 19TH, 10 A. M.

The President, Gilbert J. Palen, called the meeting to order at 10 a. m.

PRESIDENT: The first order of business is the adoption of the program as the order of business, but before doing so some necessary changes should be made; for instance, Dr. J. L. McCleary desires the privilege of reading his paper to-day instead of to-morrow, because of possible absence. Our business session is down for Thursday morning and the clinics for the afternoon. Owing to the local hospital arrangements these two will have to be reversed—the clinics being held in the morning and the business session in the afternoon.

G. W. MCDOWELL: It is usual also to make some provision about the papers of absent authors. I move that the changes suggested by the President be made, and also that papers whose authors are absent be read by title until the end of the session, to be read then or not as the society pleases; with these changes I move that the program be adopted as the order of business.

G. W. MACKENZIE: I second the motion.

PRESIDENT: I should say that one or two papers were written by certain men by request, who, at the time, informed me that they could not be present at the meeting. These papers would never have been written otherwise, and we can make an exception in their favor, especially as the discussers are present. All in favor of adopting the program as the order of business with the exception noted please signify it by the usual sign. Carried.

President: The next order of business is the appointment of committees.

(a) Attendance. On this committee I appoint I. P. Metzger, W. D. Rowland.

(b) Nominations. This committee is taken care of by the By-Laws. It consists of all the ex-presidents in attendance.

(c) I will appoint R. I. Lloyd, H. W. Hoyt, and Burton Haseltine.

Irvin W. Townsend: The next thing I notice is the President's Address. Would it not be well to postpone that until there is a full attendance.

President: We have full sessions before us, and I think the best thing to do is to get through with it.

PRESIDENTIAL ADDRESS.

Gilbert J. Palen, M. D.,

Philadelphia, Penna.

IN the latter part of last July, while dining very pleasantly with my friend, Irving Townsend, at the Hotel Manhattan, he reached his hand across the table and said, "Congratulations, old fellow." Having had no recent additions to my family, and my birthday being quite removed, I was at a loss to understand the congratulations, unless that perhaps he really considered me an old fellow, and was congratulating me upon having reached this ripe old age. "Why the congratulations, young man," I said. "Your election as President of the O., O. and L. Society." Thus the great event, which, during my absence, had taken place in Baltimore, and which had occupied so much space in the Baltimore papers, was announced to me. Having always had a great respect for this Society and many of its members, I was duly impressed with the honor conferred upon me, and have awaited anxiously the great moment when I could officially extend my thanks to the Society and its members. That moment has arrived, and so I wish to express my appreciation at this time.

The months during which I have been occupying this office have been months of pleasant things. True, I have had, as all who tread this path must have, moments of despair, but in the main the experi-

ences which I have had, have been well worth any efforts that have been put forth in the interest of the Society, and I shall relinquish my place with a deep sense of regret. My work has brought me in close contact with the earnest workers of our Society, and I have gained a wonderful respect for the work of these men; both the character of their scientific work and also their unselfish devotion to the interests of the Society, and I have learned, as anyone who is honored in doing this work must learn, that were it not for these loyal good fellows, our Society were long since a thing of the past.. I have been especially impressed, as I have come in touch with our members and their work, that many of them are hiding their light "under a bushel." If more of the work could be published the better we would all be for the information gained.

Through many pleasant hours spent with members of this Society, I feel, therefore, that I have derived information which is proving invaluable to me.

It is the usual thing for the retiring president to offer suggestions for improvement. It is, perhaps, natural that he should do so, for his office makes it incumbent upon him to further the interests of the Society. In his attempt to do this he discovers any weakness of organization, or, at least, what may seem to him features of organization, which might be improved upon. It is his duty also to study ways and means for increasing efficiency and to bring these before the Society for consideration. This being the path a president is supposed to take, I shall, therefore, follow the well-beaten path and add my suggestions to the many which have been offered before.

The Society, as I see it is, or at least, should be, the leader in our School in all matters pertaining to the special studies of the eye, ear, nose and throat. It should be alive to matters of legislation and to all matters affecting its interests. It should further in every way possible its own interests, the interests of its members and those of the School it represents. In order to thoroughly accomplish these objects our Society should be so organized and managed that the greatest activity, the greatest efficiency is assured.

Those of you who have preceded me in this office know that the entire conduction of our Society falls upon one or two officials; that it required of these men that they secure a program, make arrangements

for the place of meeting; in fact, make all arrangements necessary for our meeting. The attention of the Society is not called to this in the spirit of complaint but earnestly as a suggestion for improvement. When we consider the objects of this Society would it not seem that our organization should be too important to place its *entire* conduction in the hands of so few?

As an organized Society we are really active but once a year. Once a year and once only, we thaw out and appear at our annual meeting, then we go back and sleep for another twelve months. In the interim nothing is done, we are asleep. True it is that as individuals we are alive and active, but not as an organization. Do our sister organizations of the Old School sleep? Would not our interests be furthered if we could organize for greater activity?

During the past two years it has been my very good fortune to be present at meetings of O., O. and L. members, which were informally called by some of our good western members, and recently a similar meeting was held in Philadelphia. These meetings have all been appreciated. There was much scientific discussion, and through personal contact much good has come to all who attended; of greatest importance, however, has been the good accruing to this Society through the coming together of its members and through the discussion of its interests. Knowing the good which I personally have derived from these meetings, recognizing the added impetus I have received through frequent contact with the good workers I have met at these meetings, realizing the enthusiasm in our Society's interests with which these meetings have inspired me, I cannot but regret that all our members were not able to be present.

Why could not the Society make such meetings regular and official? Why could not three or four sub-sections, or as many as necessary, be formed, each to hold one or two meetings a year? By judicious placing of these throughout the country, every member of the Society would be able to meet with the other members of the Society during the year. In this way our members would be kept together; they would be improved scientifically, they would discuss and be alive to conditions in their district; they would keep our organization alive during the year; each section could furnish its portion of material for the annual program. In fact, it would seem to me, that there are

good possibilities in some well thought out plan along these lines; an organization of sub-sections bearing a similar relation to this Society that the county society has to the State organization, or the State organization to the national society. Many of our members, because of their isolated locations, are losing interest in our Society and our School for they are forced, for scientific meetings, to affiliate with the local organizations of the Old School. Is it not to the interest of this Society to provide official organizations where its members can obtain two or three scientific feasts a year? I wish that the Society would give this matter its earnest consideration.

From a scientific standpoint this Society could do much to advance certain lines of its work.

We are all earnestly working to secure results in any work and we are all anxious to adopt that method which proves the most efficacious. Although working toward the same end, many of us are attempting to arrive through different methods of treatment. How can we determine which is best unless we have some universally accepted system of recording and reporting our methods and results? For the scientific purpose of this Society, could we not attempt to produce standard records, in certain lines of our work at least, so that all case reports could then be measured with some accuracy, the results of the different methods of treatment accurately and honestly compared, and in this way definite information be obtained? I should like to dwell at greater length upon this subject, but I have learned that thoughts along these lines will be presented in papers before this meeting, and I do not wish to detract from these. I wish only to say that I trust the Society will earnestly consider this suggestion and establish some accepted form for case reports, in which will be required the reports of consecutive and not picked cases.

The Society should be careful of its assets. Although one of our greatest assets, our official organ, The Journal of Ophthalmology, Otology and Laryngology has been the subject of former addresses I cannot refrain from including it in mine, for I am interested in it. This interest is due, first, to the fact that I am proud of it, proud because it compares so favorably with others of its kind, and is indeed far superior to the vast majority; then I am interested in it because it is the only journal devoted to our special subjects which we have, the

only special journal, the pages of which are at all times freely open to us. We need it, not alone to render prominent the transactions of this Society, but we need it because its contents force attention and respect. It should have the loyal support of every member of the Society; the work of its editors should be encouraged by our scientific contributions, by our financial aid, by our advice and co-operation.

As with the Journal, so in our New York Ophthalmic, we have the only original post-graduate graded school for eye, ear, nose and throat. Last year we had a demonstration of its work and of the amount of material it could control. Should it not have our earnest support? Would not such organized support encourage it to broaden its work by establishing thorough courses upon every line of our work, so that it would become a thorough post-graduate institution, where we could obtain quickly instruction on pathology, physiology, methods of diagnosis, etc. To accomplish this it needs students, money and encouragement.

I have said that the Society should be at all times alive to the interests of the School it represents. As a Society and as individuals we owe it to our School to carefully consider anything which will promote its interests. It matters not how many Old School societies we may join; it matters not how friendly we may be with members of that School, in the final analysis we are graduates of homœopathic institutions, and we are measured largely by the prestige of our School and its institutions. Those interests are ours, both from the standpoint of pride and that of personal interest. It is upon us to prove the value of our school by our works. Our student bodies are thinning out. The number of our institutions has lessened. Our birth-rate is becoming less than our mortality. This must be changed or our strength will fail with each succeeding year.

As a teacher in one of our good institutions and one who has made a study of its interests, I know something of the difficulties encountered in efforts to secure students and also many of the reasons for our lack of success.

That our school was so successful in its early days was not due alone to the newness of its offerings. It was due rather to the faith of our men and to the fact that they proved their worth by their good writings. They put into print their knowledge, where all might read

and respect them for their works. In those days we had our own books covering the various subjects in medicine and surgery; books to which our students were referred; we were proud to have upon our shelves the evidence of our strength. During this period of scientific production our School thrived, attracted to its institutions many students and forced respect for our school, its institutions and their graduates, because the evidence of ability and understanding existed in the printed books. With the falling off of our writing our prestige suffered; we had closed up our advertising department; we had nothing to show as evidence of our work, while our giant brother kept on with his production, adding constantly further evidences of his good works. To the credit of the specialties we represent, let it be said, that we have done more than have those in other lines. Have we not held with pride our Norton's ophthalmic practice, the productions of Linnell and Mackenzie.

When our prospective student asks us, "What books do you refer to in surgery, medicine, gynæcology, obstetrics, ear, nose, and throat, genital-urinary diseases, etc.," what must we say? If we answer honestly must we not admit that from the teaching standpoint we are simply middle men handling the goods of others?

How can we hope to cope with the giant strength of our colleagues of the other School unless we produce some good ocular evidence that we know enough to teach? By having our own literature written by our own men. If for no other reason than pride we should be able to refer our students to our own works. How can we expect a student to be attracted by second-hand goods, when he can secure the original for the same fee? We should produce our own literature to further the interests of our School, because it is the best way to prove our worth: it is the strongest argument we could offer a prospective student. With a good literature in our hands we can do much to increase our strength.

Has not the Society among its members those capable of producing works upon our subjects, works which will compare favorably with those of our giant brother?

Can we not by a judicious use of grey matter do much to attract the passing crowd to our smaller institutions by an exposure of our good wares? If we have those capable of this work should we not

bring them to the front? Can we not by co-operation produce thoroughly scientific works upon our subjects? If we can, why do we not do it? Would we not render a great service to our school?

I should like to see this Society become the leader in a movement of this sort. May I hope that this matter will be placed in the hands of an earnest committee.

In the great crisis which now exists, how wonderfully gratifying it is to note the prompt response of our profession to the call of its country. Already thousands of our good men are commissioned and are rendering loyal service at great sacrifice to their personal interests. The past history of the medical profession is one of loyalty, of prompt response to call for help and in the present crisis it has come again to the front.

Gratifying also it is to note the importance, the value which our country places upon our profession. Its first call was for twenty thousand physicians; the first necessity for success was an able corps of doctors. It was recognized that without the advice and the services of the medical profession success could not be attained.

It is gratifying to this Society to find its members loyal to their country, for many have already responded and all are ready to answer the call when needed.

Were it not for our newspapers, were it not for the soldiers we see upon our streets, it would not seem that our country is at war. During the many months that the great European war has been going on, we have been pursuing our lives in peace as usual; we have been prosperous, peaceful, content, well fed, our homes have remained intact. As yet we do not fully realize that we are at war for we have suffered none of the sorrows of war. Unless, in some unforeseen way, the war shall quickly end, it will not be long before many of our loyal sons will be missing; the papers will be scanned daily for the fatalities; sorrow will come to many families; to our friends and maybe also to us. In this way we will come fully to realize the seriousness of our country's position. As a nation and as individuals we are not yet fully awake. The real spirit of the nation and its citizens is yet dormant, only the superficial, the manifest portion is awake. Personal suffering will bring out the latent patriotism, for back of seeming apathy there is hiding a great force, the dormant spirit of

America, the spirit engendered by loyalty to a country which respects the individual, the spirit which calls for protection of our homes. When this spirit is aroused then will be supplied the force needed for success and final peace. Then when the history of our great war is written its pages will be found full of the loyal services rendered by the medical profession; it will be found that as always, the medical profession has performed well its part.

Vice-President: Gentlemen, you have heard the President's address, what is your pleasure in regard to it?

H. B. Ward: I move the vice-president appoint a committee of three to report upon this address.

H. W. Hoyt: I second the motion.

Vice-President (C. L. Rumsey): I will appoint Drs. R. I. Lloyd, W. H. Phillips, and G. W. Mackenzie.

President: We will now proceed to the scientific part of our program and I will call for the first paper, and before doing so I will read to you that portion of the By-Laws bearing upon our discussions of papers.

PAPERS READ.

Picric Acid and Its Uses in Ophthalmology, by Dr. Wm. M. Muncy, with discussion.

A Case of Golf Ball Explosion, by Dr. W. D. Rowland, with discussion.

Foreign Bodies, by Dr. H. M. Champlain, with discussion.

Senile Changes in an Eyeball, by Dr. Frank O. Nagle.

Pneumo-Massage and Deafness, by Dr. D. Macfarlan, with discussion.

TUESDAY, JUNE 19, 1917.

SECOND SESSION 2 P. M.

Two Cases of Sinus Thrombosis, by Dr. Wm. H. Phillips, with discussion.

Acute Laryngeal and Nasal Infections. Their Treatment and Mistreatment, by Dr. C. A. Harkness, with discussion.

Some Special Phases of School Hygiene, by Dr. F. C. Sage, with discussion.

Faulty Pronunciation of Medical Terms, by Dr. Geo. W. McDowell, with discussion.

Physical Function in Voice Development, by Dr. J. R. McCleary, with discussion.

Muscular Tests in Refraction Work, by Dr. H. D. Schenck, with discussion.

The Responsibility of the Anæsthetist in Mastoid Surgery, thesis, by Dr. G. W. H. Conrad.

How to Successfully Treat Infections of the Nose, by Dr. Wm. F. Beggs, with discussion.

TUESDAY, JUNE 19, 1917.

THIRD SESSION, 8 P. M. JOINT SESSION O., O. AND L. SOCIETY AND A. I. H.

Hotel Powers—Assembly Room.

SYMPOSIUM—EYE, EAR, NOSE, AND THROAT EXAMINATIONS AS AN AID TO GENERAL DIAGNOSIS.

W. W. Van Baun, President American Institute of Homœopathy, Mr. President and Members of the Eye, Ear, Nose and Throat Society: It is with extreme regret that I appear so late; it is entirely on account of a stupid misunderstanding. But for that I would have been more prompt. We thought that this meeting was to be entirely in charge of Dr. Palen. My tardiness is unfortunate because we were trying to get into closer touch with this society; we wanted to get into closer association. The man of medicine and the man of specialties should come together and work together to their common advantage. They should have a mutual understanding in their work. I hope that some of the medical people will learn of the misunderstanding and come in later; you know how it is at large meetings; we appoint an hour, say, nine, and they begin to stroll in at nine forty-five. I feel that it is proper that your distinguished president, Dr. Palen, should preside over this joint meeting, and hence I will deliver the meeting over to him.

Introduction by Gilbert J. Palen, Philadelphia, Penna.

Eye Examinations in Regard to General Diagnosis, by G. W. Mackenzie, Philadelphia, Penna.

Ear Diagnosis in Relation to General Practice, by George Alexander, Philadelphia, Penna.

Nose and Throat Examinations as an Aid to General Diagnosis, by J. V. F. Clay, Philadelphia, Penna.

Owing to the lateness of the hour, the President, Gilbert J. Palen, said that there would be no discussion.

W. W. Van Baun, President A. I. H.: Just one more word of apology for my lateness and for the small attendance of Institute members. They work the president pretty hard. The trustees start a meeting at half past ten at night and keep it up until two-thirty, and then expect me to start the morning session at nine. The result was I slept from four this afternoon up to six in spite of the severe thunder storm that raged. It is no wonder that I was a little bit mixed up about this meeting. Also, I had to make arrangements for a dinner to Billy King. At the 1904 meeting old Pemberton Dudley was a candidate for president, and some of the men had made up their minds that they would retire him in favor of a New York man. The result was that there was a very active New York and Philadelphia bunch of men. The New York men thought that they had won out. The convention was held in a Baptist church, and the opposition expressed their indignation that politics and religion should be mixed, for Dudley was a Baptist. Dudley won by one vote. King called this to my mind, and I shook hands with him for we had been fighting for years sometimes on the same side and sometimes on opposite sides. I realize that your men have to-night read a series of papers of uncommon interest to yourselves and of great interest to the general practitioner. If you will just excuse our apparent neglect to-night and come around to the other joint session and support your president by your presence we will endeavor to advertise and talk up that meeting and bring here a rousing attendance of Institute members. The department of general medicine will be held to-morrow so that there will be a large gathering of men from all over the United States here, and we will whoop up your meeting on Thursday evening, and that will insure you a large and interested audience. I thank you.

WEDNESDAY, JUNE 20, 1917.

FOURTH SESSION, 9 A. M.

Gilbert J. Palen: Meeting will come to order. Before beginning our regular program there is a messenger here from the American Institute with a message which we will hear now.

Charles E. Walton then read the following message from the American Institute of Homœopathy:

To the President and Members of the O., O. and L. Society:

The officers and members of the American Institute of Homœopathy request the honor of formally receiving the officers and members of the O., O. and L. Society on Thursday evening, June 21, 1917, at 8:30 in the Assembly Room of the Powers Hotel.

(Signed) W. W. Van Baun, *President.*
Sarah M. Hobson, *Recording Secretary.*

President: What is your pleasure with this communication?

C. L. Rumsey: I move that our Society accept with pleasure the invitation of the American Institute to meet them on Thursday at the place designated. Seconded. Carried.

President: We will now go on with the regular program. The first thing will be clinical reports from Dr. Leslie Rumsey, of Baltimore.

Clinical Report, by C. Leslie Rumsey.

(To be sent to the secretary.)

President: In order to make his report Dr. Hoyt expects some cases here to exhibit, and requests a little time. None of the others are present. While waiting for Dr. Hoyt we will have paper No. 26.

A letter from the Secretary of the American Institute of Homœopathy was read asking a meeting with the trustees of a committee from this Society for the purpose of forming a closer union.

Burton Haseltine: I move that a committee of three be appointed by the president to attend this meeting. Seconded. Carried.

Gilbert J. Palen: I appoint Drs. Norton, Haseltine and Phillips.

W. H. Phillips asked to be excused, and Dr. Weaver was appointed in his place.

De Wayne Hallett: Are we to send them without instructions?

A. B. Norton: This Society should not take action upon the question except after full and free discussion. There are many things to

consider; quite a proportion of our members are not members of the Institute. As to place of meeting, I do not see how we could meet at the same hotel because there is never room enough for the two societies.

De Wayne Hallett: I move that this committee meet the trustees of the Institute and present our attitude in accordance with what Dr. Norton has said.

Burton Haseltine: Would it not be better to allow this committee simply to receive the proposal of the trustees and to report the same back to this Society.

CLINICAL REPORTS FROM 9 A. M. TO 10 A. M.

Perforating Gun Shot Wounds of the Eye, by Dr. Jas. A. Campbell, with discussion.

Why I Prefer the Elliott Scleral Trephining in Operative Treatment of Glaucoma, by Dr. A. B. Norton.

The Bishop Harman Muscle Operation and Results, Thesis, by Dr. C. E. Williams, with discussion.

The Stereoscopic Treatment of Exophoria and Convergence Insufficiency; Cases Reported on a New Schedule, by Dr. D. A. Wells, and discussion.

Disturbance of Vision From Pelvic Disorders, by Dr. C. L. Rumsey, with discussion.

THE BISHOP HARMAN REEFING ADVANCEMENT AND JIG SAW OPERATION AND THE RESULTS.

Calvin Edwin Williams, M. D.,
New York, N. Y.

Thesis.

IN the summer of 1914 Dr. A. B. Norton saw Dr. N. Bishop Harman, of London, Eng., perform his reefing advancement and jig saw operation, and was so impressed by its simplicity and speed of accomplishment that he bought a set of instruments and secured a reprint of the operative technique. The instruments and description of operation were turned over to the speaker with instructions to develop it. We shall first describe the instruments and the operation.

The required instruments are: Lid speculum, fixation forceps,

straight, sharp-pointed scissors, three curved needles, one threaded with No. 9 silk, two with No. 5 silk, needle holder, reefing forceps, tendon rasp and director forceps, a sharp scalpel.

The reefing forceps is a pair of twin blades; body 4 cm. long by one cm. wide, terminating in a narrow neck 2½ cm. long, bent round at right angles like strabismus hooks. The hooks, one cm. long, have serrated edges for better gripping the muscle, and rounded points. The blades are exact twins in size and shape differing in these respects: the lower bears a threaded post, one cm. long, which rises from an oblong square-angled base 1½ cm. from the widest or posterior end of the blade. The base is 8 mm. by 3 mm., and fits into a corresponding slot in the upper blade and holds the blades parallel and prevents their turning. A milled nut fits upon the threaded post, and when screwed down holds the blades in the desired relation to obtain the required muscle shortening. A turn button is fitted into the lower blade 3½ cm. from its wide extremity, which passes through a slot in the upper blades. This turn button serves to approximate the hook extremities of the forceps and securing a better hold on the muscle, gives a more exact reef.

Upon the upper blade along the posterior slot and at right angles to it are lines which, as the blade is pushed forward, coincide with the posterior margin of the raised oblong fitting into the slot. These lines from the base forward are numbered 12, 10, 8, 6, 4, which correspond to the number of millimeters of muscle shortening when the line and base margin are continuous. The posterior end of each body is 17 mm. by 2 mm. thick; the rest of the blade being only 1 mm. thick, so that when the forceps are seized at the posterior extremity, the hooks spring apart thus permitting the thickness of the muscle to be accommodated and facilitating the adjustment of the blades to secure the shortening desired. When the blades are adjusted the turn pin is set at right angles to the length of the blades, approximating the hooks and securing the full amount of the reef.

The tendon rasp is shaped similar to a strabismus hook; on one end, the flat hook 1 mm. wide by 3 mm. long, the edges corresponding to the length of the body being serrated to permit rasping the muscle. On the other end is a button shaped extremity, tilted at a 15° angle and perforated. This button is pressed over the needle point

as it presents under the tissues and after the needle has passed part way through the button, the rasp is twisted against the needle which with the suture is thus drawn through.

The director forcep is a pinch forcep, the blades of which are bent at a 45° angle to the handle. The upper blade, 10 mm. long by 3 mm. wide, is slit and bears a transverse division mark at the centre point. The slit fits over a groove in the lower blade corresponding to its length. The approximating surfaces of the blades bear serrations fitting into each other which give a slipless grip upon the muscle. We shall describe a reefing advancement of the left external rectus. The steps of the operation follows:

1. *Placing the Anchor Stitch.*—The No. 9 silk suture should be placed with great care, passing through conjunctiva and into sclera close to the limbus on the same side as the muscle to be shortened, at a point corresponding to the exact centre of the tendon. Its direction is at right angles to the muscle length. This anchor stitch is a guide for button-holing the conjunctiva, the next step in the operation; as a means of fixing the eye during three days after the operation, and it serves as a landmark for placing the advancement sutures.

2. *Button-Holing the Conjunctiva and Rasping the Muscle.*—If the eye is adducted by the anchor stitch; one can notice in many eyes the fibres of the muscle shining through the conjunctiva or its line showing by a bluish band in contrast to a more yellow colored area above and below. Relax the pull on the anchor stitch, seize the conjunctiva and muscle in a full hold, the jaws of the forceps at right angles to the muscle length; make a clean cut, above and below the muscle through conjunctiva, etc., down to the sclera. There is now a button-hole, parallel to the muscle length about 5 mm. long above and below the tendon. These cuts should be as far back from the insertion of the muscle as possible.

Just as we would use a strabismus hook, the tendon rasp is now placed beneath the muscle and the under surface rasped against the finger-tip. Then place the rasp under the conjunctiva and rasp the upper surface of the muscle against the eyeball. The procedure facilitates the formation of adhesions between the folded tendon surfaces.

3. *The Adjustment of the Reefing Forceps.*—The reefing forceps

are now placed so that the upper blade is between the muscle and the conjunctiva. Should the capsule of Tenon prevent a free passage of the forceps no dissection is necessary; simply pick up the capsule over the end of the forcep and cut it off when the blades will pass. Now advance the upper blade to the number on the scale corresponding to the millimeters of shortening desired; tighten the milled nut, set the turn button at right angles, and rotate the handle of the forcep from the external to the internal canthus. We can see the eyeball rotate outward as we rotate the forcep over on to the nose. Care should be exercised to have the hooks of the reefing forcep at exact right angles to the length of the muscle otherwise an oblique reef and a vertical deviation of the eyeball result.

4. *Securing the Base of the Reef.*—We use No. 5 black silk. Place the needle in the holder close to the eye; raise the reefing forcep handle vertically, pass the needle under the cut conjunctiva and the lowest forcep blade at the junction of the upper and middle third of the muscle; through it and through the conjunctiva. When the reefing forcep is placed on the nose the needle point will present through the conjunctiva. Make counter pressure against the point with the button on the tendon rasp; rotate the rasp against the needle and with a twist the needle and suture will be drawn through. Repeat the procedure and the upper third of the muscle is grasped in a whip stitch. Suture the lower third of the muscle in a similar manner. We have now secured the base of the reef. Loosen the milled nut and the turn pin and holding the base suture nearest the points, remove the forceps. If sufficient correction has been obtained by the reef remove the needles, tie the sutures and cut them short. If more correction is needed we must place the advancement sutures.

5. *Insertion of Advancement Sutures.*—We use the sutures already placed in the base of the reef. Steady the eyeball by the anchor stitch and push the needle at a point above and in a direction from the anchor stitch parallel with the limbus through the conjunctiva and sclera. Place the other suture similarly below. Now pull both sutures tight drawing the reef toward the limbus; tie and trim them. It will be seen that both sutures lie outside the conjunctiva except where they dip down through the muscle and sclera. The amount of advancement depends upon the distance originally of the reef from the insertion

of the tendon, *i. e.*, the farther from the insertion and toward the outer canthus; the greater the advancement. The reefing advancement is now complete. Harman thinks it is better to lengthen the antagonist of the shortened muscle as he had some persistent retraction of the eye where he did the reefing advancement alone. Accordingly, he devised the *"jig saw" operation.*

6. *The Jig Saw Operation.*—The conjunctiva over the muscle is slit and the muscle exposed and cleaned for 4 or 5 mm. The muscle is then raised on a strabismus hook and placed between the blades of the director forcep so the line on the upper blade corresponds with the mid-point of the muscle width. The forceps are closed upon the muscle which is cut by a scalpel drawn along the groove in the forcep. The cut extends a trifle over half the muscle width. With sharp scissors exactly equal cuts are made from the opposite edge of the muscle to the mid-point. These cuts are parallel, and one on either side of the forcep blades. The forceps are carefully withdrawn and the slit in the conjunctiva closed. The jig saw operation is a most delicate procedure, and the cuts must not be too long or the section will be complete. The scissors cuts must be exactly equal or there will be a vertical deviation resultant.

We are now ready to close the operated eye. The anchor stitch is tied over a vertical strip of adhesive on the temple to hold the eye in a position of abduction thereby relieving the muscle sutures of all strain. This anchor stitch will come out of the sclera of its own accord in three days. The operated eye is covered with an eye pad The outer half of the spectacle lens before the unoperated eye is covered with a "half blinder." This permits sufficient vision for the patient to get about but compels him to look out toward the operated side further relieving strain on the muscle sutures. The blinder is discontinued after three days. The sutures are removed on the seventh day.

This operation is much simpler and easier to perform than it sounds. The advantages of the Harman operation are these: It can be done without an assistant; the original condition of heterophoria is no worse in case the sutures pull out; the operation can be done under local anæsthesia and the patient can go home immediately after. An assistant who is trained in every step is necessary in many of the

operations for muscle shortening. A skilled assistant for the Harman operation will shorten time consumed, but the operation can be done without assistance. Every surgeon who has operated upon the eye muscle has had some cases in which the sutures have torn out. We all know the unpleasant and difficult task of going after a muscle which has been severed from its insertion and slipped back. This cannot happen with the Harman operation, for the muscle is not severed, and in case the sutures do pull out, the condition is no worse than before the operation. The adhesions which form following Harman's method are wholly in the muscle tissue itself, and if a second operation was needed, it could be done upon the same muscle. Cocaine anæsthesia is perfectly satisfactory for the performance of the operation. Except in very nervous patients or children it is preferable because we can see our immediate results. We have used both local and general anæsthesia. There are two occasions for pain under local anæsthesia, one when the needles are pushed through the muscle to secure the base of the reef, the other when we make the reef with the reefing forceps. The patient will feel less pain if the surgeon will rotate the reefing forceps very slowly. If the surgeon when about to pass the needles through the muscle will tell the patient that he will feel a little prick for just a second; the patient will know what to expect and prove tractable.

Harman sends his patients home right after the operation with instructions to report to the hospital daily for cleansing of the operated eye. We have kept our patients in the hospital in order to watch the after-effects more carefully for periods varying from one to seven days. The amount of reaction is very slight. No swelling of the lids has been noticed until the patients have been allowed to use both eyes. In one or two patients only, was there swelling of the lids and this disappeared immediately after the removal of the sutures which led us to believe that in these patients the sutures caused some irritation. There is a varying amount of reaction in the conjunctival and sub-conjunctival tissues varying from a slight injection to in one or two patients, chemosis. The lump caused by the reef disappears in periods of from two weeks to ten months. In one case the lump persisted for ten months with considerable redness of the conjunctiva. This, apparently, caused the young woman no inconvenience, except as

she said, "It looked awful." One year after operation it would be difficult to tell from objective examination that anything had been done to the eye.

The results in the correction of the heterophoria have been very satisfactory. We shall not bore you with figures but simply say that the cosmetic results were perfectly satisfactory to the patient except in three cases out of twenty-two. In one the sutures tore out the second day and we had the same esotropia as at the start. The other two were high degrees, 50° and 65°, respectively, of exotropia. One case presented an eye, injured in childhood and with only 4/200 vision with glass. We shall do another operation for the remaining 15° of divergence. The other case was brought from 65° exotropia to exophoria of 15°, but she is dissatisfied. In two cases we secured orthophoria with glasses for near and distinct vision. On one other case of 53° of esotropia we secured by the phorometer exophoria of 3°, and yet to look at the patient one would declare that slight esotropia still existed. This case has been tested by three surgeons whose findings agree.

We are fond of the Harman operation and use it exclusively. In the matter of the reefing, we can be fairly accurate up to 30° in the adult. The correction obtained is about 2.5° in the adult; 2° in the child; for each millimeter of shortening. That is, if we set the reefing forceps at 10 upon the scale we receive about 25° of correction. In using the advancement and the reefing, we have to exercise judgment in the amount of advancement made. After all though we can estimate the number of degrees of muscle shortening desired, it is next to impossible to get just the desired amount with any method of operation. There have been many methods and instruments devised which will estimate and remove just the right amount of muscle tissue but none of these methods or instruments tell us what the opposing muscle to the one operated will do. Does it exert the same amount of opposition after the operation as it did before when the measurements were made or does it pull harder against a shortened or lengthened muscle or does it pull much less? Possibly the antagonist with its variety of traction can be accountable for the lack of precision in results which precision is claimed for the accurately metered operations. At any rate, it is the absolute variability of myology which is attractive and

the Harman operation is as accurate and quicker and easier of performance than the others with which we have had experience.

In conclusion, I desire to give credit to Dr. N. Bishop Harman from whose article printed in "Proceedings of 17th International Congress of Medicine," London, 1913, I received aid in the description of the operation; to Dr. A. B. Norton for kindly criticism and aid in perfecting the operative technic, and to Grace Allen Williams for aid given in the preparation of the sketches.

30 East 55th St.

DISCUSSION.

I. O. Denman: Dr. Williams has the distinction of sending the first thesis under the revision of the Constitution and By-Laws. I move that we establish a precedent now that this thesis be not submitted to discussion or criticism, and that we give a rising vote of congratulation to Dr. Williams upon the presentation of this thesis—the first under the new rules.

G. W. McDowell: We may in the future come across some thesis in which this precedent would embarrass us. A thesis might easily pass the board of censors and yet be open to criticism in some detail of treatment or mode of operative procedure. It is not a reflection upon the man who writes the thesis that his paper is criticised. It may be admirable in every way and show capacity, yet it might not meet the approbation of those who might be present at that time. I suggest, therefore, that we do not make this a hard and fast rule.

I. O. Denman: The contingency that Dr. McDowell mentions might happen and then the discussion would be a reflection upon the board of censors because a thesis that they approved of would not be approved by the society as a whole. The censors have the authority conferred upon them by us to reject any paper that they deem unworthy. Dr. Williams is not as yet elected to membership; his thesis has been passed by the board of censors, and since we do not know and cannot know what turn the discussion might take, it is by far the best plan that the paper be not criticised.

G. W. McDowell: Why cannot we make some arrangement to postpone the discussion until he has been elected a member? We might get many valuable points out of the discussion.

A. B. Norton: The point that Dr. McDowell makes is well taken;

if the thesis needs to be criticised let it be done in the open and an opportunity given to the candidate to defend himself and answer them. There are a good many different minds and opinions in this society, and I think it is wise to have every point discussed, for there is hardly a point can be mentioned but that somebody will have objections. Is not this discussion out of order, the motion has not been seconded?

A Voice: I seconded it.

President: I think it is order now; we discussed it before it was seconded, that is all.

I. O. Denman: I withdraw my motion; I feel, however, that it would be a courtesy and a good precedent to make some sort of distinction in regard to the theses of non-members which have passed the censorship of the board. There are a great many men whom we want for members who would shrink from making application for membership if their thesis would upon presentation be jumped on and grilled. I think that the first thesis ought to be taken out of the usual course of the usual paper. That was what I had in mind when I made the motion.

A. B. Norton: Now I have heard the creator of the motion again I begin to see that there is some sound sense in it after all. I think that it is a good point, and I am perfectly willing to have the motion pass.

G. W. McDowell: Why could not the report of the board of censors be made early so that the new members would be elected at the beginning of the meeting?

President: The report of the board has usually to be the last thing because that is when visitors are run in. It is the last thing on our program.

I. O. Denman: Our present order of business has been arranged to correspond with changes in our Constitution and By-Laws, and it has been adopted by motion as the order of business of the present meeting. If discussion of a thesis was allowed but postponed until after election of the new member we could not even listen to it until after next Thursday. That is the dilemma which will confront us if we try to change the order of the program. There is a kink in any effort to change after adopting it.

I. P. Metzger: I agree with that; the censors should recommend

any thesis that is read here before it is read, otherwise we might have to listen to a paper which we should regret.

President: The motion before the Society is that in case theses are presented before next Thursday there shall be no discussion of it.

G. W. McDowell: Wasn't there an amendment that the paper should be discussed but not until the candidate had been elected?

A. B. Norton: We can suspend our By-Laws and elect Dr. Williams now to membership and then discuss his paper.

President: No, we can't do that. The whole thing would be straightened out if somebody would make a new motion that discussion of theses take place only after the candidate has been elected to membership.

I. O. Denman: I withdrew my original motion; now I make it again in a slightly different form. I move that there be no discussion of theses until the author has been elected to membership in the Society. Seconded. Carried. Adjourned.

WEDNESDAY, JUNE 20, 1917.

FIFTH SESSION, 2 P. M.

President: Meeting will please come to order. We will now listen to paper No. 25, "The Stereoscopic Treatment of Exophoria and Convergence Insufficiency; Cases Reported on a New Schedule," by D. W. Wells, Boston, Mass. (Read by Dr. A. E. Cross.)

UNIFORM SCHEDULES FOR CASE REPORTS NECESSARY FOR DETERMINING THE RELATIVE VALUE OF DIFFERENT FORMS OF TREATMENT.

THE PRACTICAL VALUE OF THE ONE PRESENTED TESTED BY THE REPORT OF 236 CASES OF EXOPHORIA AND CONVERGENCE INSUFFICIENCY TREATED BY STEREOSCOPIC FUSION TRAINING.

David W. Wells, M. D.,
Boston, Mass.

IT is now fifteen years since the writer presented to this Society a new method of treating the phorias by decentering + 10. lenses in a stereoscopic attachment to the phoro-optometer. Two years later a second paper was written on the same subject and a set of

stereoscopic charts was published. These were selected from various authors and a few original ones added to meet the needs of all forms of heterophoria.

In a later edition were included some very valuable fusion color charts designed by Dr. Shepard and two new sets by the author. A monograph, "The Stereoscopic Treatment of Heterophoria and Heterotropia," published 1912, presents the fully developed idea. There is nothing of importance to add or detract from this. The success of this method has been so satisfactory that it is a constant wonder that it has not been generally adopted. It has a wide field of application.

The writer has in preparation a report on post-operative fusion training. To rest content with a cosmetic success when there is a possibility of establishing binocular vision is not discharging one's whole duty. The subject of exophoria and convergence insufficiency is selected for this report because these cases greatly outnumber all others. That many other phorias are amenable to this form of treatment is shown in previous communications.

Therapeutic facts are difficult to establish and it is only by a rigid self-criticism that one can escape becoming a faddist. The present statistical study is based on 236 consecutive cases, which is all we had time to tabulate, but since taken consecutively, this number ought to demonstrate the percentage of success and failure. The tabulation has been on this schedule.

The necessity of a uniform system of keeping records, if there is to be any comparison of results, has been so well established in many other departments, notably the financial affairs of cities, that I propose we take a definite step forward as scientific physicians and adopt a standard schedule for recording and presenting the treatment of exophoria and convergence insufficiency. The one presented for your consideration has been tested by the accompanying case report and its practicability demonstrated.

It is difficult to include the essential data and avoid a cumbersomeness of detail which would defeat its general adoption. The reasons for the one proposed are as follows: As heterophoria is of no importance to the patient, and in the writer's practice it is not treated, unless it gives rise to discomfort, the first item to record, after the

CASE NO	SYMPTOMS H=Headache P=Pain in eyes V=Vertigo C=Confusion	EXOPHORIA				DUCTION				Fusion Faculty	No. Treats.	SYMPTOMS C=Cured relieved not	PHORIA				DUCTION				% Loss after 6 mos.	REMARKS
		Phorom		Cover		Revolving Pr		Loose Pr.	Stereo.				Phorom.		Cover.		Revolving Pr		Loose Pr.	Stereo.		
		D	N	D	N	Ad.	Ab.	Ad.	"ONE"				D	N	D	N	Ad.	Ab.	Ad.	"ONE"		

Schedule for Reporting Heterophoria Cases. Proposed by DAVID W. WELLS, M. D., F. A. C. S., Boston.

case number, is the particular symptom. The following are selected as most common:

h = headache.
p = pain in eyes.
v = vertigo.
c = confusion.

The measurement of muscle balance admits of various interpretations depending upon the method employed and the manner of using it.

There is no general agreement as to what constitutes normal muscle balance.

Perhaps the most important discrepancy is developed between the cover or screen method, in which a card is quickly flicked from one eye to the other and strength of prism required to stop the visible motion noted, and all the other forms in which both eyes see simultaneously. Those who use the former ignore, at least tacitly, the physiological guidance of the fusion faculty, assuming that muscle balance is wholly a question of the relative power of the various extrinsic muscles. The tendency to verticalize and horizontalize is present as an uncertain factor in all subjective binocular tests. Patients exhibit this tendency in varying degrees, and in the same patient it is more manifest at some times than at others. Then, again, the examiner can check or encourage it by the suggestiveness of his questions, and his data will depend upon whether he record the first impression or that after a few seconds' contemplation. It is, therefore, evident that many methods must be used if one is to have an intelligent opinion of a given case.

Our schedule should record muscle balance under at least two heads, *cover test* and *phorometer* or Maddox. *Duction* is important because so many eyes which are balanced by our various tests are handicapped by lack of ducting power. Landolt has said that one requires three times as much power as he habitually uses. This should be measured by ability to overcome the revolving prism and adduction, at least, with loose prisms. Superduction and subduction are important facts and can be included, but it was feared their introduction would prove an encumbrance. In speaking of prisms, let us carefully avoid the term degree when we mean prism dioptre Δ. The word degree (°) meaning 1/360 of the arc of a circle, should be reserved for the perimetric measurement of heterotropia.

Those who use the stereoscopic method will need to know stereoscopic duction and the grade of fusion faculty. Where the number of treatments is few and the case a failure, it should be indicated by an appropriate symbol whether the doctor decided that progress was too slow to warrant continuance (D. g. u. = Doctor gave up) or the patient failed to co-operate (P. g. u. = Patient gave up).

The writer has been so frequently asked how he induces patients to come for so many treatments that he assumes those using other methods have some difficulty in this respect. This is one of the arguments for the stereoscopic method, that there is no such difficulty, as the exercises usually secure the patient's interest and co-operation.

The *result* should record the change in symptoms and the effect produced on the phoria and duction under same heads as before treatment.

After being *cured* the next concern of both patient and physician is the permanency. The loss of power after ceasing routine muscle exercises has been a well recognized defect of muscle training. Those of us who believe in cultivating the fusion faculty and stereoscopic adduction as the best basis on which to build loose prism adduction have a theory that a patient so trained will develop a form of autosuggestion which will insure greater permanency. We have not proved this for lack of case reports which were sufficiently similar to admit of comparison. Therefore, in our schedule must be recorded the percentage of loss after six months.

Probably the schedule presented will not meet universal approval, but it ought to be possible to so amend it that it will suit a majority. The important thing is to agree on something and adopt it.

There must be provision for reporting failures as well as success. I should like to see the Society adopt a standing resolution, that it is incumbent on the person who reports success with some new therapeutic agent, to state the number of cases treated, the number of successes and the number of failures.

CASE REPORT.

It was said that this case report has demonstrated the practicability of the schedule. Since this comprehensive tabulation was conceived after this case report was undertaken, it has disclosed that my own records are lacking much important data. It is this failure of

my own which prompts me to urge the adoption of a uniform system. The tendency and temptation is to start the treatment immediately. I promise myself that in the future there shall be no exceptions in recording this preliminary information.

155 cases of distance exophoria treated.

70 " " " " or 41 per cent. cured.

82 " " " " " 34 per cent. relieved.

14 " " " " " 8 per cent. not relieved.

19 " " " " result not stated or treatment stopped, record incomplete. Assuming that these were not relieved would make the number of failures 33 or 21 per cent.

81 cases of insufficiency convergence treated.

36 " " " " or 44 per cent. cured.

34 " " " " " 42 per cent. relieved.

7 " " " " " 8 per cent. not relieved.

4 " " " " result not stated or treatment stopped, record incomplete. Assuming that these were not relieved would make 11 failures or 15 per cent.

In only 28 of the cured cases are we able to report on the stereoscopic or loose prism duction six months after treatment was discontinued. Average loss of the 28 = 4 per cent.; 7 showed no loss; 21 showed average loss 7 per cent.

FAILURES.

Perhaps the most important part of this study is the cause of failures. It has been suggested to the writer that patients whose abduction was greater than adduction were not amenable to muscle training. The whole record shows only ten cases of this condition; undoubtedly there were many more but data is lacking. Of these 10, 9 were either cured or relieved, and the relation changed to adduction > abduction. Not one of the 21 recorded failures exhibited this disproportion, although there were five whose abduction was > 8 △. It would, therefore, appear that this condition should not deter one from instituting this form of treatment. One case developed 90△ of both stereoscopic and loose prism duction and one even more. The first made his continuance of symptoms an excuse for not paying his bill. The second also objected to the bill because a change of lenses by another oculist relieved him. His refraction under atropine was:

Right + 1.00 ⊃ + .50 C 40°.

Left + 1.25 ⊃ + .25 C 150°.

And he was given just what he accepted one week later, viz.:

Right + .50 ⊃ + .50 C 40°.

Left + .75 ⊃ + .25 C 150°, without relief before muscle treatment was commenced. The prescription which cured (?) him was o. u. + .50. Is it possible the omission of the cylinders did this? Four others objected to the bill. To the remaining 15 the following note was sent: "I am tabulating some statistics with regard to muscle exercise treatments and notice that you were not cured by what I did for you. Will you kindly tell me if you have gotten relief, and if the result was secured through glasses or other ocular means?"

Nine replies were received. One patient was referred to Dr. Rice, who did a turbinectomy and curetted the sphenoid sinus in one and the "headache and dizziness" gradually disappeared. Another reply was as follows: "I should not say that I was not cured by your treatment. When I went to you I was not having any special difficulty with my eyes but was looking for some remedy for general neurasthenia. You found a defect of muscular adjustment, which you thought might have some bearing upon my condition. As I understand it, you felt that you relieved the local defect, and I have no reason to suppose that you did not. The neurasthenia certainly persisted and still does; but I am quite convinced that my eyes play little if any part in it."

Another reply: "Headaches, eye aches and weak stomach entirely gone for past two years, due entirely to Cain's School of Exercise." And still another: "In reply to your letter would say that I do not think I received much benefit from the muscle exercises for the eye. I went to the nose specialist as you advised and he said there was a slight enlargement but not enough to warrant an operation. Later, I was fitted to glasses in Lowell, and I also had violet rays used on my head. Something helped me, I don't know just what it was."

A fifth reply was as follows: "The exercise treatments did not seem very beneficial at the time, but afterwards her eyes improved apparently by use of the glasses you had previously given her. They have behaved comparatively well for the past few years."

Four other patients still suffer.

Five cured: 2 cured by correcting nasal defect; 1 cured by Cain's

School of Exercise; 1 cured by violet rays; 1 cured by use of glasses.

In my own notes of these cases the word "neurotic" frequently appears. Some years ago Dr. Frank C. Richardson, of Boston, talked before this Society on the futility of attempting to cure "nervous instability" by correcting eye strain, quoting a case in which the writer had made this mistake. I know of no way to recognize this condition beforehand. Many seemingly unpromising cases have been greatly benefitted, one might even say cured. I believe thoroughly in team work and seek the aid of the internist, rhinologist and neurologist, but not always *before* attempting ocular treatment if the symptoms seem indicative of eye strain. One of these failures should have seen the rhinologist first. I must confess that I have not learned from these failures just what type of case to let alone.

The average number of treatments required for the cured cases was ten. The average number given those improved but not cured was nine. The average number given those not improved was nine. In twenty-two treatment was stopped after a few visits, usually at my suggestion D. g. u. In a recent case I had about decided to give up after ten treatments failed to show much improvement; on the eleventh visit patient made considerable gain, and four more treatments, fifteen in all, produced an adduction of 85△ with both stereoscope and loose prism with ability to do the daily work with perfect comfort. This suggests that more determination might have converted some failures into successes.

DISCUSSION.

Dr. A. E. Cross: Uniform schedules for case reports necessary for determining the relative value of different forms of treatment.

It is a pleasure and I consider it a privilege to open the discussion of Dr. Wells' paper, because I believe it is a contribution stimulating more exact methods, both in recording and reporting our cases. I am in such hearty sympathy with his method of treatment, and also with his demand that we report our cases according to some definite schedule, that there is little to state except in approval.

I realize that there is a tendency to become idealists in some particular departments of our work, and so I presume that any demand that we improve our records will go unheeded by a large part of the

profession who are perfectly satisfied to keep the final prescription given the patient as the full record of the examination.

The stereoscopic method of treating exophoria by Dr. Wells I have used in my practice for about thirteen years, and during this period I have yearly become more enthusiastic in its use. I believe in it more strongly to-day after these years of experience than when I presented my first paper on this subject to this society in 1909.

It would be impossible for me, however, in reporting the results of treatment in my cases to meet the conditions imposed by the schedule of Dr. Wells, as my records are not kept in such a way as to give the details asked for in this schedule. I believe though that my records will show the results of this method of muscle training as clearly as the schedule here reported.

Dr. Wells well states that there is no general agreement as to what constitutes normal muscle balance, the term orthophoria is one which we accept as a condition where there is a mathematical balance of both lateral and vertical muscles, yet we have all seen case after case of this type where our patients were most uncomfortable.

In fact, many of you will agree with me in the observation that these cases which show approximately two degrees of esophoria in the distance and from 2 to 4 degrees of exophoria near rarely show any asthenopic symptoms due to muscular imbalance. I believe it is Reber who has coined the word euphoria to represent this type. In the treatment of my cases I make every effort to get an esophoria of 2 or 3 $\triangle$ in the distance.

Tests with the phorometer, Maddox rod, etc., are supposed to give the tendency to deviation when eyes accustomed to binocular single vision cannot obtain it, but these tests do not determine whether the defect is primary, *i. e.*, due to defective or excessive strength of any one muscle or secondary to a lack of excessive ennervation, it is only in an incomplete degree that these methods determine the need of muscle treatment apart from the correction of the ametropia present.

The normal combined action of the interni is in association with the accommodation, when testing the power of the interni at adduction at 6 metres we find as we increase the prism power visual clearness is gradually reduced due to excessive stimulation of the ciliary by the increased ennervation to the interni, therefore, the pa-

tient resigns the attempt to fuse because visual clearness with perspective is the guiding sensation to binocular single vision. Such a test does not give us a result showing the actual strength of the interni; and when we have taught our patient to disassociate accommodation and convergent, adduction can be tripled or even quadrupled in a few minutes. Does this increase then show that we have actually increased the muscle power of the internus? No, we have simply trained the internus to act independently of the accommodation or developed what Dondais calls the amount of positive relative convergence.

Therefore, to report the amount of development of adduction as tested by either the rotary or loose prism is to me of little importance, as you can make it any amount you wish by a little practice plus the suggestive ability of the physician making the test.

Again, the reporting of the degree of phoria present by the two tests in Dr. Wells' schedule is open to a good deal of error. First the phorometer does not give us an accurate test of the phoria present. I have repeatedly seen cases with as much as 10° of exophoria who, by the phorometer, were orthophoric, and the same is true of the lower grades of hyperphoria, the cover test I consider a good one, but I must acknowledge that it is difficult to find two men who can reach like conclusions by even this test.

Personally, I have come to use a combined test which has proved most satisfactory to me, and that is a Cobalt blue lens before one eye and a Maddox rod before the other with a light at 5 or 6 metres. This test in my experience is more exact, depends less upon the intelligence of the patient or the keenness of observation of the physician than any other, so that since adopting it I have practically discarded the use of the phorometer and do not now record any record by the cover test except in high degrees of error.

I shall have to take exception to the statement that many other phorias are amenable to the stereoscopic form of treatment. I have followed with a great deal of patience and persistence many methods devised for the stereoscopic treatment of muscle insufficiencies, and I have come to believe that it is only in cases of exophoria and convergence insufficiency where the stereoscope is at all practical; in fact, I have yet to be convinced that any form of exercise will greatly

modify any muscle or insufficiency except that of the internus; the careful working out of the refractive error is the secret of improving the muscle imbalance in most cases of esophoria and low hyperphoria.

I have never had any difficulty in having my cases follow up this line of treatment. I explain this by the fact that this method interests the patient and appeals to the reason, and at the same time the patients see from day to day the difference in their ability to maintain fusion with convergence.

Finally, as to results since receiving Dr. Wells' paper I have been unable to fully classify my own cases. My assistant, however, has recorded 300 cases showing that the average number of treatments has been between 6 and 7, of these 22 were able to fuse either the E of Javal or the ON-NE of Wells with an amplitude of 60 prism diopters or over 20 between 50 and 60, and 24 between 40 and 50. Cases not requiring an amplitude of at least 40° I consider failures, and there was 17 per cent., so far as stereoscopic fusion, with amplitude is concerned.

I should, however, be very careful to state the percentage of cases cured as that is a very broad term, and at best it would necessarily be a guess, because only a small per cent. of the cases were seen again in six months, and while I consider the development of a fusion range of over 40° prism diopters a success, I could not be certain how many were free from the symptoms noted before treatment.

It seems to me that the value of a definite schedule of reporting cases is not wholly in showing the percentage of cases relieved or cured but by a careful study of the failures we can arrive at a knowledge of selecting only that type of case that is amenable to this form of treatment.

I think Dr. Wells is to be congratulated on the results shown by this method of treatment, and I believe he has a right to state "that the success of this method has been so satisfactory that it is a constant wonder that it has not been more generally adopted."

These statements are not made as a criticism of Dr. Wells' schedule, but simply to show that the best laid plan may fail in producing the results desired, and also when these same results may vary greatly under the direction of specialists of equal ability.

A. E. Cross: Discussion read by author.

G. A. Shepard: Discussion read by author. During his discussion he added: I have called attention to the need of going to work and getting this particular knowledge of our patient's condition. We should ask ourselves the question and answer it: Does this person use his two eyes together intelligently? If not, the perceptive power is defective or absent, and if the perceptive power is defective the person is defective. In such a person the activities of life affect and exhaust the nervous system more than they should, more than they need to. I have found cases with fair perspective power, but with much muscular effort; that shows that there is no automatic, harmonious use of the two eyes to define an image; it is done with an excessive expenditure of nervous force. It is difficult for such persons to estimate distance. These things should be brought home to us. Just think of our aviators who have no local measures by which to judge distances and to whom accurate estimation is all important. The man who is sent up into the air should have above all things, good perspective power. A physician of fifty-five years, from an inland city, called upon me with a diagnosis of aural vertigo. The diagnosis was made by a well known aurist. I examined him but could not demonstrate any ear fault. Rather, I thought, his trouble indicated some fault with the eyes. I found visual faults, and said, "It is there, let us correct it." He stayed with me for two weeks and then went home much better. I saw him a year later entirely well. He spoke of it as a miracle. "Within a few weeks after I left you my vertigo disappeared and has not come back." He had had no trouble since that time, and appreciated it much. There was a case of faulty diagnosis I speak of that is in connection with the semi-circular canals.

Royal S. Copeland: I have derived most benefit from those meetings of this Society, which we used to have, from which the reporter was excluded, and we told each other of our mistakes. I shall make frank confession here as we did in the old days. I am laboring under a heavy debt of gratitude to Dr. Shepard for taking a patient from me and at the same time teaching me a valuable lesson. He has been paid, because he got a beautiful fee out of the case and earned it.

I had a patient whom I treated for a long time, putting him

through various examinations for refractive errors, etc. He was a patient chap, and I gave him various exercises and other performances designed to cure him, but they all failed. This was quite a different fellow from most patients, for after a year's disappearance he wrote me a letter, saying that he had despaired of ever getting well, but doubtless I would be glad to know Dr. Shepard had cured him. It seemed that Dr. Shepard had cured him by means of fusion exercises. I have not lost many patients of that kind since. I have "got on" to his methods.

By means of the careful muscle and fusion tests that I have made as a matter of routine ever since, I have found out rather to my amazement, that these disturbances are very common—much commoner than I dreamed of. No one of us is doing his full duty to his patients until he has made tests for insufficiency and fusion.

I think I understood Dr. Cross to say that he found, as a rule, there was no asthenopia in patients who showed exophoria at near distance and esophoria at far; that surprised me because I have found it common in such cases. But what I would lay emphasis upon as the result of my experience is the importance of making these tests as a matter of routine.

R. J. Lloyd: This paper brings up a point that is frequently overlooked. It is the fact that the average examination of the eyes is distinctly a monocular proposition. We examine the eyes separately as if they belonged to two different people; we do not, as a rule, think of them as working together, and we do not examine them as binocular in function. We go through the regulation tests with the phorometer and the Maddox rod and that ends it. It is important to remember that these tests do not demonstrate what the eye does in actual everyday life, but what it can do when the intellect is stimulated and the attention aroused. Hence these tests are deceptive inasmuch as they do not show the ordinary state of the eyes. There have been lately introduced some tests to show whether or not the eyes work together—the Bishop Harman test, for instance. It is a matter of surprise to note the large number of people who do not have binocular vision at a near distance. It is about sixteen per cent. in one group of 250 consecutive office cases. The Bishop Harman diaphragm test sharply separates the field of each eye; it takes away

the prop and puts each eye on its own legs, so to speak. It seems to me that we ought to get busy and take the use of both eyes more into consideration. Of course, not all of these cases have symptoms, quite a few of those who make use of only one eye at near distances have no complaint to make. The fact is difficult to prove with the ordinary monocular examination, with the phorometer and the Maddox rod. These tests do not show what the eye does in actual life but only what the eye can do when the attention is especially alert.

Wm. M. Muncy: Although I use the Maddox rod and the phorometer as routine tests, I quite agree with Dr. Lloyd as to their limitations. I have often seen cases with a slight amount of esophoria at distance with also a slight exophoria for near point, and yet no asthenopia present. I never stop muscle exercises in cases of exophoria until I have developed esophoria at distance of two degrees, for until you do develop to that extent you are not sure that the condition will remain corrected.

De Wayne Hallett: There are two important things about this paper, the first is that unless, after we have determined the refraction of each eye by itself, we put forth our best efforts to see that the two eyes are working harmoniously together we have not performed our function in a manner worthy of ourselves or creditable to this Society. We must make ourselves of more worth to our patients than an optometrist. They are getting on pretty well, but it behooves us to justify a higher place in the opinion in the community than he does.

The second important point is the necessity of having some such standard schedule as shown in the paper by Dr. Wells. We must take pains that we measure and record the primary condition of the eye so that we know absolutely where we start from. Dr. Cross speaks of having cases where esophoria and exophoria are combined at the far and near points. Many patients will put forth an effort at twenty feet in which they will show their ability to turn the eyes inward, but this does not represent the natural state of their muscles in ordinary work. I have found patients who in a highly alert and excited state show a certain amount of exophoria, and then if you can get them to subside and be quiet they will show a less degree than at first. The schedule proposed by Dr. Wells will assist us very much in deciding as to the value of our various treatments.

President: I shall have to apologize for not having more of the schedules here. I was supplied with them by Dr. Wells, but through accident they have not as yet arrived. Since my attention was called to this department of our work, I have become very much interested in it, and I feel that in the stereoscopic training of eye muscles we have a very valuable method of treatment. Dr. Wells has been the prime mover in exploiting this method, and to him is due the bringing of it to a high degree of efficiency. A visit to Dr. Wells and a course of study of his methods of stereoscopic training of eye muscles would prove most instructive to anyone. During the past year I have spent much time working along these lines and have secured very excellent results. The Bishop Harman test, as mentioned by Dr. Lloyd, is one of the most useful tests known and demonstrates thoroughly any lack of harmonious binocular vision at the near point. It is surprising how many cases are found in which there is a lack of binocular single vision; also it is surprising to find the number of patients who lack the proper fusion sense, and it is interesting to note improvement in such patients through fusion training. It is a credit to the Society that the most scientific work along these lines have been done by members of this Society, especially Dr. Wells, Dr. Cross and Dr. Shepard.

I have seen patients develop adduction up to a high degree with marked relief from troublesome symptoms. It is a perplexing problem, and the more good tests we can have, the better. I look upon the schedule, as presented by Dr. Wells, as an excellent move in the right direction, and as a thing we should all take hold of. We are working, many of us, with different methods in order to obtain the same result, and we report excellent results by our different methods, but our cases are not reported in such a uniform and detailed way that we are able to compare the results of our methods with those of others. Then, too, we are apt to report picked cases and not consecutive ones, so that the value of our reports is questionable. I wish the Society would give this matter its thorough study; surely the plan as outlined by Dr. Wells should have our earnest consideration, and we should arrive at some definite plan for the reporting of cases so that we may be able to make useful comparisons and to become more precise in our work.

I. P. Metzger: I find frequently that the correction of a refractive error by means of glasses, or a change of glasses, will at first make a person uncertain of their movements and of moving bodies. Dr. Shepard has referred to aviators as needing good fusion sense, but really we need it every day and on the earth as well as in the air. Every motion on the street needs it, the cars, the automobiles; this difficulty in correctly visualizing moving objects occurs, even when the muscles of the eye are perfect, after a change in glasses until they get accustomed to them. It is my custom to ask patients to return frequently in order to see that their muscle balance is normal after a change in glasses.

C. E. Williams: After an operation for imbalance it may be necessary, and is a good thing anyhow to give some fusion treatment so as to bring the eyes into harmonious binocular action.

G. W. McDowell: What is the experience of members in the treatment of patients having three or four degrees of exophoria for distance, and six or seven degrees of esophoria in accommodation?

G. A. Shepard: I consider those cases as having an accommodation that is somewhat weak; the accommodative effort is enough to throw the eye into esophoria. They are prone to spasmodic convergence. It is not uncommon and is due to weakened accommodation.

G. W. McDowell: Do you treat these with prisms?

G. A. Shepard: Either with prisms or with electricity.

De Wayne Hallett: It seems to me we ought to decide something relative to Dr. Wells' schedule.

R. I. Lloyd: Has he not had success by using atropine and strong prisms?

H. B. Ware: I think the question would be answered by making tests under a mydriatic.

G. W. McDowell: Can you decide the near point under a mydriatic?

H. B. Ware: No, not the near point.

G. W. McDowell: That is what I am interested in.

President: Dr. Wells offers this paper as a suggestion; if it is not satisfactory, it should be referred to a committee or something. It is not that we must accept this special record, but that we should have some acceptable record for all of us.

R. S. Copeland: It seems to me that the subject deserves a more careful study than we can give it in a session, especially as only a few of us have seen Dr. Wells' schedule. Would it not be better to let it go over until next year?

G. J. Palen: I move that it be referred to a committee to make a report upon it next year. Seconded.

W. M. Muncy: Would it not be better to have them make a report in the Journal instead of waiting until next year?

R. I. Lloyd: The committee on the presidential address has taken up this very point in their report.

G. J. Palen: Then I withdraw my motion.

A. E. Cross: In regard to Dr. Copeland's idea, I am sure that there are many cases showing esophoria in distance and exophoria at the near point who do not show any asthenopic symptoms; say, two degrees esophoria at distance, and two to four degrees of exophoria at the near point. If there is more than four degrees at near point it is a case of convergence insufficiency, and is simply spasm. Such cases have limited fusion; if the fusion is corrected and strengthened the condition will entirely disappear. I agree with Dr. Lloyd about the limitations of the Maddox rod and the phorometer, but I have used them because I have not been familiar with the diaphragm test. The double series of cards help out a good deal. It is true that the refractive error often reveals the trouble, but even then I would make tests of the muscle balance. One other item, I reported the ON and the NE of Wells rather than the more complete types.

PAPERS READ.

The Treatment of Incipient Senile Cataract, by Dr. W. J. Blackburn, with discussion.

Some More About Cataracts, by Dr. C. G. Fellows, with discussion.

Cataract Extraction in the Closed Capsule, by Dr. De Wayne Hallett, with discussion.

One-Eighth Committee Report on Experiments With Apis Mel., by Dr. C. B. Helfrich.

A Severe Case of Laryngeal Spasm, by Dr. T. L. Shearer, with discussion.

Iritis, by Dr. Leroy H. Thompson.

Report of a Case of Neuropathic Keratitis Following Herpes Zoster, Treated by Peri-Corneal Neurotomy, by Dr. A. E. Cross, with discussion.

Bloodless Tonsillectomy With the La Force Hemostat Tonsillectome, by Dr. E. Jones, with discussion.

Observations on Tonsil Surgery. Thesis, by Dr. J. J. McDermott.

Empyema of Both Frontal Sinuses, With Unusual Complications, by Dr. Geo. B. Rice.

HOSPITAL CLINIC.

SIXTH SESSION, 8:30 A. M., JUNE 21, 1917.

CLINICS AT HOMŒOPATHIC HOSPITAL ON ALEXANDER STREET, ROCHESTER, N. Y.

Business Session.

SEVENTH SESSION, JUNE 21, 1917.

AT MEDICAL ASSOCIATION BUILDING, No. 33 CHESTNUT STREET.

PRESIDENT: Meeting will please come to order.

H. W. HOYT: May I say a word before the reports of officers about this building. I think the doctors who have visited us may be intested in knowing something about it. All the various schools of medicine in Rochester are on good terms and associate together fraternally. A few years ago they met and elected officers and began to look around for a suitable building. They bought this house; it is owned by the physicians of Rochester. Any physician here can be a member, only he must belong to the local society, be in good standing and pay dues of fifteen dollars a year. It is irrespective of schools. Here the Academy of Medicine have their library and reading room. Medical meetings of various kinds are held in this room. Hence there is a good feeling among the physicians and different medical societies of this city. One of our members, Dr. E. J. Bissell, was elected president for this year.

PRESIDENT: We will now listen to the report of the secretary

SECRETARY'S REPORT.

No radical departure from the routine work of the secretary marks this annual report. An extraordinary amount of correspond-

ence has been required to complete the program as it now appears before you.

Attention of the members is called to the list of active members of the Society as it appears in the current number of the Journal. The list is accurate in so far as a return postal canvass can make it so. Every member was sent a return postal ruled for complete data, and if errors appear they are due to failure upon the individual member to return the card accurately filled out.

A large number of bound volumes of the O., O. and L. transactions are still available to anyone who will pay the postage thereon. Volumes run from 1908 to 1914, inclusive. Five large boxes of these books are in storage at fifty cents a month, as per my financial statement.

Respectfully submitted,

Ira O. Denman,

Secretary.

President: You have heard this report, what will you do with it?

C. L. Rumsey: I move that the report be accepted. Seconded. Carried.

REPORT OF THE BOARD OF CENSORS.

The Board of Censors offered the names of G. H. Conrad, J. J. McDermott, C. E. Williams as having complied with the requirements of the Society and recommended them for membership.

Moved that the secretary cast a ballot for the Society electing the three men. Seconded. Carried.

REPORT OF THE NOMINATING COMMITTEE

President, Charles L. Rumsey, Baltimore, Md.

First Vice-President, Everett Jones, Boston, Mass.

Second Vice-President, H. B. Ware, Scranton, Penna.

Secretary, Ira O. Denman, Toledo, Ohio.

Treasurer, William M. Muncy, Providence, Penna.

Necrologist, G. W. Mackenzie, Philadelphia, Penna.

Board of Censors, Corda E. Beeman, Grand Rapids, Mich.; J. B. Bates, Gloversville, N. Y.; R. J. Ferguson, New Haven, Conn.; H. A. Foster, New York, N. Y.; S. B. Moon, Pittsburgh, Penna.

Report of Press Committee, H. W. Hoyt, R. I. Lloyd, Burton Haseltine.

Report of Committee on President's Address, R. I. Lloyd, Burton Haseltine (was substituted), W. H. Phillips.

Vice-President took the chair.

R. I. Lloyd: We compliment the Society on the president's address; it is evident that it is no perfunctory paper but represents a good deal of thought. It suggests the advisability of having meetings between the annual meetings. The committee think it wise to recommend this suggestion, and that some sort of meeting be held in the intervals between the annual meetings at suitable and convenient places as the executive committee may find best. The second recommendation of the address is that some standard form for scientific reports be adopted. It is an excellent idea but difficult to carry out. The committee voted to recommend the appointment of Dr. Wells as a committee to take the matter up and carry it through as far as possible. As to the recommendation that some member or members of the Society get out a scientific text-book, it is the unanimous opinion of the members of the committee that it would be an excellent thing if a man, a member of this society who could command the co-operation of the profession, would get out such a book. The members approve of the idea and recommend that Dr. G. J. Palen be selected to produce it. The support of the Journal, both financially and morally, was recommended in the address and meets the warm approval of the committee.

H. D. Schenck: I move that the report be adopted. Seconded. Carried.

Burton Haseltine: I think that it would be more regular if there was a motion made instructing the executive committee or the treasurer to pay out certain sums of money in the form of a specific order.

R. I. Lloyd: I move that the same man as last year attend to the financial matters of the Journal. Seconded. Carried.

Report of Committee to Meet the Trustees of the American Institute.

Burton Haseltine: My report is simple; we met the trustees of the Institute and asked them to state as specifically as they could just what their wishes were. They presented a resolution to show what they wanted; it was resolved that the O., O. and L. Society be invited to change its name so as to include a statement that it is affiliated

with the Institute so as to make an organic connection between the two. I asked if they could give us some suggestion as to how this Society could be of more value to the Institute than it now is. They said it would be more valuable if it required its members to be also members of the Institute. Every year we have tried to meet at the same hotel as the Institute, but there never has been room enough for the two societies in one hotel.

Burton Haseltine,
H. S. Weaver,
A. B. Norton

Moved that the report be received. Seconded. Carried.

President: Is there any new business?

I. O. Denman: I received as secretary a communication from the Interstate Anæsthetists' Association which is of interest. They are trying to raise the standard of requirements of those who give anæsthetics. Incidentally, they are trying to exclude from trained nurses the privilege. I promised to present their plea and here it is. Personally, I am in favor of raising the standard and think that it is a valuable measure. It ought to have the support of the surgical and medical profession. Nurses are not specially qualified to give anæsthetics. The anæsthetic is more dangerous than the surgical operation. We cannot place too many safeguards around it. It is presented for adoption or rejection.

Resolutions to Protect Public Health and Safety By Conserving the Administration of Anæsthesia as a Specialty of the Practice of Medicine and Dentistry.

Whereas, The administration of anæsthesia is a part and also a specialty of the practice of medicine and dentistry now under the supervision and legal control of the various State medical and dental boards for the protection of the community-at-large and the individual safety of persons submitting to operation under its influences; and

Whereas, The administration of anæsthesia has never been and is now no part of the duties of nursing, and registered nurses are not required by law to have any knowledge of the science nor any skill in the practice of anæsthesia; and

Whereas, The organized associations of anæsthetists are ad-

vancing the science and practice of anæsthesia in the schools, the clinics, the research laboratories and journals of the medical and dental professions of the United States and Canada as satisfactorily, efficiently and rapidly as is consistent with safe and permanent progress; and

Whereas, This activity of the organized anæsthetists has for its predominant purpose and immediate result the administration of anæsthesia by licensed and qualified experts, for every person, rich or poor, submitting to operation; therefore, be it

Resolved, That the ..... hereby urges all those in authority, State medical and dental boards, legislatures and courts, to conserve the administration of anæsthesia as an inviolable part and specialty of the practice of medicine and dentistry for the protection of the community-at-large and the safety of individuals in particular, and to discountenance any and all efforts to legalize unlicensed and unqualified administrators to the detriment of the public welfare. Be it further

Resolved, That signed and attested copies of these resolutions be forwarded to organized anæsthetists for submission to those in authority, in support of their propaganda for conserving public safety.

(Signed)

President: What shall be done with this communication?

I. O. Denman: All it asks us is to agree to give our approval and support.

Burton Haseltine: The law already forbids the administration of an anæsthetic except by a graduate or a nurse under the supervision of a graduate. That is so in most, if not, all of the States. If an attendant gives an anæsthetic under you, you are really giving it because you are responsible. I cannot see any reason for changing the law. Do you know of anybody giving an anæsthetic without a physician being present? The physician's license covers everybody in the room.

W. H. Phillips: There is an effort being made in Ohio to permit trained nurses to give anæsthetics; perhaps it is to attack that effort that this resolution has been gotten up. As between the average nurse and the average doctor I think there is little difference in ability. Many of the profession are going to the war and it will be

necessary to allow the nurses to give anæsthetics. One of our best surgeons in Cleveland depends upon nurses, and I have not noticed any fatalities in his practice. Fatalities have been practically nil in a good many years in our city. One thing in favor of nurses is that in many hospitals it is difficult to get doctors who will give anæsthetics. If there is an association who will agree to supply the hospitals with all the anæsthetists needed we might regard them with more favor. As it now stands, it is difficult to secure competent anæsthetists unless you have a big hospital and can afford to pay a good sized salary. In Ohio nurses have been employed and found very satisfactory.

No action was taken on the resolution.

Thomas L. Shearer: In Baltimore we have some men who are specialists in giving anæsthetics. The internes in hospitals are constantly being changed so that by the time they become accustomed to the work they go away and others must be broken in. In some of our hospitals nurses, specially trained, give the anæsthetic.

Burton Haseltine: When a nurse gives the anæsthetic is there not always a physician present?

Thomas L. Shearer: Certainly, some of the staff are always present in the anæsthesia room, and even although they may walk in and out, they are responsible.

Alfred Lewy: The absence of Dr. George from the meeting gives me an opportunity to speak a few things that are on my mind. Several years ago, as you know, he evolved the theory that the movement of the eyeball was an oscillation rather than a rotation about its axis. This met with much opposition and still does. Dr. George at first was refused the columns of our official journal until a committee had passed on his article. This committee without having given him a hearing brought in an unfavorable report. The cold, scientific skepticism of the committee was in strange contrast to the haste with which some members of the Society were ready to accept any evidence tending to oppose the theory. However, that is past. Some of the members have changed their attitude and the Journal has offered to publish Dr. George's work, and has published a reply of his in the last issue. But what I wanted especially to call your attention to is the results he is obtaining. I have had the opportunity of watching his strabismus work (he is doing a great deal of it), and that of

other leading men in Chicago, and nowhere have I seen such uniformly successful results. I tell you this in the hope that the members will keep their minds open, and in order that original work done by our members shall not go to old school journals. Dr. George now has an article on a new therapeutic lamp in the *Annals of Ophthalmology*, and he has about perfected a strabo-phorometer, which will measure the movements and deviations of the eyeball more accurately than any instrument so far devised.

Burton Haseltine: I regret that Dr. Lewy should suppose that anyone would speak slightingly of the excellent work of Dr. George. I bought one of his instruments—one which he devised—and it is the cleverest thing I have seen. His work in that particular line is better than anyone else's. It is a mistake to say that the Journal would not publish his articles; the fact is that the Society ordered the Journal to delay the publication of one article until the committee appointed had reported upon the subject. That committee wrote him several letters and told him just when the report was printed. There has not been the slightest disposition to withhold the publication or to pass upon the value of his work without giving him opportunity to defend himself if he thought it necessary. He made a novel claim and the committee were to report upon it before the Society would publish his article.

Alfred Lewy: I saw all the correspondence and know what went on, and also saw the report of the proceedings of the Society in connection with the committee's report. I know that Dr. George felt that he was harshly treated, and so did all of his friends who read the correspondence.

W. H. Phillips: I was president then and wrote those letters; there was not anything said in them more than what Dr. Haseltine has just indicated; I said that his paper would be withheld until the committee appointed to consider the matter had made a report. That is all there was to it. Dr. George had all the chance in the world to make good upon the proposition before it was published.

Alfred Lewy: I only wanted to speak of his remarkable work; the other matter has been all straightened out in the last issue of the Journal.

Burton Haseltine: It has not been straightened out as long as

anyone comes here and claims that he was harshly or unfairly treated. I was familiar with the facts and I say that there was no such treatment.

H. W. HOYT: On behalf of Dr. Doan I want to announce that there will be a series of operations by Dr. Jones with his new instrument at the Hahnemann Hospital to-morrow about nine in the morning.

BURTON HASELTINE: I think we should express our appreciation of the splendid way we have been taken care of by the local members, and under considerable difficulties, too. I think it is remarkable. I make that a motion, namely, that we as a society express our thanks and appreciation for the excellent treatment we have received at the hands of the local members in Rochester. Seconded.

I. O. DENMAN: What we have seen of Dr. Hoyt's activities during the meeting is very little to that which he has done prior to the meeting; it extends back for two months.

R. I. LLOYD: We include Mr. Max Poser and the firm of Bausch & Lomb from whom we have received many courtesies. Carried.

TREASURER'S REPORT FOR THE YEAR 1916-'17.

Receipts.

Reported balance on hand, Baltimore, June 27, 1917.	$479.31	
Received from initiations and dues	588.00	
Interest on deposit in R. I. Hospital Trust Company.	6.81	
		$1,074.12

Expenditures.

J. B. S. King, on account of services	$75.00
I. O. Denman, expenses of secretary	49.18
Wm. M. Muncy, expenses of treasurer	15.20
Superior Printing Company, pamphlets and envelopes	24.75
Goodrich Printing Company, programs for New York	23.00
Examiner Printing Company, postage and 221 pages type	22.18
C. C. Knobeloch, stereopticon outfit for Baltimore.	5.00
W. H. Phillips, expenses of president	25.25
J. B. S. King, balance of account	25.00
J. R. McCleary, first instalment for O., O. AND L.	

Journal	300.00	
Edward Jones' Sons, stationery	3.78	
University Press, insurance on drug provings	7.50	
J. R. McCleary, balance for O., O. and L. Journal	200.00	
		775.84

Balance on hand, June 11, 1917, R. I. Hospital Trust Co. $298.28

List of Members Owing Over Three Years.

Dr. Geo. F. Bagby, 501 E. Main St., Richmond, Va.....5 years.
Dr. Leigh Y. Baker, 1329 L St., N. W., Washington, D. C.....4 "
Dr. Milton A. Barndt, 307 Grand Ave., Milwaukee, Wis.....4 "
Dr. J. Bonner Dates, 14 E. Fulton St., Gloversville, N. Y....4 "
Dr. E. B. Brooks, 210 Nat'l Bank Bldg., Kalamazoo, Mich...4 "
Dr. Emily L. Hill, 423 W. 118th St., New York City .....4 "
Dr. Edwin P. Howell, 240 Bagley St., Houston, Texas .....4 "
Dr. J. Martin Kershaw, 3241 Washington Ave., St. Louis, Mo. 5 "
Dr. Malcolm MacLean, 5 S. Wabash Ave., Chicago, Ill.....4 "
Dr. D. W. Miller, Blackwell, Oklahoma .....4 "
Dr. Joseph F. Roe, 25 Main St., Binghamton, N. Y., 3 years and int.
Dr. G. E. Raiguel, 1819 Chestnut St., Philadelphia, Pa.....5 years.
Dr. Peter G. Smooth, 310 Market St., Maysville, Ky. .....4 "
Dr. Isaac C. Soule, 1103 Main St., Kansas City, Mo.....4 "
Dr. Wm. Speakman, Professional Bldg., Philadelphia, Pa.....5 "

Number owing 1 year	23	$69.00
" " 2 "	22	132.00
" " 3 "	13	117.00
" " 4 "	10	120.00
" " 5 "	6	90.00
" " Init.	1	2.00
		$530.00

List of Deaths.

Dr. Chas. H. Gilbert, 331 Main St., Rushville, Ind., June 11, 1916.

Dr. W. DeHaven Eaches, 208 Washington Ave., Phœnixville, Pa., March 10, 1914.

Dr. E. W. Beebe (reported last year).

Resigned.

Dr. Geo. G. Van Mater, Peru, Ind., Aug. 21, 1916.

Dr. Geo. Martin McBean, 22 E. Washington St., Chicago, Ill., March 19, 1917.

Dr. J. M. Fawcett, 1307 Chapline St., Wheeling, W. Va., May 4, 1917.

Dr. F. C. Lee, 2379 East 79th St., Cleveland, Ohio, June 8, 1917.

New Members.

Dr. Chas. C. Boyle, 40 East 41st St., New York City.

M. B. Coffman, 704 Chamber of Commerce Bldg., Richmond, Va.

J. A. Ferree, 235 East Lane Ave., Columbia, Ohio.

H. E. Koons, The Penway, Indianapolis, Ind.

Dr. Harry Norton Sage, 317 South State St., Ann Arbor, Mich.

Dr. G. Walter H. Conrad, 3452 N. 8th St., Philadelphia, Pa.

Assets.

Cash on hand	$298.28	
Dues in arrears	530.00	
		$828.28

Liabilities.

Expenses of president		
Expenses of secretary	$121.36	
Expenses of treasurer	13.10	
Bill of official stenographer	100.00	
Printing of Transactions	400.00	
		634.46
Assets over liabilities		$193.82
Total membership		197
Number of new members		6
Number resigned		4
Number of deaths reported		3

Respectfully submitted,

Wm. M. Muncy,
Treasurer.

President: I will appoint an auditing committee, H. D. Schenck, W. H. Phillips.

Audited and found correct.

Herbert D. Schenck,
W. H. Phillips.

REPORT OF COMMITTEE ON ATTENDANCE.

Reported that not counting the hospital sessions that there was an average attendance at each session of about forty-eight. It ran fifty at first session, forty-five at the three succeeding, and fifty at this session. The joint meetings with the American Institute were more numerously attended.

I. P. Metzger,
W. D. Rowland.

The officers nominated by the nominating committee were then elected, the secretary casting a ballot for the Society.

RECORD OF ATTENDANCE.

1. I. D. Metzger, Pittsburgh, Pa.
2. Joseph V. F. Clay, Philadelphia, Pa.
3. Ralph I. Lloyd, Brooklyn, N. Y.
4. W. J. Huttenschmidt, Cleveland, Ohio.
5. Theo. E. Miller, Chicago, Ill.
6. J. A. Ferree, Columbus, Ohio.
7. J. W. Stitzel, Hollidaysburg, Pa.
8. Frank O. Nagle, Philadelphia, Pa.
9. H. B. Ware, Scranton, Pa.
10. W. F. Roth, Wilkes-Barre, Pa.
11. G. W. McDowell, New York, N. Y.
12. Geo. A. Shepard, New York, N. Y.
13. Geo. J. Alexander, Philadelphia, Pa.
14. Thomas L. Shearer, Baltimore, Md.
15. C. A. Harkness, Chicago, Ill.
16. Howard P. Bellows, Boston, Mass.
17. Albert E. Cross, Worcester, Mass.
18. R. R. Vessie, Gowanda, N. Y.
19. W. H. Williams, Middletown, Ohio.
20. W. H. Phillips, Cleveland, Ohio.
21. Irving Townsend, New York, N. Y.
22. I. R. Noyes, Brattleboro, Vt.
23. J. R. McCleary, Cincinnati, Ohio.
24. G. W. Mackenzie, Philadelphia, Pa.
25. Alfred Lewy, Chicago, Ill.
26. W. H. Doane, Rochester, N. Y.

27. Wm. McLean, New York City.
28. Robt. Ideson, Ann Arbor, Mich.
29. John C. Smith, Jackson, Mich.
30. John S. Gaines, Jr., New York City.
31. W. D. Rowland, Asbury Park, N. J.
32. F. B. MacMullen, Detroit, Mich.
33. F. L. Johnson, Detroit, Mich.
34. W. A. Held, West Unity, Ohio.
35. Ella G. Hunt, Cincinnati, Ohio.
36. H. W. Hoyt, Rochester, N. Y.
37. E. L. Mann, St. Paul, Minn.
38. Neil Bentley, Detroit, Mich.
39. G. D. Arndt, Mt. Vernon, Ohio.
40. Burton Haseltine, Chicago, Ill.
41. Ira O. Denman, Toledo, Ohio.
42. Wm. M. Muncy, Providence, R. I.
43. C. Leslie Rumsey, Baltimore, Md.
44. James A. Campbell, St. Louis, Mo.
45. Gilbert J. Palen, Philadelphia, Pa.
46. J. B. S. King, Chicago, Ill.
47. M. B. Lewy, Chicago, Ill.
48. H. S. Thompson, Cleveland, Ohio.
49. W. J. Dish, Fredonia.
50. A. H. Waterman, Chicago, Ill.
51. H. A. Foster, New York City.
52. J. H. Hallock, Saranac Lake, N. Y.
53. Royal S. Copeland, New York, N. Y.
54. H. W. Foster, Montclair, N. J.
55. Everett Jones, Boston, Mass.
56. John R. Haines, Rochester, N. Y.
57. I. L. Moyer, Columbus, Ohio.
58. Prentice Reeves, Rochester, N. Y.
59. J. I. Dowling, Albany, N. Y.
60. B. G. Clark, New York, N. Y.
61. Richard Street, Chicago, Ill.
62. D. J. Roberts, New Rochester, N. Y.
63. H. S. Weaver, Philadelphia, Pa.

64. De Wayne Hallett, New York City.
65. W. Reily, Fulton, Mo.
66. Herbert D. Schenck, Brooklyn, N. Y.
67. C. E. Williams, N. Y. City.
68. A. B. Norton, N. Y. City.

REPORT OF THE AUDITING COMMITTEE.

Read by H. D. Schenck, who added:

In studying the treasurer's estimate it seems impossible for the Society to give the JOURNAL assistance to the extent of five hundred dollars next year. Even with the rosy estimate of collections from the members on arrears I do not see that it will be possible to give more than four hundred dollars. Two members have died, a number have resigned, a goodly number are in arrears.

PRESIDENT: If there are no objections the report will be received and placed on file.

The president-elect was called on for a speech.

C. LESLIE RUMSEY: It would not be wise to delay the program by the interjection of a speech. I want to thank you for the honor you have conferred upon me. While the ex-presidents will commiserate with me now, I trust they and my fellow members will congratulate me at the end of my administration. I thank you all sincerely.

PAPERS READ.

Perimetry and Campimetry, by Dr. R. I. Lloyd, with discussion.

The Effect of Various Physical Stimuli on the Pupillary Area and Retinal Sensibility, by Mr. Prentice Reeves.

THURSDAY, JUNE 21, 1917.

SEVENTH SESSION. HAHNEMANN HOSPITAL, 2 P M.

Medical and Surgical Clinic. Arranged by Dr. H. W. Hoyt and Colleagues.

THURSDAY, JUNE 21, 1917.

EIGHTH SESSION, 8 P. M. HOTEL POWERS—ASSEMBLY ROOM.

Joint Session of A. I. H. and O., O. and L. Societies.

W. W. VAN BAUN, President of the American Institute of Homœopathy: The meeting will please come to order. The object of this

joint meeting is formally to receive our distinguished associates, the members of the American Homœopathic Ophthalmological, Otological and Laryngological Society. I assure you, gentlemen, that it gives the officers and members of the American Institute great joy and pleasure to welcome you here to-night. I also desire to express to you my deep regret and sorrow at the unintentional slight caused by my absence last Tuesday night. You came to that joint session at my urgent solicitation prepared to offer an able and valuable program; one of very great value from the standpoint of the general practitioner, made up by papers by four of your distinguished fellow members, the first was by your able president, Dr. Gilbert J. Palen. The second upon the eye by the well known editor of your Journal. The two other papers by Drs. J. V. F. Clay and George Alexander. We thank you for the pains you have taken and wish to express our great admiration and respect and deep appreciation for your loyalty in completing your program to the last letter under those trying conditions.

As an evidence of our great desire to know you better, to get more closely affiliated with you and in the hope of becoming organically united with you we beg you to accept this formal reception to you and your officers. Our members gave a ready and willing response to my request, and have come here in numbers to-night glad to know that you are eminent members of our great homœopathic profession. I now call upon your distinguished chairman, Dr. Burton Haseltine, to take charge of the meeting.

Burton Haseltine: I am impressed with the difficulty of my position now because I am called upon to take the place of another man. Our president, Dr. Gilbert J. Palen, has asked me to preside over the meeting, and he asked me also to express his profound regret at not being able to be present on account of an illness that called him home. Two of the papers will have to be omitted owing to the absence of their authors, so that there are four left to hear, and as the hour is rather late we will dispense with any introduction and proceed with the second paper.

Focal Infection in Relation to Obscure General Conditions, by A. W. LeForge, Chicago.

Focal Infection in Relation to Personal Experience, by Harry Wright, De Kalb, Ill.

Focal Infection in Relation to Inebriety, by A. H. Waterman, Chicago.

Focal Infection; Illustrative Cases, by A. C. Tenney, Chicago, Ill.

Adjourned.

THE DOCTOR WAS RIGHT.

Doctor—Here, go to the druggist's and get this prescription filled. It will cost you 40 cents.

Patient—Thanks, Doc, but would you mind lending me the 40 cents?

Doctor (stormily)—Hand me back that prescription.

Patient—Did you make a mistake?

Doctor (changing the formula)—Yes, in my diagnosis of your case. There, you can get it filled for a dime now. The drugs I crossed out were for your nerves; but I see they don't need stimulating.—*The Lamb.*

PRACTICAL INFORMATION ABOUT STAMMERING.

Ernest Tompkins, M. E.,

Pasadena, Cal.

THE physician's position as a dispenser of knowledge rather than drugs, necessitates knowledge in salable shape. Heretofore the knowledge of stammering has been of such a vague and unsatisfactory character that many reputable physicians have declined to sell it, and the patient has, in popular language, "gone farther and done worse." The latest advances in the knowledge of stammering make it possible for any physician to give tangible and valuable advice to the stammerer who comes to him, or to the parents of the stammerer, as the case may be.

The diagnosis of stammering—spasmodic abortive speech—may be made by anyone who keeps in mind Dr. Arthur Chervin's triad, "Begins in childhood, absent in singing and solitude, intermittent." For those who desire greater exactness, the triad may be revised as follows, "Begins subsequent to speech acquisition and to a decreasing extent as speech becomes firmly fixed; absent in singing and solitude—unless the sufferer's attention is strongly directed to his difficulty—intermittent." Probably the simplest and most reliable test is to have the patient read a few lines in concert, or, in the case of a child who can not read, repeat a familiar verse in concert. Stammering disappears in concert reading or reciting.

The busy physician will probably hear more of the etiology and symptomatology than he cares to hear; for the stammerer even, and especially his parents, are prone to be voluble on those subjects. Politeness necessitates some attention, which the physician can make profitable by verification of the history, if it is correct, according to two principles. The inducing cause of the disorder will be something that brought about temporary speech interruption. For instance, the dog that ran at the child frightened it to such an extent that its speech became temporarily broken. The symptomatology will comprise mis-

directed efforts at speech, such as lips locked open or shut, breath held or exhausted, etc.

The treatment of the case may be made clear by an exposition of the difficulty. The patient has a mistaken—not illogical—idea of speech disability, and in a vain attempt to overcome it he is impeding his speech by misdirected conscious efforts. This is readily demonstrable, but a practical article is not the place for demonstration. See "Die psychische Behandlung von Sprachstörungen," by Dr. Albert Liebmann, Berlin; also, "Stammering and Its Extirpation, Pedagogical Seminary," June, 1916. Volume XXIII, No. 2, p. 153. Since the disorder is a misdirected effort at speech prompted by fright, the physician is apt to anticipate the treatment and tell the patient, "Don't be frightened," but he may tell the stammerer that until he is blue in the face and the patient will still be frightened. We must consider the case a little further in order to arrive at the correct treatment. The stammerer's fright is the result of repeated speech failures for which he has been punished by glances, grins and slights, all of which sounds trivial to one who has never had the disorder, but which is so hateful to the stammerer that his dread is uncontrollable. That fright was built up by repeated speech failures, and the only way to get rid of it is to reverse the process; that is, to obtain repeated speech successes. The intermittence of the disorder provides the means of substitution of success for failure. Let the physician grasp the fact that stammering is not defective speech; it is impeded speech. Therefore, when we stop the impediment we release normal speech. The impediment is the result of the fright, so we must circumvent each fright. That may be done by requiring the stammerer to write what he fears to say, or to make signs, or to wait until he is calm, or to remain silent.

This is the situation in which the physician will earn his fee—or not. The stammerer's face will fall, and he will make as if to go when he hears that he must desist from his stammering. Indeed, for psychological reasons, and as a matter of true prophesy, he may be told that he can stammer a little. The psychology is this: He stammers because he fears to be conspicuous; to write would also be conspicuous. He is in the habit of stammering, and of the two conspicuous alternatives he will choose the habitual one—unless the physician brings him to his senses. The physician may be tempted to use the expression

which Mark Twain said "rhymed with jam stool," but a course of reasoning will probably be more effective. A reasonable adult will be able to understand that he is keeping up his fright by continued indulgence in his impediment, and that he must dissipate the fright, and, therefore, cease the impediment.. "But," he will cry, "how can I earn my daily bread, and how long must I keep this up?" One thing at a time. As to how long he must keep it up, the wise course is to decline flatly to prophesy. The physician can not tell how thoroughly he will carry out the instructions, how favorable his environment will be, how deep-seated the trouble is, how favorable his disposition is. But the physician can say, "If you really desire to recover you will make some effort. That effort will gradually bring relief, and even that gradual relief you will find gratifying as you go. You must make up your mind to substitute for the habit of stammering the habit of declining to stammer, and determine to persist in the latter habit. Fluent speech is a wonderful blessing. It is well worth working for, and you will find the regime much preferable to your present method of stammering through life."

Then, as to how the stammerer can earn his daily bread, the physician may say as follows: "Stammering is an environmental disorder. If you can arrange the favorable environment you may progress to recovery. Go to your friends and get help from them. They have unconsciously contributed to your trouble, and they will gladly help you out of it when they know what to do. Subjugate your false pride and admit that you have stammered, but say to yourself and to them, 'I decline to stammer any more; help me in that resolution.' Carry a pad and pencil with you and whip them out and use them rather than stammer, even if you feel all eyes on you and feel your cheeks burning like fire. You will find that they will get used to that and then your embarrassment will decrease. They will admire you for your determination to overcome one of the most obdurate human afflictions. Tell them to introduce your friends for you, to telephone for you, to purchase the opera tickets for you, to ask for the transfers for you—to do for you whatever talking would make you stammer. On the other hand, induce them to listen to what you can say spontaneously. You can make witty side remarks. You can carry on light conversation, especially with one congenial auditor. Make it a business to seek the

situations which favor spontaneous speech, and talk, talk, talk, so long as you do not stammer." On these lines, but with modifications according to the physician's insight into the particular situation, the stammerer should be induced to arrange the environment which tends to fluency instead of impediment. Only two features need to be kept in view; namely, the suppression of the convulsive effort, and the cultivation of spontaneous speech. It is true that the dissipation of the fright is the main object; but no thought need be given to the fright; maintain the other two conditions and the fright will melt like the snow under the spring sun.

The patient's faith will need encouragement for a while. Determination—the kind needed to overcome stammering—is not common in these times. Moreover, the patient has probably been relieved of both faith and money by alleged healers, and he is likely to stop in disgust. This is especially likely to happen during a recurrence of his fear, which fluctuates like the ocean tides. An illness, a business discouragement, a domestic difference, may bring a surge of fear which will prompt him to throw away his pad and go back to stammering gloriously. But if he can he induced to stick to the treatment he will come to a period of elation, in which he will experience so much relief that he will be convinced of the average gain, and thereafter he will probably have faith enough to proceed.

If the patient is a child the difficulties are less in number and extent. The pad and pencil should be insisted on—in case the child can write. Required speech must be dispensed with, and spontaneous speech should be encouraged. The day school teacher and the Sunday School teacher should be enjoined to allow the child to write its answers to questions. The child should not be sent to answer the door bell or the telephone call or sent on an errand unless the errand is written. Spontaneous speech may be encouraged by having it read or recite in concert with its mother, nurse, sister, or anyone who will help it.

Institutional—or private treatment—if really beneficial, must be on the same lines of discouragement of conscious speech and encouragement of spontaneous speech. In either case the instructor takes the place of the stammerer's friends in making it easy for him to avoid stammering and in giving him a congenial companion on whom to

practice his spontaneous speech. Progress is much more rapid in an institution because all required speech is eliminated, and the stammerer, free from all speech responsibility, recovers confidence rapidly. However, the real benefit, other than an encouraging start, depends on the prevalence of the fluent speech over the impeded speech, and only a small proportion of the stammerers are sufficiently affluent to take such treatment until practical recovery ensues. Moreover, there are almost no instructors competent to give positive instruction for the correction of stammering. The prevalent idea that the stammerer must be taught to talk, to breathe, and so on, is based on the mistaken idea that his speech is defective; whereas the reverse is the case—he interferes with his speech—so the treatment must be reversed. The present treatments—Dr. Liebmann's excepted—are as injurious for the stammerer as the old tightly-closed room was injurious to the consumptive. This comes to the old line practitioner with as much of a shock as did the fresh air treatment; but it is a fact, just the same. It is discouraging to think of the obstacles which must be overcome to bring about acceptance of the new light.

1460 No. Chester Ave.

THINGS YOU DON'T NEED TO WORRY ABOUT.

1. When the war is going to end.
2. The status of the medical profession after the war.
3. What to do with the money you save during the war.—*Adv. Dept., Jour. A. M. A.*, Dec. 22, 1917.

Index to Volume XXIII.

Official Organ of the American Homœopathic Ophthalmological, Otological and Laryngological Society.

THE JOURNAL OF OPHTHALMOLOGY, OTOLOGY AND LARYNGOLOGY.

Devoted to the Interests of Exclusivists, Specialists and General Practitioners.

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INDEX TO VOLUME XXIII.

JANUARY TO DECEMBER, 1917.

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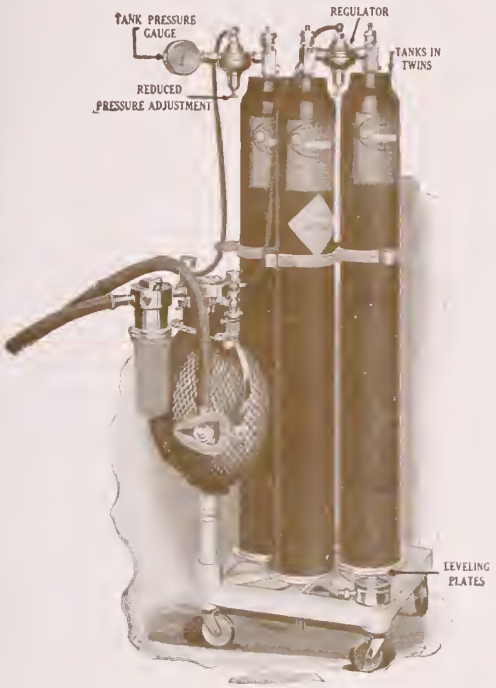

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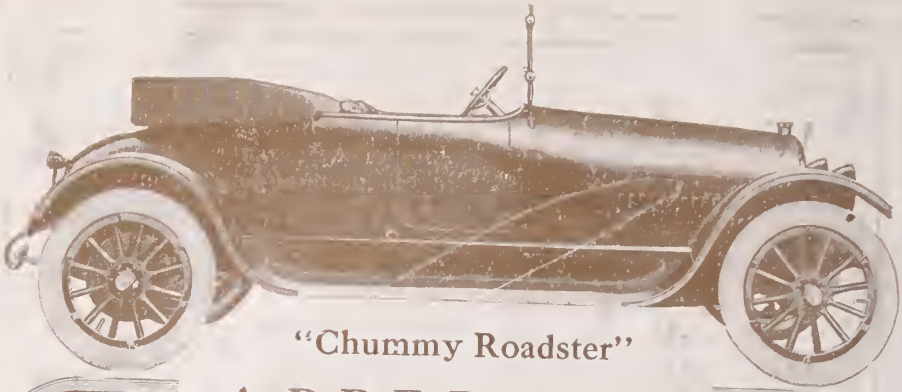

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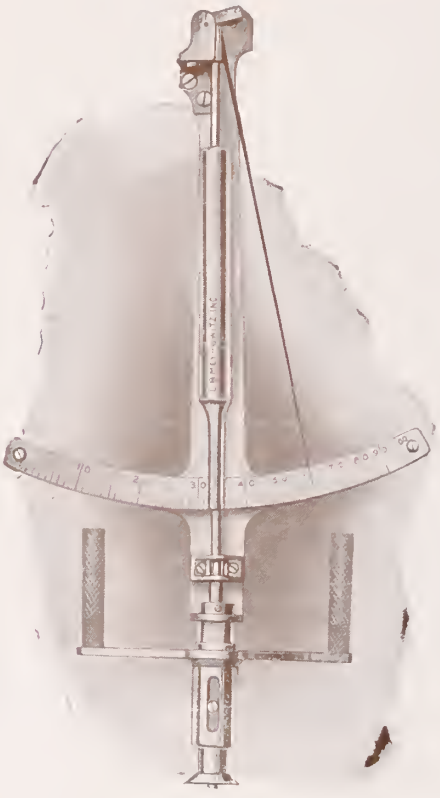

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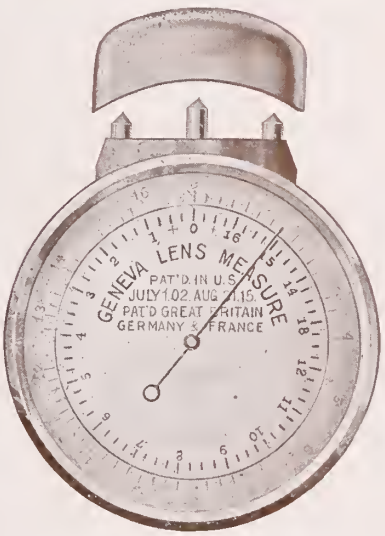

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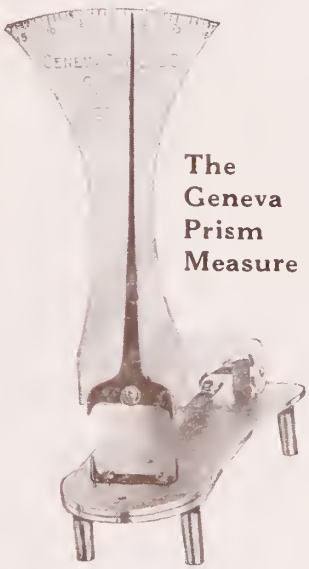

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SEPTEMBER
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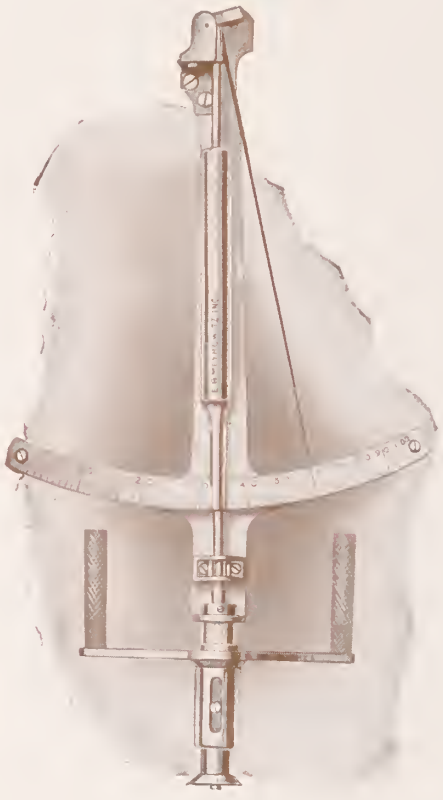

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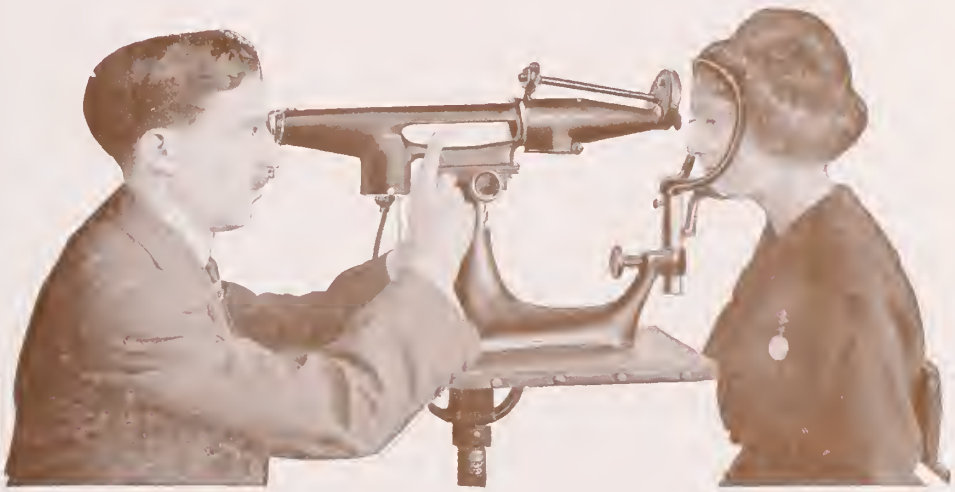

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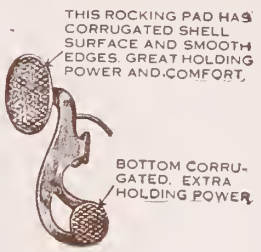

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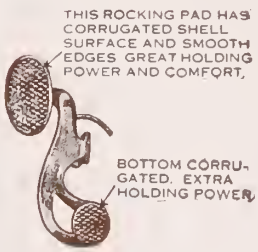

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