lidad procediendo de la misma manera como se había hecho en Veracruz para combatir la fiebre amarilla.

Como todos los servicios organizados así, quedaban directamente dependientes del Consejo Superior de Salubridad de México, este Cuerpo pudo tener noticia diaria, por medio del telégrafo, de cada caso nuevo de enfermedad confirmado ó sospechoso que aparecía en una localidad y dictar inmediatamente y por la misma vía telegráfica, las disposiciones apropiadas á remediar el mal en donde quiera que se encontrara.

Este es el camino que se ha seguido v que se continuará siguiendo hasta la desaparición completa de la fiebre amarilla.

La suma de los trabajos llevados á cabo durante el año actual, los representa el cuadro gráfico que tengo el honor de poner á la vista de los Señores miembros de esta Asociación.

Pero el resumen de los resultados alcanzados lo puedo concretar en unas cuantas palabras:

La fiebre amarilla ha desaparecido definitivamente de Nuevo Laredo, Lampazos, Monclova, Monterrey, Linares, Ciudad Victoria, Tancanhuitz, Ozuluama, Tantoyuca, Huejutla y Tampico, y se ha heche imposible la reproducción de la enfermedad en esos lugares, porque se cuida de desinfestar todos los buques que llegan á Tampico procedentes de los lugares donde hay aun casos esporádicos de la enfermedad. En Veracruz la epidemia ha desaparecido hace muchos meses y solo quedan, de cuando en cuando, casos esporádicos que se persiguen inmediata y eficazmente.

En Progreso ya na existe la enfermedad.

En Mérida no existen más que casos esporádicos, pero en estas tres últimas poblaciones los trabajos sanita-

rios continúan con la misma actividad que cuando estaban en plena epidemia.

Se puede decir que la fiebre amarilla está reducida en la actualidad á algunas poblaciones del Istmo de Tehuantepec, de las que recorre el Ferrocarril del mismo nómbre y que, concentrada toda la atención de las autoridades sanitarias en esas localidades, es de esperarse que desaparecerán de ellas antes del verano próximo.

Adjuntos á esa "Memoria" van todos los documentos wy la apoyan, la aclaran, y ofrecen todos los detalles de la campaña emprendida en México contra la fiebre amarilla.

### PSEUDOKOUSMA.

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Pseudokousma (1) is a derivative title selected from otological nomenclature as best representing that condition of falsehearing in which there is a false preception of pitch in one or both ears. It is to be differentiated from Diplacusis, in which a reduplication of the original note, or noise, may be heard in one or both ears; and from Paracusis, which refers simply to an abnormal preception of sound. The application of the word diplacusis as used by almost all authors is not to be commended. It is indifferently used to designate both double-hearing (diplacusis) and falsehearing (nseudokousma) and some times a composite condition which includes both of these phenomena. Gradenigo (2) speaks of a monagral diplacusis in which "the false tone is separated by a definite harmonious interval from the true;" and of a binaural diplacusis, which is "some times harmonic but occasionally disharmonic, the false tone being perceived about one-half or one-third of a tone higher or lower than the true."

The foregoing reference suggests the desirability of greater accuracy in the use of a nomenclature supposed

to describe aconstic phenomena. The conditions obtaining in Pseudokousma will be illustrated later in a report of two interesting cases, one a physician who has been a superior amateur violin player and for that reason peculiarly competent to detect and describe the slightest variations of tone; the other is that of the writer, who, by reason of the cultivation of a natural gift, has ever been "moved by concord of sweet sounds."

Various writers recognize certain conditions of which false-hearing is a factor, but no effort appears to have been made to study the causes, pathology, and treatment of this disease as a disease per se, and unassociated with diplacusis.

Von Wittich (3) and Herman Knapp, (4) have reported cases of false-hearing in which double-hearing did not occur, both ascribing this condition to a derangement of the harmonious action of the two cochleae. Knapp thought that the lamina spiralis of one was attuned for a different tone-scale than that of the other; while Von Wittich went further and thought that "if the organ of Corti really brings about the perception of a certain tone of a fixed number of vibrations and duration by means of its proper peculiarities of construction, it is conceivable that exudation into the tympanic cavity, which would thereby alter the pressure in the labyrinthine fluid, might through this change of pressure affect the functional integrity of the endings of the nerve-fibres; so that, e. g., fibres attuned for tone B may come into functional activity along with others corresponding to the tone A, the A fibres being also stimulated by the tone B" (Gruber). Among those who refer false-hearing to the internal car are Helmholtz, (5) Spear, (6) Gradenigo, (7) Hans Daae, (8) Pomeroy, (9) Ge-Ilé, (10) Bezold, (11) Hammerschlag (12) and Hensen (13)— Among others who refer it to the middle ear, and who mostly classify it as a paracusis or a diplacasis, are Gru-

ber, (14) Blau, (15) Bonnier, (16) Etrevant (17) and Bishop, (18) an associated middle-ear and internal-ear disease being mentioned by Gradenigo and HansDaae (Christiania). Blau and Bishop are the only two who have referred to a middle-ear cause exclusively. F. Bezold (Munich), estimating the apper tone limit at about 55000 vibrations, considers that "for the appreciation of this continuous range of tone, there should be, at the peripheral termination of the acoustic nerve, some mechanical auxiliary apparatus which should possess the property of chromatic stringed instruments, and have an element in it corresponding to each individual tone of the whole scale with which it may enter into sympathetic vibration, and which would communicate a stimulus to the nerve-fibres connected with it. Helmholtz he thinks it probable that "this apparatus is represented by the cochlea, and that the best adapted arrangement for this sympathetic vibration is the membrana basilaris of that organ." The theory that the fibers of Corti are directly instrumental in perceiving tone has given away to the later claim of Helmholtz who, as we see, attributes this function to the membrana basilaris, a view supported by It is thus readily seen that the theo-Gruber and Bezold. ry of the faulty attunement of Corti's fibre (Knapp) must be abandoned, and with it that of Von Wittich. The latter's ingenious conception of an exudation into the tympanic cavity, etc., is open to criticism and remains to be clinically demonstrated. Referring to simultaneous activity fibres attuned to A and B, the writer would expect to pro duce from a piano thus stimulated a discord, having no relation to overtones, harmonic or disharmonic.

If we are to accept the conclusions of Helmholtz that "in the radiate fibrous arrangement of this membrane (m. basilaris) there exists a system of cords of different tension and length," (19) the contention made by Bezold should be seriously considered.

It is not the purpose of the writer to discuss or ques-

tion this hypothesis, any more than to establish a landmark for guidance in developing the pathological factors which result in a disturbance in the elements of the soundperceiving mechanism, and in this connection he would suggest the necessity of not loosing sight of tonal subdivisions, such as the comma of Pythagoras (one quarter of a semi-tone), each subdivision, or comma, corresponding to its fundamental in the production of a sympathetic vibration.

In order to disprove the theory of a permanent structural tesion consisting of a faulty tuning either of the fibres of Corti or of the cords of the membrana basilaris as the etiological factor of this disease, it is only necessary to state that recorded cases prove that a disappearance of the pseudokousma has frequently resulted from treatment directed solely to the middle ear. It is not to be denied that a functional derangement of the cochlear structures may be present, co-existing and disappearing with lesions of the sound-conducting apparatus. Whether the ultimate sound-sensation is ascribed to the fibres of Corti. or, as seems to be proven, to the cords of the membrana basilaris, we know that it is to external vibratory impulses that they respond, each being brought into sympathetic vibration with its fundamental, which, in turn, forms a part of the composite tone or noise from without. It follows, then, that since in this disease these cords do not reproduce the exact tone having an external origin, the character of the vibrations must have become altered during transmission.

It is important to determine by what derangement of the sound conducting mechanism this departure from normal hearing is brought about. Primarily we must consider whether the original sound impulse is composed of regular, periodic vibrations, producing a musical compound tone; or, an irregular succession of sound-waves of varying length and intensity, the resultant sound being perceived by the normal ear as a noise. For the purpose of this paper the latter consideration may be omitted altogether, since the folse-hearing under consideration is referred to a curable (?) middle-ear disease of one side only, the tone-perception of the other ear being presumably normal.

It necessary therefore, to prove a derangement of the middle-ear function, and in order to do this the structures involved will be briefly considered.

The Membrana Tympani:—This structure, like all other vibrating bodies, possesses a fundamental tone. In order to transmit continuous sound-waves at absolutely periodic intervals it cannot act as an independent body, its immediate restoration to a state of comparative equilibrium (rest) being necessary in order to receive and transmit succeeding sound-waves.

Should any of these correspond to its fundamental tone, and should it not immediately return to a state of rest, the resultant transmitted impulse would be intolerable; hence it must be muffled by being connected with a body of greater density capable of receiving the impulse. This is accomplished by its connection with the ossicular Another requirement is that there should be no change in the structure or relations of the membrane, the preservations of its normal ension, direction, thickness and density determining its value as a receiving and transmitting agent. It is readily seen how a departure from the normal concavity (outward), either through retraction or relaxalation, can modify the sound-impulse. This applies, as well, to localized areas affecting the normal thickness of the membrane, any increase or decrease of density or tension necessarily interfering with regular, periodic vibration. Of more importance are the retracted areas caused by adhesions. This mechanical fixation completely alters the vibrating quality of the membrane, its irregular sur

face now presenting vibrating areas of unequal density and tension, each possessing its fundamental tone after the manner of the parent membrane.

The Ossicular Chain is of importance in that it helps to control the inward excursion of the drum, muffling it, receiving its impulses and assisting in their transmission to the sound-perceiving apparatus, Any change in the direction of this transmitting force, or impairment of ossicular mobility from any cause, would form an obstacle to tympanic compensation.

The Intra-tympanic muscles constitute the "balance of power" in the middle ear. Antagonistic in their directed force, ther accommodative and selective power permits a normal adjustment of the relations between the middle and internal ear, the stapedian curb (16) influencing labyrinthine presure by controlling the impact against the membrana obturatoria.

The M. Obturatoria and the M. T. Secundaria are important in that any departure from their normal elasticity would interfere with tension and compensation and modify the protection of the labyrinth.

The Eustachian tube is no inconsiderable factor in the mechanism of audition, since upon its patency, in the absence of other lesions, depends the normal physical adjustment of the intra-tympanic structures, as well as the ventilation of the confined air-spaces.

The Tympanic cavity subserves many important functions. Its contained air, being capable of rarefaction and condensation, provides for the regulation of intra-tympanic tension, and, acting as an elastic buffer, or cushion, to the incursions of the drum, maintains the equilibrium of that structure. It not only affords lodgment to the ossicular chain, but, aided by M. T. and t. muscles, furnishes the resistance necessary to mantain its integrity. Further,

it serves as a resonance-chamber, and a sounding-board functions which will be referred to subsequently in connection with the mastoid cells.

The Mastoid cells. These, in so far as audition is concerned, constitute a part of the middle ear. Contrary to the belief of most physiologists, the writer is convinced of their importance in the function of hearing. Their connection through the antrum with the middle ear affords a material increase in the capacity of that structure as an air-chamber, while, through the elastic resistance of their contained air, they supplement the intra-tympanic air in protecting from external violence the tympanic and labyrinthine contents. The importance of these cells in supplementing the tympanic cavity in its capacity as a resonance-chamber and as a sounding-board must be conceded, the preception of very low tones being undoubtedly aided by their presency.

Their obliteration from various causes; such as confined pus, granulation tissue, eburnation, or structural diploetic changes, at once modifies their functions and contracts the auditory field. Evidence of such a contraction is afforded in numerous recorded cases of impaired audition in which a considerable gain in hearing-nower followed the re-establishment of a chronic purulent otorrhoea. gain in these instances was undoubtedly due to the remo val of an obstruction to the drainage of the cells. writer's experience improvement in hearing followed the removal of large masses of granulation tissue from the cells in cases where neither pus nor a perforated drum existed. In one where the integument was sutured and the wound hermetically closed at the conclusion of the operation, prompt restoration of comparatively good hearing was established. Interference with audition must certainly occur as a result of sclerosis, eburnation or diploetic formation in the mastoid, but particular attention

is not drawn to it on account of the slow progress of the disease and a corresponding loss of hearing-power. a result of these investigations, as well as from the information derived while conducting experiments with the stem of a tuning-fork applied to various regions of the mastoid process in the case about to be cited, the writer is confident that the integrity of the normal air-space is necessary to the maintenance of a perfect relationship between the sound-conducting (so-called) and the soundperceiving mechanism. Futher investigations along this, line may possibly demostrate the propriety of utilizing the stem of a tuning fork as a diagnostic agent in determining the character of a particular mastoid lesion, e. g. eburnated tissue, of which Gruber says: "We possess no mode of examination which affords any tolerably trustworthy evidence of the existence of this condition. Neither palpation, percussion, nor auscultation of the region yields the slightest information in this mater" (Leanec). (20)

#### CASE I.

On June 9th 1897, Dr. T—, aet. 61 yrs., a local physician in active practice, presented himself for examination and treatment. He gave the following history: In May 1886, he contracted a severe cold which was followed by greatly diminished audition, pain and a sensation of "plugging" in both ears. There was no tinnitus. Prior to this time the hearing had been usually acute, although for thirty year he had suffered from nasal and naso-pharyngeal catarrh. For the relief or the "plugging" he used the galvanic current, anode in right, cathode in left auditory canal. A moderate current promptly relieved the right ear, but produced a sensation of tension in the left, followed by a snap such as follows the breaking of a tense violin string.

The pre-existing symptoms in this ear were now

found to have been supplanted by a profound tinnitus of the marine-shell type other auditory phenomena also became manifest, one consisting of a marked difference between the two ears with regard to tone-preception, all ordinary tones being perceived by the left ear from three to five commas (of Pythagoras) lower in pitch than by the right; another being a dysakousma, or dysaesthesia acustica, a condition causing great pain and distress for all musical Subsequently audition in this ear became progressively and profoundly impaired, with gradual increase of a tinnitus which was relieved by the recumbent position and entirely disappeared during occlusion of the left anditory canal. The left M. T. was found lustreless and retracted, with sufficient loss of transparency to conceal intra-tympanic details. A slight prominence of the processus brevis, with fore-shortening and sharpened linear marking of the manubrium, indicated rotation in the direction of its long axis. Functional examination of the right ear gave a positive Rinne, with slight loss of bone-conduction for the C. fork (32 d. v, s.) In the left ear forks C. and C (4) gave negative Rinne; C (2) and C (3) gave positive Rinne with greatly lowered Ac; and for C and C, (1) Ac, was found to equal Bc. In both ears the lower tonelimit was raised, showing diminished (senele) Bc. upper-tone limit was found lowered in both ears but more in the left. The C and C, forks gave a positive Weber. lond ticking watch was heard at 2" and a residual whisper at one foot. In a comparison between the two cars it was found that for forks C., C, and C (1) the tone, both by Ac and Bc. was perceived tower in the left ear by five, five, and three commas respectively, while C (2), C (3) and (4) were heard two, five, and two commas higher, respectively, in the same car.

Treatment with Iodine and menthol vapor during Eustachian catheterization, together with applications of a weak solution of silver nitrate, to the pharyngeal orifice of the tube was followed by only slight relief from the tinnitus and no improvement whatever in hearing. January 14th 1898 further impairment was noticed, this, however, promptly responding to treatment. time the pitch-relation was identical with that of June The use of the pneumatic otoscope was advised and the silver application continued. An examination of January 22d 1898 gave a positive Rinne throughout the series, and subsequent examinations showed a gradual approach to the normal relation between air and boneconduction. During this time the pitch-relation had also undergone a change for the better, C being now (May 10th) perceived only three commas lower by the left ear, while C(3) and C(4) were each perceived normally by the two Throughout the treatment it was found that the only relief obtained from the constant tinnitus, wich was the most annoying symptom, the dysakousma having become less marked, was by forcibly restoring the T. M. with the Siegel otoscope. A very considerable suction was necessary to accomplish this, but on no occasion was it attended with pain-Catheterization gave negative results, and, in fact, rather augmented the symptoms.

#### CASE II.

The writer's case, as found by frequently repeated examinations of his hearing, differs but little from the foregoing case with regard to the *Pseudokousma*. It differs however, in its etiology and the physical characters observed, as well as in the treatment employed to secure relief. The existence of somewhat hypertrophied turbinates, together with slightly obtunded audition of, and an occasional tinnitus of varying intensity and quality in, the left ear for the past ten months, indicates the existence of eustachian and middle-ear lesions and uricacidaemia. The last mentioned would seem, to be partly responsible for the

tinnitus, and no doubt shares in the causation of the other disabilities, since under more favorable conditions—absence of severe mental strain, and proper physical exercise—the writer is exempt from all annoyance.

The false-hearing has now been noticed for about seven months. During this time there has been a positive Weber, a negative Rinne existing in the left ear for only the lowest fork.

A test on May 3d showed this changed to a positive. The tone-limits are and have been apparently normal. Repeated experiments show no difference in tone-perception as between air and bone-conduction. The writer has, however, been able to demostrate that, in comparing the bone-conduction of the two sides in cases of false-hearing, it is esential that the stem of the fork should be placed on identical sites, since he has found that a difference of two or more commas may be determined by placing the stem on different regions of the mastoid, not only of the opposite side but also of the same side.

The following experiments will illustrate this point, first, as to the pitch-relation between the two cars as determined by bone-conduction, and, secondly, the difference in pitch for different regions of the same mastoid process, the writer performing the experiments on himself.

#### EXPERIMENT Nº I.

When the fork C (128 v. s.) is struck and the stem placed first on the upper part of the mastoid of the right side, and then on the same region of left side, the tone is perceived more than two commas higher in pich on the left side. When this is repeated, usig the lower portion of each mastoid on which to place the stem, the same relative difference in pitch is obtained. These conditions were found to be independent of the presence of overtones.

#### EXPERIMENT Nº 11.

- (a) When the fork C is struck strongly and placed first on the lower part of the mastoid and immediately transferred to the upper part, the tone is perceived about one comma higher in pitch in the posterior-superior, and two commas higher in the anterior-superior part, being more distinct and accentuated directly over the mastoid antrum.
- (b) These conditions are exactly reversed when the stem is first placed on the upper part and then transferred to the lower part. In the first part (a) of experiment Nº II the loss of overtones does not appear to affect the pitch-relation; but in part (b) the tone now being higher in pitch, there comes during the subsidence of the overtones a blurred tone-image, i. e., a discord, which gradually becomes less pronounced until, a pure tone being now perceived, the fork is again heard higher in pitch on the upper segment.

## FORK C(1):

| Experiment Nº I: Same as with fork C                       |    |  |  |  |  |  |
|--|----|--|--|--|--|--|
| Right., " " " "  |    |  |  |  |  |  |
| (a)  |    |  |  |  |  |  |
| Left " " " " "   |    |  |  |  |  |  |
| Experiment Nº II.  |    |  |  |  |  |  |
| Right  |    |  |  |  |  |  |
| (b) No change in pitch.                                    |    |  |  |  |  |  |
| Left   |    |  |  |  |  |  |
| FORK C (2):  |    |  |  |  |  |  |
| For both upper and lo<br>wer segments the tone             |    |  |  |  |  |  |
| Experiment No I is heard nearly four commas lower in left, | i. |  |  |  |  |  |

(a)

(b)

## FORKS C (3) & C (4):

### FORK C(0)

Experiment No I..... Higher on right side.

(a)

Experiment  $N^{\varrho}$  II................ Same as with fork C.

(b)

- ¶. In case Nº I, (Dr. T—), Experiment Nº II showed no change for any fork except C and this for the left mastoid only, where it was found that the *lower* part perceived the tone *five* commas higher than the upper part. It may be noted here that between the several experiments an interval, sufficienty long to prevent *tone-fatigue*, was allowed to elapse. Care was also taken to prevent confusion be tween tones and over-tones.
- ¶ In case II (the writer's) it is important to discuss the symptomatology at somewhat greater length than in the brief outline already presented.

During the progress of the disease, which probably began prior to May 1892, when the removal of an impacted ceruminous mass relieved a sudden deafness of the left ear, no pronunced departure from normal hearing has been observed in this ear, except on the few occasions (3) when it was found necessary to remove some cerumen. On the last occasion, June 1896, the mass contained distint (macroscopic) evidence of the presence of aspergillus spores.

In addition to the foregoing, the writer has been conscious during the last two years of a more or less constant sensation of weight and fulness of the left mastoid region, some times amounting to a feeling of what might be termed intra-mastoidal pressure, while, at not infrequent intervals, extreme tenderness has been noticed over the region supplied by the nosterior-auricular branch of the facial nerve, this tenderness being coincident with the sense of fulness in the mastoid. These conditions, associated with the tinnitus and a recently discovered, slightly obtunded audition, and still more recently a condition of false-hearing, determined the writer to investigate the Inflation (using the Dench apparatus with the vapor of menthol, camplior and iodine) showed the left Eustachian tabe only slightly less patent than the right. and not only failed to produce any perceptible increase in hearing-power but was followed by an increase of the tinnitus.

Local treatment (self-directed) for the relief of the recurring intra-nasal disease, together with the aplication of astringents to the ostium tubae, proved unsatisfactory. Momentary relief from the tinnitus—the most annoying symptom—could be obtained at any time by means of direct pressure against the manubrium with a cotton-tipped probe, but to obtain any considerable respite it was found necessary to entirely occlude the meatus for some time.

It is not unimportant to state that, in the day time, the subjective sounds became noticeable only after some exacting piece of work, the symptoms being commonly more pronounced during the evening when outside noises had ceased.

The foregoing enumerated tests were applied to the mastoids at various times, both immediately preceding and succeeding the production of the cessation of the subjec-

tive noises by direct pressure or by occlusion, with the result that no relation between the tinnitus and the false-hearing could be demonstrated. Onwing to the evident catarrhal condition of the tympanic cavity, the mastoid antrum, and the mastoid cells, treatment with the camphor-mentholiodine vapor was persisted in, regardless of other conditions, with the result that very recently the fulse-hearing was found to have entirely disappeared. Although the tinnitus is still more or less in evidence it is much modified while the hearing power has become practically normal. The writer is confident of still better results under proper dictetic and physical conditions. It is certain that a very considerable amelioration of symptoms followed sundry operations during the past few years by N. Y. surgeons of great eminence, but they were undertaken under circumstances which precluded the necessary attention to the proper systemic treatment which should have followed. These operations were directed towards the relief of intranasal occlusion and pressure-pain, a pain which resembled that of an acute catarrhal ethmoiditis and which once or twice produced symptoms exactly like those of hay-fever As a result, the intra-nasal condition was found to have been relieved, the lateral occipital tenderness to have dis. appeared, and, after the last operation, the tinnitus was found considerably diminished, When the distribution and anastomoses of the branches of the 5th, 7th and 9th cranial nerves are considered, it is not difficult to determine the direct or reflex effect of mechanical or toxic irritation of any of their branches and the symptoms or lesions to which it may give rise. The effect or such irritation is also seen in the reflex oscillation of the membrana tympani, the abolition of which, together with relief from the tinnitus, has frequently been brought about in the manner already described.

Although the uric acid factor in the causation of lesions of the nose, throat, and ear has been disclaimed and utterly abandoned by certain rhinologists and neurologists of note, it may yet appear that their antagonism is based on the results of a plan of local treatment, operative or otherwise, in which an associated plan of treatment directed towards the elimination of toxic matter was conspicuously absent. If their conclusions were the result of their observation of any number of cases in which the necessary therapeutic, dietetic and hygienic measures were not rigidly enforced, their disappointment was enevitable.

The writer's experience affords abundant proof of the necessity of such a *morate* while conducting the treatment of even the simplest cases. In his own case the catarrhal swelling of the mucosa of the mastoid region and the adjacent mucous tissues, resulting in an altered function of the sound-conducting apparatus, was undoubtedly due, primarily, to imperfect elimination of various toxic substances, not the least important of which was vric acid.

It is now pertinent to show the particular manner in which a departure from the normal physiological conditions above mentioned has been made manifest in the two cases under consideration.

In case I, we have evidently a traumatic iesion resulting from the unwise use of an unmeasured galvanic current which, though described as moderate, was probably excessive. Prior to the "taking cold" there has been no conscious disability in this left ear—the ear so important to the violin—player; but suddenly, during the applicacation of the electrical current, a map is heard, described as being similar in quality and loudness to that of the "snapping of a tense violin string." Immediately there is a great "jangle" of sounds, but later this becomes modified and settles down to a constant tinnitus and a condition of false-hearing in the ear affected. There can be no doubt as to the cause of this profound disturbance of the labyrinthine contents. The clinical history of the case presents

positive evidence of the partial or complete suspension of the force required to regulate the impact against the m. In other words, the integrity of the stapedius muscle was impaired, or lost, when the snan occurred. abundantly proven by the results of treatment directed toward the re-establishment of the normal plane of the membrana tympani. It has been shown that the inflation of the tympanic cavity gave negative results, even augmenting the symptoms if any considerable pressure was used; while, on the contrary, the aspirating otoscope gave immediate relief from annoying subjective symptoms. The absence of the intra-tympanic adhesions and spasm of the t. tympani muscle having been demonstrated, an augmentation of the subjective symptoms could have been due to no other cause than the absence of the stapedian curb, thus permitting an exaggerated presussure from without inwards and a condensation of the intra-tympanic air, resulting in a profound disturbance of the labyrinthine elements.

It is thus seen that as long as such inward pressure obtains, just so long will the sound conducting tobyrinthine contents continue to excercise a perverted function and the floating terminal hair-cells and the basilaric fibres receive a false tone-image corresponding to the degree of compression exercised upon the labyrinthine fluid, whose natural channels of escape are inadequate, during the existence of the normal physiological supply, to establish compensatory egress.

Thus, in this instance, it would follow that the compressed sound-conducting fluid of the labyrinth is immediately responsible; for the altered character of certain sounds, the muscle lesion being the causative factor. Owing to the *spiral* nature of the structure in which this compression takes place, the force of impact of the contained fluid becomes less (granted a moderate degree of compression) during its ascent, so to speak, toward the

apex, on account of resistance it encounters from abruptly curved walls. In other words, a relative inhibition of energy in the molecular impact takes place as a result of continued abnormal propulsion in a spirally-compressed fluid. the increase in pressure causing a deviation from the curvilinear direction normal to the fluid contents of the structure. The reverse would obtain in a conical or a planopyramidal structure, for in such a case no abrupt deflection would interfere with the necessary augmentation at its distal end of an energy travelling in straight (or curved) Should any great compression, however, exist in any of these structures, supposing each to possess a delicate percipient apparatus such as the m. basilgris, its continuance would cause a total obliteration of the function of that portion of the apparatus to which the greatest pressure was applied, and a mechanical perversion of function in the other portions, varying according to the degree of compression. It would thus seem that the degree of variation for a given tone in the scale will depend upon the degree of compression existing in a certain area in a corresponding turn of the cochlea.

In Case I it will be seen that this hypothesis is borne out in that the highest tones do not show as great a departure from the normal, owing to the greater velocity of the wave impulses and to the situation of the short fibres; as do the lower tones which are perceived in the upper turn of the cochlea and which become modified in the manner described. No other hypothesis would explain why in this case the lower tones are heard tower, and the higher tones higher, in the affected ear; for, although there is an absolute increase (in volume) of intra-labyrinthine pressure, the very velocity imparted to the wave-impulses in the lower turn of the cochlea becomes the instrument of their destruction, resulting in an actual diminution of tension and a consequent lowering or tone in the upper turn. Further proof of this proposition is seen in the re-

sult of the examination of May 10th, all tones having become more nearly normal as a result of diminished pressure.

It is interesting to note that in the majority of the very few recorded cases of pseudokousma, whether existing alone or associated with a diplacusis, it has been found that a difference in tone-perception has existed only for aerial-conduction, the same pitch being found with bone-conduction on both sides. Gruber reports a case of lilian of suppurative middle-ear disease of the right side, where the tone of a tuning-fork was heard from one-quarter to one-half a tone lower by the right than by the left ear, while with bone-conduction they seemed to be of the same pitch on both sides. Some time after the perforation healed, a normal perception of pitch retorned. An exception is found in Burnett's case, the difference obtaining only when the fork was applied to the mustoid.

Bishop records a case (probably non-suppurative) where "certain tones were incorrectly heard by one ear (both ears being similarly diseased) all times being correctly heard by bone-conduction." While the writer is under the false-hearing is impossible for one ear only when both ears are similarly diseased, it is evident that the condition obtaining in these two cases must be considered as involving only the structures of the middle-ear proper, the mastoid being probably normal. On the other hand, where a comparison between the two mastoids reveals a marked difference in the perception of tone, this difference corresponding exacty to that perceived by aerial-conduction, the only rational conclusion to be drawn is that the lesion responsible for the altered character of the transmitted sound is located not only in the structures of the tympanic cavity, but also in the mastoid, whose osseous conductibility or resonating function has become impaired during, or subsecuent to, the establishment of a pathological process within the middle ear.

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# A STUDY OF THE HEMOPTYSIS OF CARDIAC DISEASE.

BY ROLAND G. CURTIN, M. D., PHILADELPHIA, PA.

In considering the symptoms observed in cardiac disease, it occurred to me that something might be learned by making a study of the hemoptysis, which sometimes occurs in such cases. On looking over the literature of this subject, I find that very few causes of this symptom are mentioned; but I am satisfied that it occurs as the result of more conditions than those usually given in books on diseases of the heart. The results of the observations that I have made, I shall try to formulate into a paper that may assist us in our diagnosis and prognosis.

As to the frequency of bloody expectoration in heart-disease, authors differ greatly. Dr. Hayden states that hemoptysis was present in 44 out of 81 cases (54.3%) of marked mitral disease. This seems incredible to me; for after close interogation and watchful care, the percentage in my cases is very much less than in those of Dr. Hayden.

A study of the circulation of the lungs, bronchia tubes, and membranes will be necessary, in order that this sympton may be properly considered. The blood circulating within the lung is derived from two sources and is concerned in two separate and distinct functions. The first is that supplied by the pulmonary artery. These vessels, acompanied by veins, bronchioles, nerves. and lymphatics, traverse the interlobular connective tissue, finally ramifying among the air-tubes and enveloping them with the densest network of blood-vessels to be found in the body. While adjoining infundibulae are sharply outlined and are separated from each other by distinct connetive-tissue partitions, the interalveolar septa are composed only of the two layers of respiratory epithelium.---the above-mentioned capillary network,the whole being supported by the most delicate frame: work of connetive tissue. This vascular scheme is concerned solely in the aeration of the blood from the right heart.

The nutrition of the pulmonary structures is maintained by branches of the bronchial arteries, which receive their supply from the left ventricle. These accompany more or less closely the bronchial tubes; and, through minute branches, supply the walls of the airpassages, the interlobular areolar tissue, and the parietal pleurae. (Piersol).

Here we have two sources of blood in the lungs and bronchi from which may come a pulmonary hemorrhage. Bleeding from the bronchial mucous membrane has been called bronchorrhagia; and hemorrhage from the blood that is passing through the lungs to be aerated is denominated pneumorrhagia. The bleeding from the bronchial mucous membrane is most likely to be the result of a congestion of the bronchial mucous membrane, or of a condition of the blood that favors hemorrhage

from that, as well as other mucous membranes. The bleeding from the lung-structure proper—that is, the air vesicles, may be caused by a stasis of blood, which may be due to the constriction of an orifice in the heart, thus retarding the blood in the lungs, or to a partial cessation of the action of the heart, so as to produce a stoppage of blood in the lungs, thereby causing a congestion and an escape of blood through the lining membrane of the air vecicles. A case of pneumorrhagia may be facilitated by a condition of the blood, as in hemophilia, that allows it easy egress from the vessels adjoining the air vesicles.

Everyone that has studied cardiac disease will, I thinks, agree with me that the most common cause of hemoptysis from heart disease is mitral constriction. The blood, being interfered with at the mitral orifice, is dammed back into the pulmonary veins, where there are no valves to interfere, increasing the pulmonary bloodpressure. This congestion may produce exudation of the blood. Any very sudden retardation of the action of the heart may also bring about this condition of affairs. Acute mitral regargitation may have the same effect as mitral obstrucción. The blood, not being carried forward in its natural course, is regurgitated into the left auricle and backed upon the lungs. Again, I am satisfied that dilutation of the left ventricle, when coming on acutely, or acute myocarditis may have the same effect. It has likewise been found by observers that dilatation of the right auricle and right ventricle may produce bleeding from the lungs. This, I am inclined to think, is due to pulmonary hemorrhagic infarction. I am quite sure that any condition of the heart that favors pulmonary hemorrhagic infarction may cause the spitting of blood from the lungs. Hematophilia may play an important part in the bemorrage occurring with the different forms of heartdisease mentioned. Anything that produces pulmonary congestion may increase this tendency to hemoptysis—either bronchorrhagia or pneumorrhagia. I have frequently noticed hemoptysis in congenital disease of the heart; that is, both patalous foramen ovale and interventicular openings.

Excluding mitral disease, probably the most frequent cause of hemorrhage is rupture of degenerated blood-vessels, brought on by any increase in blood-pressure. The backward tendency of the blood produces pressure upon the brittle blood-vessels, which may be ruptured, causing pulmonary homorrhagic infarction, if the ruptured vessels are superficial; a more cozing of blood, producing a slight blood-red or pinkish colored expectoration, when then these vessels are deeper seated.

There is one condition likely to be associated with disease of the values of the heart that may produce hemoptysis; that is, a slowly-rupturing aneurism of the aorta. I call your attention to this fact, because the bleeding may at first be very slight. If one is not careful he may give a favorable prognosis in such a case, to be immediately disproved by the rupture of the aneurism and the death of the parient. I am cognizant of two such cases that occurred in the practice of friends.

The first question to be settled is that of the origin of the bleeding. In ordinary congestion of the bronchial mucous membrane, there is likely to be an expectoration of streaked blood, if the amount of blood is not great; but the diagnosis is more difficult when there is profuse bleeding, as the result of "bleeders' disease" affecting the bronchial mucous membrane. The blood from the lungs proper is usually seen, as in cases of the earlier stage of pneumonia, to be quite bright at first; although later, it becomes darker. This kind is familiar to you all. In cases of chronic dilatation of the heart, the blood expectorated is usually very dark purple. It may

be in rounded, brownish-black masses, with a glazing over them; as if they were enclosed in a transparent mucous coating, looking not unlike leeches in a contracted state. The rest of the expectoration is clear, being entirely free from any discoloration. Another form of blood-spitting is to be found when there is sudden acute congestion of the lungs from heart-disease. In these cases, large quantities of pinkish froth are often expectotated. This produces great apnea, and sometimes a speedy death; not so much from the loss of blood, as from the presence of the frothy fluid accompanying it. The patient is, as it were, drowned.

In the cases of mitral constriction, reported in a paper read before the American Climatological Association in 1881. I called attention to the fact that there is a tendency, in some cases of lung trouble of a chronic form, to hemoptysis of a dark color and to night-sweats, The lesions of the lung in connection with these cases is usually on the left side of the chest. In one of the cases there quoted, the patient, a married woman, thirty-six years old, the mother of six children, had had easy labors. without any unusual symptoms. There was no history of rheumatism, but she had been a quiet child and easily tired. At times, her lips became blue, and her heart weak; and she had night-sweats. These attacks were followed by slight hemorrhages of dark blood. Upon auscultation. I found a presystolic murmur at the third left interspace' above the breast, toward the apex of the lung, which was found to present evidence of decreased expansion, with a diminished respiratory murmur.

Another case reported in that paper concerned a man that had worked in the gas works during the day, and had employed his evenings on the Schuylkill River with a boatclub. He was training with a crew for a race, but he was soon compelled to stop and apply to me for treatment. I found him with a red, turgid skin; blood-shot eyes; general trembling of head and extremities, frequent attacks of hemoptysis, of bright-red blood; a rapid heart, and quick respirations. I made a diagnosis of acute dilatation from over-exertion. There was a diffuse murmur above the nipple and a strong cardiac impulse. After a month's rest, all the symptoms and physical signs had subsided; but they returned in a milder form, upon active exercise or any long continued and exhausting labor.

Another case, that of a young man, twenty-six years old, was reported in the same paper. His father had lived a dwarfed life, and had what was diagnosticated to be congenital disease of the heart. This disease produced cyanosis whenever the weather was damp or cold. He died, at about middle life, with exhaustion, cyanosis, and great dyspnea. His son, my patient, had always, as a child, played with girls, making mud pies and taking part in quiet games. He could never stand the racket of boys' plays. From earliest childhood, exercise had been followed by thumping of the heart. If continued after this, it would produce dyspnea and sick headache: and he would then be compelled to take a rest, owing to what seemed to be nervous prostration. He had to have nine hours of sleep at night and a nap during the day, in order to keep from feeling tired and good-for-nothing. In 1892, he broke down, while preparing for college. He then went to the seashore and led a quiet, restful life. end of two years he had become rather fleshy, and had the appearance of perfect health. The presystolic murmur about the nipple was heard only after exertion. with a strong auricular impulse and an accentuation of the second pulmonary sound. He has had hemoptysis several times, with his attacks of "deranged heart." The blood expectorated is always dark purple, and is limited to isolated spots in the sputum.

These cases show that mitral constriction is likely to be followed by chronic, non tubercular lung disease of the left side; and by attacks of hemoptysis of dark-colored blood, whenever the circulation is greatly disturbed. I have recently seen a woman, forty-seven years old (the mother of one child), who has had rheumatism. She never had any particular symptoms of heart-disease until two and a half years ago, when she took a headache powder. Her husband, a doctor, came home and found her in bed, with blue finger tips and lips, and with marked dyspnea. Later, she had an attack of difficulty in breathing. Since that time she has probably had fifty similar attacks. In some of them she has had considerable expectoration of dark colored, almost black, blood. In this case it would seem as if the nervous depression had influenced the circulation sufficiently to bleeding from the lungs: for the patient had no heart murmur or other evidence of organic lung or heart lesion.

Last December (1904) I saw a case of dilatation of the heart in which nitroglycerin seemed to have caused the patient to spit blood. This hemoptysis came on several days after the drug had been first administered and continued for two weeks. Upon the withdrawal of the nitroglicerin, it ceased. In connetion with this case, it occurred to me that perhaps this or other remedies might in some intances have the effect of producing hemoptysis. I have had three cases in which the use of potassium iodide had caused blood spitting:

Miss C., with a marked mitral systolic and an aortic systolic murmur, had symptoms of acute dilatation of the left side of the heart, followed by an intermittent pinktinged expectoration, almost daily for four weeks. She is now in quite good condition, a year later.

In cases of heart-disease accompanied with blood spitting, if the latter is not profuse, and if the heart-

disease itself is not acute, the patient sometimes feels greatly relieved after the bleeding, as though a safety valve had been lifted. If the heart-disease is acute and the blood is pure, the prognosis is bad. If the blood is bright red and quite profuse, the prognosis is much more favorable than it is when the blood is dark or purple showing it to be stale from a slow oozing. If the bleeding is caused by a condition of the blood engrafted upon a previously existing heart-disease, the prognosis is not so serious. Death is seldom, if ever, produced by a profuse hemorrhage from this cause alone. A disordered condition of the blood, favoring extensive hemorrhage, is usually the exciting cause of profuse hemorrhage in heart-disease. In such cases, therefore, we have a double equation.

My observations of hemoptysis in cardiac disease have impressed me with the importance of making a study of the blood expectorated. I feel convinced that further investigation of this kind will yield valuable information. We all know the current jelly sputum of cancer of the lung; the prune-juice sputum of a serious pneumonia: the brick-dust color of the macopurulent sputum of spasmodically advancing, chronic lung disease, and the pink-tinged, frothy mucus of the suddenly arrested circulation in congestion of the lungs. In the same way, I think, we shall be able, by studying the blood expectorated in cardiac disease, to learn much that will be of value in diagnosis, in prognosis, and, perbaps, in treatment.

## GLIOMA OF THE NOSE

REPORT OF TWO CONGENITAL CASES. BY J. PAYSON CLARK, M. D., PHYSICIAN FOR DISEASES OF THE THROAT, MASSACHUSETTS GENERAL HOSPITAL, CONSULTING LARYNGO-LOGIST, BOSTON INSANE HOSPITAL.

"The glioma is a tumor consisting of proliferated neuroglia (the supporting tissue of the central nervous system) and of bloodvessels which are accompanied by a small amount of connetive tisue." Mayory says further in the article from which the above quotation is taken, that it is found exclusively in the central nervous system of which it forms the commonest tumor, that it is essentially a benign growth, does not give rise to metastases, but is dangerous partly on account of the pressure it exerts, partly from destruction of the nervous tissue it infiltrates. On account of its vascularity, large and small hemorrhages are not infrequent. Mallory also says:

"Gliomata of the retina have not been discussed in his article because no one has yet shown by modern



Glioma of Nose.--Photograph of Case I.

differential stains that they occur." In this connetion the following quotation from Ohlmacher is pertinent:

"Most of the so-called gliomas originating in the retina especialy in children, are in reality a form of round-cell sarcoma with pronunced metastatic tendencies, which glioma lacks." Other writers, as Senn and Bland-Sutton speak as if the existence of glioma of the retina in childhood were established. Senn mentions glioma as having been found in the acoustic nerve and as a heterotopic tumor, in the kidney, the ovary and the testicle.

There seems to be some difference of opinion; therefore, among writers on this subject, as to whether or not true glioma ever occurs outside the brain or spinal cord. But no writer denies that the appearance of this growth anywhere except, in the regions just mentioned is very rare. In view of these facts, the two following cases would seem to be worth recording as of unusual importance and interest.

Case I. Edward K., aged two years, of American parentage, was brought to the Throat Clinic of the Massachusetts General Hospital in April, 1903 on account of a rounded tumor of the nose about the size of a robin's egg, which his mother said he had had from birth and which caused considerable deformity, as the photograph shows.

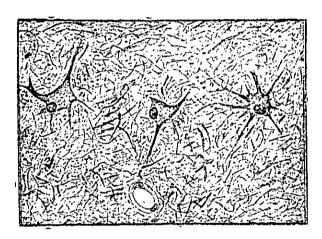
The tumor was soft to the tough and resembled very strongly in appearance and consistency a fatty tumor. There was no pulsation in the swelling nor any change in its consistency when the child cried, so that, although its site and general appearance suggested a possible meningocele, it was assumed as reasonably certain that, at the time the child was seen the tumor had no direct connection with the brain cavity. On looking into the nose, the left nostril was observed to be almost comple-

tely obstructed by a pinkish-gray, polypoid growth, the origin of which could not be definitely dertermined, although its connection with the external tumor could hardly be questioned. A piece of the growth was removed from the left nostril by means of cutting-forceps. Hemorrhage was free but ceased quickly. specimen was subitted to Dr. J. H. Wright, Director of the Clinico-Pathological Laboratory of the Hospital, who made the following report: "Microscopical examination of the specimen sent for examination shows that it consists of a piece of tissue partly covered with mucous membrane. The tissue making up the greater part of the specimen consists chiefly of delicate fibrils and peculiar cells and is clearly a typical neuroglia: as shown by its histological appearance and by the staining reaction of the fibrils. This neuroglia tissue near the mucous membrane gives place to submuçous connetive tissue. but is not sharply marked off from this connective tissue. In fact it is seen infiltrating the spaces of this tissue after the manner of a sarcoma.

Diagnosis; as far as the specimen itself goes, the condition is to be regarded as glioma. The glioma may be in continuity with the brain, but it seems to the pathologist more likely that it is associated with a teratomatous tumor in the neighbourhood." (Signed).

J. H. WRIGHT.

(See figure 1).—In view of the unusual character of the growth and the uncertainty of the prognosis it was decided to keep the child under observation for a time before undertaking to remove the tumor, if that was eventually thought advisable. The photograph was taken and the mother was told to bring the child again at a stated time. But she never returned and no answer could be obtained to several letters. As the case was



Case I.—Edward K. High power drawing from a paraffine section of the material removed by operation, showing the character of the tumor tissue which is composed of fibrills and "spider" glia cells.

a much too important one to be entirely lost sight of, the writer finally made a trip to the city where the patient lived, about twenty-five miles from Boston, and after some difficulty, owing to the family having moved, found the boy. It was learned that he had been operated on at a local hospital on June 23 rd, 1904. The tumor had evidently been removed, as the nose was normal except for a rather unusual breadth and a rather prominent linear, nearly vertical scar, abount two c. m. in length. The general health of the child appeared excellent and there was no local evidence of any new growth.

Communication with the hospital where the tumor had been removed elicited the facts that it had not been preserved and that no microscopical examination had been made of it. Nor could any description of the gross appearances at the operation be obtained.

Interesting as these reports would have been in completing the history of this case, the diagnosis is sufficiently established by Dr. Wright's report.

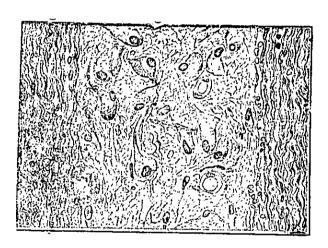
The second case was first seen at the Throat Clinic of the Massachusettes General Hospital on December 21st. 1903 by Dr. Frederic C. Cobb, who was then on duty, and he very kindly referred it to me.

Case II.—William A. M, boy, ten weeks old, was brought to the hospitel on December 21st. 1903. The father said that the child had not breathed well through the nose since birth and that the child had noticed something in the left nostril. The infant appeared in excellent health and took its nourishment well except for the inconvenience caused by partial nasal obstruction. On examination a pinkish-gray polypoid mass was seen in the left vestibule, causing almost complete obstruction of that side. The site of the growh was higher up in the nose and, as nearly as could be discovered, owing to the difficulty of seeing into so small a postril, appeared

to be the septum. A piece was snared off for microsco pical examination. Hemorrhage was free but easily stopped by slight pressure. The pathologist's report on this specimen and on another removed in February 1904 was as follows: "On December 21st. 1903 and On February 29th. 1904 small pieces of tissue were excised from the lesion on the nasal septum. Microscopical examination of both these specimens shows, in the situation of the submucosa of the part, masses of a peculiar tissue which has the structure and staining reaction of a gliomatous tissue. The tissue consist of cells and fibrils in varying proportions. Some of the cells are quite large, have excentric nuclei and fibrillary proces-This gliomatons tissue in places appears to infiltrate and distendlyuph spaces, and columns of it may be seen in the submucose very near the mucous membrane proper." (Signed) J. H. Writht.

(See figure 2). Another specimen was renoved on April 20th, and was reported to be practically the same as the first. No photograph of this patient was taken because there was no external deformity. At the date of writing this paper in 1904 this child is in excellent health and there is no apparent increase in the growth.

These are certainly genuine cases of glioma outside the central nervous system. They resemble each other closely in every particular except that in one there was an external deformity. They were both evidently of parental origin. It is unfortunate that no record of the operation in Case I could be obtained, for it might have cast some light in the source of the tumor. The writer is inclined to the opinion that these growths arose, during the process of foetal development, through the shutting out of or, more exactly that embryonic tissue which becomes neuroglia some neuroglia from the brain cavity in the coming together of the two lateral halves of the bone. In



Case II.—Win, A. M.

High power drawing from a paraffine section of the material obtained by operation, showing part of a column of gliomatous tissue infiltrating the submucous connective tissue. The tissue, composed of the pater fibrills and the large pyriform cells occupying the middle of the drawing, is the gliomatous tissue. The darker fibrills on each side of the drawing represent the connective tissue of the submucous

submucosa.

both cases, as far as the histories go, the tumor appears to be absolutely benign. In the first case the tumor had not changed in size from birth up to two years of age, according to the mother's observation. It was removed six months ago, nearly, and there is no sign of recurrence. It is about a year since the other case was first seen. During this time the growth has shown no apparent increase. The writer will endeavour to keep in touch with these cases, and if there are any new developments, he will report them. A thorough search of medical literature for a period of more than ten years past reveals no other reported case of the nose.

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# Electricity in the treatment of pulmonary tuberculosis.

Francis B. Bishop M. D. Washington, D.C. U. S. A.

One agent after another and one method after another have come upon the scene, and have been lauded for awhile as the great cure for that disease which for centuries before the christian era invaled all classes often plucking in the budding the brightest and sweetest blossoms of the human race. We are learning much more concerning the etfology, pathology and treatment of this terrible plague,—consumption. All are now fully agreed that (medicine or no medicine) the nearer to nature the patient can live, the more thoroughly he can live in the sunshine and fresh air sbsisting upon simple and nourishing food the better are his chances for recovery.

Exercise, fresh air and suns hine-this is the remedy which nature supplies in the greatest abundance. And to this altitude sufficiently high to considerably relieve air

I commenced your treatment in October, 1900, on my own responsibility and with slight encouragement from you as to results. Within a few weeks I was conscious of improvement. The ozone was delightful to breathe; there was in it that which seemed at once to rest and strengthen the lungs, and I found a marked stimulus in it and the electricity combined; but the most significant feature was the diminishig cough and the changed character of the expectoration. That it was due to the treatment was shown by this circumstance. After being treated three months, I remained away for a month or six weeks. when without taking cold, the old trouble reappeared, preceded by the familiar throbbing pain. During another time when my visits were irregular this experience was repeated but after each return to the ozone the symptoms grew less severe, and in January, 1902, I resumed the cherical work from which my illness debarred me for nearly seventeen months; I took treatment for a few weeks, and then feeling so well, remained away.

As the weather grew warm, I felt considerable debility, and in September went to Lananac Lake. There Dr. Trudean examined my lungs. He found the principal trouble then to be bronchitis. He remarked, there was nothing strong about me; that I was weak in every way; there was some difficulty in the left lung and a place in the right lung that had healed.

He did not consider it necessary for me to give up my work.

During my long illness I had fever, night sweat at times and often utter exhaustion. I had set backs from other causes that would necessarily lessen my strengh and retard recovery. I have taken some medicines, but so irregularly I could scarcely be benefited by them. Actual gain is shown by the contrast between my present and former conditions. When I went to Saranac Lake, I

could perform a certain amount of work then, as now, a gain in flesh, increase in muscle and a better outlook upon life generally. Could I have taken your treatments without interruptions, I believe I should have been absolutely well months ago.

Sincerely yours,

M. P. B.

Three other cases equally as bad have been as success fully treated since. One of my early cases, a gentleman of about thirty, after taking the cage treatment for a while missed his cough, night sweets, and malaise, gained several pounds in weight. His family fearing that his improvement was only temporary persuaded him to go to Ashville North Carolina. He staid there for several months, and lost ground rapidly, from there he went to New Mexico, where he died in about six months after reaching his destination. I do not pretend to say that he would have been cared had he remained in Washington for treatment.

A woman thirty years old with a family history on the fathers side of tuberculosis, having lost several menbers of her family from that disease, came under my care with loss of appetite, malaise, night sweats, cough and dullness in apex of right lung.

Three months daily treatment in the static cage, so far as all physical signs were concerned cured her. She remains cured after three years. In the light of our present knowledge static electricity should be faithfully used in all these cases whatever be the medical and sanitary treatment.

FRANCIS B. BISHOP M. D.

1918 L. S.—N. U.

Washington D. C. U. S. A.

# REMARKS

ON THE DIFFERENTIAL DIAGNOSIS OF LARVIGEAL TUBER CULOSIS AND OTHER CHRONIC LARVIGEAL APPROTIONS.

## Mr. President and Gentlemen:

The subject of this paper is one which will necessarily interest all general practitioners as well as laryngologists. Perhaps there is no region of the body (excepting the abdomen) where there are as many liable opportunities for making mistakes in diagnosis, as the larynx and thorax. In distinguishing the aerly stages of laryngeal phthisis, "and the various malignant diseases from the different sorts of benign laryngeal diseases, the most experienced persons in the art of laryngoscopy are very often puzzled and liable to make a blunder.

Take, for instance, some of the forms of non-malignant and non-infective chronic laryngitis with or without hyperplasia, which, as you know, may and do frequently endure years without giving rise to a more serious malady. Hyperemia of the whole or a part of the internal laryngeal surface, accompanied by either altered, diminished

or increased secretion, may exist without much, if any structural change being apparent. This condition may be accompanied with more or less hoarseness, verging upon extinction of the voice (aphonia), or various degrees of dysphonea, etc., which by persistence may justly excite the suspicion of an inpending tubercular or malignant affection.

Again, let us consider those cases of chronic laryngitis denominated "hypertrophic", characterized by more or less hyperplasia situated either in the upper or lower laryngeal region, or in the laryngeal ventricle, and showing either localized or rugous hyperplasia. How often do we, meeting with these conditions, impulsively conclude that affection must be malignant, tubercular, or syphilitic-Yet by carefully investigating the clinical history, and perhaps testing by histologic, bacteriologic and therapeutic expedients, we shall prove that they are benign cases. Even with a picture before us of anytenoid or posterior wall infiltration of the larynx, can we always say that the case is one of tuberculosis? Hence, it becomes requisite to exercise the greatest care and circumspection in the examination of the patient, and the patient's antecedent history, before coming to a diagnosis in cases of suspected tubercular nature. The larvnx should be examined by an expert laryngologist. This it seems to me is a necessary measure, as is also the exploration of the chest by an expert (and not too imaginative) auscultator. I desire to emphazise this point because we know that the art of laryn goscopy and the art of physical exploration of the chest does not consist alone in the dexterous manipulation of the laryngoscopic mirror or the stethoscope and percussion hammer. To perceive and to individualize what one sees in the image presented by the laryngoscopic mirror and to perceive and individualize what one hears through a stethoscope and by a percussion hammer, is really what constitutes the art embraced by these particular manipulations. Added to this and paramount with it, may be mentioned the art of clinical observation, and the adjustment of the same through the reasoning faculties, to the signs and demostrations elicited by immediate or sensory examination. I beg pardon for calling attention to such platitudes as the above mentioned, and plead as a reason therefore to offer the following aphorisms:

Of the many millon human beings all nationalities living, there is a strikingly uniform physical and psychical similarity, which we all must admit. But at the same time an antithesis must be admitted, inasmuch as this resemblance is scarcely ever found to be exact, so that broadly speaking each individual may be found prepossessed of both physical and mental peculiarities. This constitutes one of the most annoying circumstances in the course of generalizing, and occurs often enough to constitute one of the most significant barriers to the work of all students of natural science. Moreover, in no class of work is this individualism more constantly appearing than in that of the scientific physician or surgeon. It is to this fact that experience as well as demonstration becomes a necessary complement, and to the carelessness its recognition of is traced much of the controversy and error incident to the practice of, not only our own, but every other human Now, this individualism is especially to be observed in the practice of the art of laryngoscopy and physical exploration of the chest. Let one well versed in either or both of these arts axamine one hudred uncomplaining or so-called healthy individuals and he will soon be brought to a realization of this fact—especially if he will crase from his mind, at the time, all imaginative prejudice. Looking into the larynx, for instance, he will observe peculiarities of color of the mucous menhrane; of from: of consistence; of superficial or deep structural appearance, and of the secretion in nearly each individual examined. Many of these appearances might present to the

inexperienced examiner positive evidence of an unhealthy condition. Likewise, in auscultation of the thorax peculiarities of amplitude, of quality, and of rythmn in the respiratory sounds will be found peculiar to almost each individual.

From these results, therefore, the deduction is to be made that the artist must become so expert that he can readily perceive normal abnormalities by his own consciousness of a standard of comparison instead of a formula-For example, a man or woman with a most artistic instinct who could take in, and enjoy, all the details of a magnificent picture (such as a Raphael) would scarcely expect to be able to produce its analogue, without a long training in artistic experience and the posession of an intuitive, practical aptitude. The same idea would apply to the subject under consideration-namely, the importance of the application of the artistic, as well as the scientific, branch of professional activity. It is to emphasise this point that I have burdened you with so much verbiage, and I have done so because there are so many cases of chronic laryn. gitis of various shades and degrees caused by or associated with disorders of the stomach, of the heart, and other organs and apparatus, or as a result of excessess, and in regularities of living, such as over eating, over work, excessive use of tobacco or over use of the voice, whice are erroneously diagnosed as tubercular, syphilitic or mali-In many of these cases a supposed gnant affections. confirmation of the diagnosis has been found in a physical exploration of the chest when really no lesion of the lungs or heart has actually existed.

We are surprised at times to meet with cases which confreres,—who are our peers or surperiors perhaps, in scientific attainment,—have positively diagnosed as tuber culosis without ever having made a proper laryngoscopic examination. We believe, of course, that this does not

take place often, nervertheless it occurse often enough to merit warning. Mistakes in the opposite direction are likewise frequently made, when cases of lutent syphillis or tuberculosis pass for a considerble time unrecognized. The frequency of such occurences would tend to stimulate those of moderate experience to a tendency to emphasise and amplify these etiological factors. It is obvious that these remarks, of course, do not apply to fully developed cases of disease.

The question now arises, can rules, or principles based upon scientific investigation and clinical observation be formulated for positively distinguishing all cases of chronic laryngitis from the other different diseased conditions of the larynx in the early stages of their manifestation? To this we must, with humiliaton, answer, no! Because a case of chronic laryngitis may present any of the following subjective or objective signs:

#### SUBJECTIVE.

Pyrexia.—on account of some other intercurrent affection of organs or nervous system, or pyo-salpinx.

Enlarged cervical glands—from previous diseases or injury.

Hourseness, or dysphonia-congenital or symptomatic.

Pain,-localized or diffuse.

Cough,—slight or severe.

Dyspnoea, -- in artero-sclerosis and neurosis.

Secretion, -altered, diminished, or increased.

Hemorrhage,—slight or quite profuse, as in hemophilia, maso-pharyngeal fibromata, abrasions, traumatism.

#### OBJECTIVE.

Intense or moderate hyperaemia, diffused or circumscribed.

Anaemia—constant or intermittent, when complicated with central nervous diseases or Bright's disease.

artero -sclerosis, oedema of the lungs, or conditions of vaso-motor spasm or venous stasis.

Hyperplasia—circumscribed or general, papulous or laminated, or rugous, in cases of alcohol or tohacco addiction; carcinoma and other diseases of the stomachiover use of the voice; excessive auto-mobile riding, etc.

Hypertrophic transfaction—as in acute exacerbations, arterio-sclerosis, oedema, whooping-cough.

Simple tumefaction—long continued pulmonary oedema, whooping-cough, sequel of measles and other exanthemata, diphtheria.

Temporary paresis - as in ataxias and other neuroses

Altrosions--as a result of vocal strain, inhalation of strong fumes, or as a result of debanches.

In conclusion, therefor, it seems obvious that the early stages of such cases showing symptoms referable to the air passages that the diagnosis should be constructed upon a thorough expert examination of the upper air passages, as well as the thorax, and a complete investigation into the clinical history of the case in reference to each and all the functions of the body. To this, of course, must necessarilly be added not only an examination of the sputum, but of times of the blood and perhaps parts of the apparently diseased tissue of the throat. Absence of tubercle bacilli, pneumococci, or other micro-organisms, or the absence of any detritus or exfoliation from the part involved is not alone sufficient to base a differential diagnosis.

Dr. E. L. Shurly, 32 Adams Ave. W., Detroit, Mich.

# **MODERN THERAPEUTICS. (1)**

BY REYNOLD WEBB WILCON, M. D., LL. D., PROFESSOR OF MEDICINE AT THE NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL; PHYSICIAN TO ST. MARK'S HOSPITAL.

The tendency of modern therapeutics is toward making use of all measures which tend to the cure of disease, physical as well as pharmacal, and to place reliance upon no single method. While physical therapeutics may seem to be more prominent at the present, it is because the same scientific methods of investigation are being applied as to the study of drugs.

Climate.—There come a complete realization that the ideal climate for any disease can not exist. For instance, in the treatment of pulmonary tuberculosis, a dry and equable climate is desirable. But a dry climate can never be equable,—a simple proposition in elementary physics,—therefore, treatment by climate only is doomed

Read at the Fourth Pan-American Medical Congress of Panamá; 1905.

to failure as well as treatment by drugs alone. In this, as in many other instances, a careful study of climate has resulted in declaration of its limitations, and the limitations must be recognized and provided for.

Mineral Springs—Here again, intelligent study has done much to do away with the routine work of the bath-physician and the astute empiricism of centuries is giving place to a well wrought out system of therapy, based on special knowledge of the chemical contents of the waters, joined to general medical information. Besides the chemistry of mineral waters, there has come a great advance in our knowledge of the physical chemistry of such solutions and the study of various radio-activities as are associated with mineral waters is opening up another and probably a brilliant chapter in internal hydrotherapeutics.

In hydrotherapy there is but little that is new. Most novelties claimed as such are merely a re-vamping of the old. Curiously enough the practice remains unchanged while the theories upon which it is based have been either ahandoned or modified.

The Currie-Jurgensen (so-called Brand) bath, for instance, is no longer used with the idea that it reduces fever, or is a general nervous stimulant, but it is rather employed for the purpose of eliminating various toxins by way of the kidneys.

Electricity.—This is no longer looked upon as a cureall, but definite indications for its employment are well reconognized. The high tension electricity, as developed by Morton in this country, and the use of high frequency currents, have made electrotherapeutics a much more important chapter and with a much more vational basis than before. The effect of electricity upon the blood vessels and the consequent stimulating effect on blood pres sure are now well known and show the lines in which this department is going to develop. Static electricity is no longer used merely empirically, but has a definite set of indications, and can be made, under proper conditions and with appropriate direction, to give definite results.

Roentgen ray therapy is yet in its infancy, but when sufficient time has elapsed that its power for good or evil upon processes and tissues, whether physiological or pathological, shall have been determined, its capabilities will be thoroughly understood. At present its future seems bright.

Diet.—Here too, distinct advance has been made. The prohibition of red meats in gout and purinaemia is now known to be based upon an incomplete understanding of the purin bodies and their forbears. In diabetes mellitus the judicious administration of carbo-hydrates has been followed by lessened incidence of coma and by marked improvement of nutrition. A broader knowledge of the nephritic diseases has ted to an enlarged dietary which is based upon a clearer understanding of normal meta-holism.

Exercice.—That use of a part increases its capacity for developing its function is known, and the application of this principle results in the approach to physiological integrity. Its results in improving nutrition are farreaching, but its limitations, so carefully studied during the past decade, are equally important.

Light Therapy.—Here again, we find a far too brief chapter. The ascertained facts are few compared with what will be known. As they accumulate and logical deductions are made, our therapeutic resources are likely to be enormously augmented.

Pure Drug therapeutics.—Drug therapeutics, although efearlier development, has lagged somewhat behind phy-

sical and mechanical therapeutics as regards its establishment upon a firm rational basis. - There is no doubt now that the new physical chemistry, the most brilliant chap ter in chemical development at the end of the nineteenth century, will soon remedy this defect). Already this has been accomplished for familiar drugs and the end is not yet. At the beginning of the nineteenth century the use of all drugs was based upon empiricism. As the result of German nihilism, unfortunately there was for a time in scientific hands, a neglect of drugs that kept therapeutics in the background, while pathology and other departments of medical science were advancing with strides. Even at the present time many so-called textbooks of medicine are scarcely more than treatises on pathology. With regard to treatment very little is said. So much is this division of the book overshadowed by the rest that often it occupies brief paragraphs where the other branches of the subject have pages devoted to them. This, of course, is not as it should be, since a text-book on medicine must be helpful not alone in the recognition of disease, but especially for its cure, as that is possible. and for its alleviation, if cure cannot be obtained.

Basis of Dray Therapy.—Drug therapy is now being put on a secure basis, by observations in the laboratory, not only from its suggestions, but as well from its confirmations of clinical observation. This does not change the views with regard to the employment of remedies, but often helps to make it clear how they may be used with hetter effect. Digitalis is now used on a very different theory from that on which it was originally introduced, but the indications for its employment are the same as when Withering first wrote with regard to it in 1784. The mosthopeful suggestion with regard to present-day drug therapeuties lies in the development of physical chemistry. It is but a few years since Faraday introduced the word ion and the idea which it conveys. Only now

is this idea bearing fruit in a new science of chemistry. In the days when Lister recommended phenol as most important for securing asepsis, the material was employed in solution in various substances. However by observation it came to be known that in oily solution phenol did not inhibit-bacterial growth. Is was not until the application of Faraday's theory to chemical compounds brought out the fact that electrolytes are free when in oily solution, that the real explanation for this failure of phenol, under these circumstances, could be understood. The reason for the use of alcohol as a direct antidote for phenol, is now clear. The same explanation has been found to be helpful with regard to solutions of mercury, and even with regard to many biological phenomena where it might be least expected to have its application. The action of toxin and antitoxin on one another are phenomena of ionization. These phenomena can now be measured with exactness by the modified. Wheatstone bridge, as has been demonstrated, and Kohlrausch has determined the conductivity of fluids with reference to their contained electrical units

Chemical Constitution.—The physiologically opposite results from the introduction of a methyl-radical are striking (strychnine, convulsant; methyl-strychnine, paralyzant). The effect of change of position of a radical may be striking as resorcin (metadihydroxybenzene) is very sweet, while pyrocatachin (orthodihydro-benzene is bitter. The atomic weight seems to influence toxicity, as in the alcohols it increases from methyl-through ethyl,-propyl,-butyl,- to amyl-alcohol. In the synthesis of hypnotics the varying effects of radicals upon different portions of the brain being known and result of placing the various radicals in the ring, the construction of a safe and reliable hypnotic has become possible.

Empiricism.—It must not be forgotten that at various

sort of teaching. But the medical student of to-day is eminently to be pitied. He is in the midst of three fires. There is the laboratory man who wants most of his time; the professor of clinical medicine, who wants him at the bedside for many hours a day; finally, there is the specialist who considers that the only hope for practical medicine is in the devotion of more time of the specialties."

Teaching of Therapeutics.—Since this is so, there should be some method devised by which not only shall the student be able to acquire the requisite information during his period of trition, but that he shall so thoroughly acquire it that he may become a better practitioner of the most important division of medicine, namely, Therapeutics. Without sacrificing the fundamentals upon which the structure of medicine must stand, a logical system must be insisted upon so that the opprobrium of the schools shall no longer exist. It would seem that this can best be accomplished by the following plan covering the four years of tutelage:

(1) A practical acquaintance with various remedial physical measures and remedies, not less physiological, and methods of preparing the latter. This should be acquired during the early and memonic period of the student's career (recitation and demonstration). (2) Actual knowledge of the action of agencies and remedies acquired by personal experimentation and demonstration under the teacher's eye (laboratory demonstration). (3) Application of these agencies and remedies, the actuality of their effects for good or evil having been fixed in the student mind, in the treatment of disease and symptoms, under proper supervisions (lecture and clinical demonstration). (4) The accurate direction for the exhibition, in strict pharmacopeial nomenclature, of remedies and the scientific use of physical agencies must be so thoroughly comprehended by the student that he can not only intelligently apply them, but give valid reason for his treatment (clinical practice and conference).

Pharmacopoeia.—While the profession in America had un excellent pharmacophoeia, one that is generally considered more valuable than that of any other nation, not excepting any, very few physicians have been sufficiently familiar with it. In fact, it is apparent that a very large proportion of practising physicians do not know the pharmacopoeia because they have been deterred by the supposition that it is of great size (confounding it with the various dispensatories), while it is really a comparatively small book, yet containing well arranged, not only a sufflciently complete armamentarium, but also some indispensable information, which a physician should have who is intent on prescribing rationally and without the supposed aid thrust upon him by over-zealous manufacturing chemists.

Pharmacopoeia Development.—The United States Pharmacopoeia was first formally planned in 1817, when it was decided that some legal standard was required for drugs and drug preparations, which should have national authority. Until 1840 it continued to give the text in both Latin and English, but since then it has been published only in English. Every ten years, as the result of invitations to medical schools and societies and pharmaceutical schools and societies, and the medical departments of the Army and Navy, a committee of revision is selected, consisting of twenty-five members, who see to the elimination of drugs that are no longer used and to the introduction of remedies of various kinds, that have been introduced to me. dicine during the preceding decade. The book thus made is the legal standard, and is adopted by the Treasury Department (Custom House), the Army and the Navy, as well as by most of the States, as the Court of final appeal for formal and legal information with regard to drugs. The next revision which is shortly to be issued, will contain besides much additional information, the average adult dosage of the various drugs and remedies that are incorporated in the pharmacopoeia. From various sources suggestions have come that this revision be translated into Spanish. If this is not an opportune moment for a Pan-American Pharmaaopoeia, at least, this much is evident, a Pharmacopoeia produced by representatives of the three Americas, with text in both Spanish and English, would be a potent factor in harmonizing the therapeutic practice of the Western hemisphere.

Therapeutic Successes.-Those who are discouraged with regard to therapeutics should remember some of the facts and statistics of present-day treatment- Formerly seventy-five percent, of patients attacked by laryngeal diphtheria, died. Now between serum and intubation, or both, seventy-five per cent, recover. The former death rate from typhoid fever in hospital treatment was eighteen per cent. Now the mortality is not more than two per cent., under the use of intestinal antiseptics. As the result of the use of quinine, ninety-five ner cent, of the patients suffering from amoebic dysentery recover, though formerly this was a very fatal and persistent disease. acute infections pneumonia the mortality should not be more than five per cent. But few instacces of the enormous progress which therapeutics has made, need be cit-Those whose practice is guided by the methods, and who make use of the agencies of modern Therapeutics, are conversant with the brilliancy of the crowning triumphs of modern medicine.

679, Madison Avenue,

New York City.

Dec. 17, 1904.

## LA UNCINARIASIS.

Palida mors oequo pulsat pede, pauperum tabernas, Regunque turres.

HORATIUS.

## (DEFINICIÓN).

Este azote que diezma de una manera calamitosa los habitantes de la zona tropical y que tan estrechamente se relaciona con la anemia tan acentuada en los agricultores de Puerto-Rico y en particular con los trabajadores agrícolas de este País, es una aniquiladora é incidiosa enfermedad, caracterizada por una anemia progresiva, causada por la presencia de un vermes habitante del canal intestinal, generalmente localizado en el duodenum y el jejunum.

Este parásito pertenece á la familia de los nematodes y se le conoce con el nombre de UNCINARIA DUODENALIS.

En las Indias Occidentales emplean el término ANKY-LOSTOMUN DUODENALE para designar la causa patogenica de la enfermedad, al paso que ésta tiene una nomenclatura en extremo múltiple y curiosa.

CAQUEXIA AGUESE ó MALCOEUR, mal de estómago de los negros.

En Colombia los naturales usan de una expresión un tanto generalizada en el país: esta es TUN-TUN y llaman TUNIENTOS á los enfermos afectados de ella.

En Puerto-Rico se emplea un provincialismo JIPATO, adjetivo mortificante para el infeliz paciente.

En Brazil la nombran OPILACO y CANCACO.

En Europa, la frase "Anemia del minero" o "enfermedad del tunel," deja facilmente entrever que esta última calificación es una alusión á la terrible epidemia que ocurrió entre los trabajadores del tunel de San Gothardo.

En Ceylan la "ANEMIA DE LOS COOLIS" es la misma afección que en Assan llaman "KALA-AZAR,"

En término ANKYLOSTOMUM DUODENALE ha ido desechándose un tanto: la nomenclatura moderna emplea hoy generalmente los nombres de UNCINARIASIS y UNCINARIA DUODENALE para la afección y la causa respectivamente.

El enorme contingente que anualmente desaparece por ella evaporado, true consigo un problema grave y dificil ante la medicina, ante la higiene pública y ante la Sociedad en general.

Dadas las frecuentes y asoladoras epidemias que se repiten en todas partes del mundo, la extraordinaria mortandad hace pagará la humanidad un rudo tributo.

Difundida por todo el orbe la UNCINARIASIS, representa un verdadero desastre económico social; arrastrando la humanidad hacia la tumba; siendo más mortífera que el mismo cólera asiatico; pues si bien éste arrasa con un pueblo en breves instantes, no vuelve sino como los cometas, á larga fecha, en tanto que la enfermedad de que nos ocupamos puede compararse á la gota de agua tenaz, persistente, constante, que perfora la piedra y empuja á la eternidad á millones de almas de los. 1.500.000.000 que pueblan el globo.

La espantosa mortandad de que es causa la UNCINA-RIASIS pone tan asoladora dolencia en parangon con las tres calamidades que más attigen la especie humana: el hambre, la peste y la guerra.

La UNCINARIASIS reduce la capacidad del trabajo manual á un tanto por ciento de pérdida en la producción los ménos de un setenta.

Con frecuencia es la ruina de una familia y no pocas veces seffimos la marcada influencia que imprime á una comarca en su condición intelectual, alta y notablemente reducida. El mundo entero es sacrificado por ella.

## CARACTERES DEL PARASITO.

Los norte-americanos denominan estos vermes "BLOOD SUCKING RHABDITIC NEMATODE."

La liembra tiene de 7 á 15 m. m. de longitud por 4 á 5 de ancho. El macho es más corto y más grueso. Ambos tienen la forma cilíndrica. Generalmente su color es blanco cuando se le ve vivos; gris cuando muertas y rojo oscuro si están llenos de sangre, inmediatamente despues de ser desprendidos de la mucosa intestinal.

Son más anchos en la parte posterior. El cuerpo termina de un cuello delgado que remata en punta, la cual está armada de una sobresaliente y fuerte capsula en la boca. Cuatro garras en forma de ganchos presentan en la línea ventral y dos dientes cónicos en los lados de la línea dorsal, que hacen la extremidad de dicho órgano tan notable.

La extremidad opuesta es puntiaguda, en forma cónica y se le denomina cola. La del macho difiere un tanto de la de la hembra: el primero tiene en ella una BURSA ó cóbulo semejante á la figura de un paraguas y deja ver en él proyecciones como costillas.

Dos largas y delicadas espículas se vé que proyectan de la cloaca que se abre al fondo de la bursa.

La cola de la hembra termina en una especie de espina delicada. En la superficie ventral el orificio de la vagina esta al comenzar del tercio posterior del cuerpo y la apertura anal es sub-terminal.

La posición relativa de los organos sensuales hacen que veamos los gusanos en el acto de la conjunción y en forma semejante á la letra Y griega.

Por medio de estos organos se adhiere fuertemente á la mucosa intestinal, v al desprenderse deja una herida en el pequaño intestino al libar la sangre, que es su alimentación predilecta y la cual obtiene en abundante cantidad á expensas de su víctima. Se supone que con frecuencia cambia de lugar. El pinchazo que infiere al intestino vierte sangre, y al abandonar la pequeña picadura, la extraída pasa al través de su diminuto canal digestivo sin alterar la constitución del glóbulo rojo que logra salir intacto. El plasma parece ser su alimento predilecto y la única por ción de la sangre que aprovecha para su sostenimiento.

Estos parásitos son en extremo fecundos. Se calcula que 300 hembras dan 1.000.900 de huevecillos al día. Diseminados en los terrenos se convierten en larvas infecciosas.

Estos huevos, al ser expulsados con las materias fecaloides se desarrollan facilmente lo mismo en las aguas pantanosas que en los terrenos.

Cuando los huevos han abierto, dice Mandurnez de Valenciennes, las larvas no pueden desarrollarse sino á una temperatura considerable que varia entre 18º y 35º que es precisamente la temperatura de las minas. Así se explica que ataque con tanta frecuencia á los mineros y especialmente á los individuos de los países cálidos.

El embrión, dentro del organismo humano, se desarrolla con lentitud; más fuera de él y en condiciones propicias es prodigioso y rápido su desenvolvimiento.

Los huevecillos se encuentran mezclados con las feces.

El procedimiento en el exámen microscópico es sumamente sencillo.

En el laboratorio bacteriológica del Hospital Militar de Ponce, que dirige el Doctor Bailey H. Ashford, laborioso é infantigable investigador á quien mucho deben las ciencias médicas en estos estudios, empleábamos el siguiente método:

Una pequeña cantidad de la materia sospechosa se coloca entre los dos vidrios (slides) y apretando uno contra
otro, aparece como una película. Los vidrios se mantienen
unidos por medio de unas bandas de goma elástica que los
comprimen, apretando el uno sobre el otro y de esta suerte
queda sometido al escrutinio del microscopio. En cada
película se ve por lo general 3 ó 4 ú 8 huevecillós. El examen conviene efectuarlo despues de algunas horas de tener en reposo lo materia sospechosa porque de otra suerte
desaparece el caracter distintivo del huevo que se empolla
con el embrion. Las OVAS se ven transparentes y claras.
Son de un color gris claro, con pequeños espacios entre los
segmentos y de una concha fina dificil de ver.

Ditieren de las otras váriedades porque se tiñen de bilis. Los huevecillos miden de 55 á 65 m. m. de largo por unos 32 á 40 de ancho. La concha es lisa, manchada de un color grisaceo. Las celdas se distinguen con almidon, usando la solución Lugol. La proporción del macho á la hembra es de 1 á 3.

#### ETIOLOGIA

La producción de huevecillos es enorme.

Con las defecaciones infinidad de ellos son expulsados y si bien el embrion se retarda en crecer en su alojamiento habitual el duodeno, fuera del cuerpo y en circunstancias favorables evoluciona con notable facilidad.

No obstante su pequeñez, es muy activo voráz, al extremo de destruir cualquiera materia orgánica que encuentre y adquiere proporciones notables en corto tiempo.

En el estado de larva ú oruga, cesa su crecimiento. De tal modo, puede permanecer por espacio de algunas semanas, moviéndose con mayor ó menor languidez en las aguas de charcas pantanosas, así como en las tierras fangosas etc., de donde brota la fuente que esparce la infección al hombre, que contamina por efecto del trabajo manual que efectua al pie de estos parajes cundidos del mal.

Los trabajadores agrícolas de esta suerte adquieren notoria facilidad la UNCINARIASIS.

El contagio se efectua ya por la contaminación de los útiles de labranza, ya por las manos, los alimentos, que así quedan expuestos á la acción directa de las larvas y de ahí al organismo.

Al penetrar el gusanillo en la morada humana muda otra vez y adquiere caracter sexual y forma permanente.

La longevidad del huesped es de unos tres años. Son heterogeneos y pueden vivir y desarrollarse sexualmente fuera del ser humano

Cualquier ocupación ú oficio que exponga al hombre en contacto directo con las tierras infestadas, dá márgen á tan calamitosa dolencia.

La "anemia de los mineros" es debida en la inmensa mayoría de los casos á la UNCINARIA; no obstante: la epidemia ocurrida entre los trabajadores del Túnel de San Gothardo parece fué producida por el RHABDITIS STERCORALIS ó anguilla intestinal.

La anemia de los fogoneros de los pañoles de carbon es producida por estos nematodes.

Hoy es imposible saber de que manera se importó en Anzin, donde ha ocurrido infinidad de casos.

C. W, SLILES la considera como la más mortífera y ruinosa.

Hayman Thornhill, declara que es peor que el cólera.

E. E. Candle dice que las prisiones de la India están llenas de tan aterradora enfermedad.

Sousino la agrupa con la FILARIA y la bilharzia, y la considera entre los azotes de la humanidad, como uno de los más terribles.

Agnoli dice que en el Amazon es la causa más frecuente de las funciones.

GILES asegura que el parásito es responsable de la formidable mortalidad que hay en la India.

Dobson la conceptúa camo una plaga desoladora.

Mc Canathy la compara con el "BERT-BERL"

Leichtemstem, el eminente aleman, cree que la raza blanca es más propicia á ser atacada que la negra.

Peroncito fué el primero en clasificarla entre el grupo de las enfermedades infecciosas.

Dubini se preocupó tanto de ella que no descansó has, ta encontrar la causa, Fué el primero en descubrir el parásito.

BORAH la conceptúa desvastadora y ruinosa para los cosecheros de té en Ceylan.

- W. W. KING aportó á la literatura del asunto brillantes deducciones bacteriologicas.
- O. BAKER dice que el gusano se retira de los sujetos débiles como las ratas se mudan de las casas vacias.

LUTZ fué el primera en insistir sobre el tratamiento eficaz del TIMOL.

Ashford, fué el primero también en llamar la atención de los eminentes profesores americanos, hoy engolfados en otras ramas, sobre infinidad de brillantes puntos, tanto en la literatura del asunto como en la clínica demostrada.

La Europa entera se preocupa con esta afección. En los Estados Unidos se haceu grandes esfuerzos para luchar contra ella.

En Africa la UNCINARIASIS diezma las regiones del Egipto.

En Assan, las indios que huyen hacia la montana que riendo escapar á las furias del paludismo, son víctimas de esta azarosa enfermedad.

En todo Ceylan hay más de un 75% de habitantes que sufren de ella. Allí causa más muerte que el mismo cólera.

En Inglaterra en las minas de Cornirsh y Dolcoath han ocurrido varias epidemias de forma alarmante.

En Francia han sido estas frecuentes y fatales. Lean . se sino, la ocurrida en Chemnity.

Bélgica también ha pagado su tributo.

Alemania ha sido cruelmente azotada.

Las epidemias de las minas y las fábricas de ladrillos han sido terribles.

En Austria-Hungría las epidemias más aterradoras han ocurrido entre los que hablan el Czech.

En Japon, como en Rusia, en España como en Italia ha hecho también sentir sus estragos.

Los italianos y los polacos son los que la han difundipor toda Europa.

Prevalece en las Indias Occidentales tanto como en las de Oriente. En Australia é Islas del Pacífico ha hecho también su aparición.

En el Brazil más del 40% de los habitantes están infestados.

En Cuba se la confundía al principio con la anemia per niciosa, y en la actualidad causa tantas defunciones como en Puerto-Rico. 6 más.

En Estados Unidos, sobre todo, en Georgia, Alhabama y Florida, no ha dejado de hacer sentir sus efectos. Lo mismo pudiera decirse de la América Central y la del Sur.

En Puerto-Rico sucumben más de diez mil almas anualmente, que cubren con un manto fúnebre toda esta porción de tierra americana.

Aquí la carencia de un sistema de drenaje y la falta de higiene, sobre todo en la zona rural, motivos son que explican la rápida y progresiva difusión de la infección.

Las deposiciones por efecto del abandono en que viven nuestros sencillos campesinos, cuyas casas carecen de letrina, difunden los gérmenes del mal sobre la superficie del terreno, y de esta suerte cunde la infección.

La humedad, el uso de las ropas sucias, el mantener las casas mugrientas de lodo, verdaderos estercoleros humanos, son causas esencialmente determinantes del sostenimiento de la infección.

Que la ocupación juega un importante papel en la producción del mal, no cabe duda: lo confirma la naturaleza de

la dolencia. Las clases pobres son con frecuencia más mortificadas que las acomodadas. En el Brazil, las tierras en que se cultivan el arroz, el café y los cereales, son las más adaptables á la evolución y crecimiento de la UNCINARIASIS.

La razón estriba en que precisamente hay en estos parajes aire, sombra y humedad, tres factores que en Puerto-Rico también son muy dignos de tenerse en cuenta.

Las feces no deben diseminarse en los terrenos de aquí la importancia de hacer construír las letrinas.

Las lluvias tan frecuentes en este país, se encargan de diseminar las larvas, ya que el agua por sí no es un transmitor directo del germen al hombre, tanto como lo son en realidad los comestibles. Las manos de los trahajadores agrícolas no solo llevan la infección á sus propios organismos sino que contagian cuanto tocan y de esta suerte hacen la propagación más rápida.

Los vegetales escasamente lavados al prepararse para los gastos de la vida, así como la perniciosa costumbre de comer con las manos sucias, causas son de tanta desolación y desventura tanta.

Los huevos de los ankylostomas son espulsados en cantidades asombrosas al extremo de que en un insignificante pedacito de tierra se han encontrado más de 50 larvas, las cuales al caer, sí encuentran aire, adecuada temperatura y abundante sombra, en tan excelente cultura media evolucionan "at pleasure."

Las larvas necesitan del aire para su desarrollo.

De aquí la preponderancia que el mal vá tomando en Puerto-Rico, en donde la uncinariasis ha tomado carta de naturaleza de modo fuertemente arraigado.

Y lo más desolador es el dorso de la cuestión, si tenermos en consideración que sólo una escasa parte que no lle

ga ni con mucho á la tercera, las viviendas aunque frescas y alegres no tienen en este país letrinas, las nocas que existen son aún más perniciosas que si no las hubiere y el número de inodoros que en toda la Isla hay montados son tan pocos que pueden fácilmente contarse.

Con tan deficientes condiciones de salubridad, hay que sostener una lucha titánica, cuando por-ende solo 400.000 almas beben agua filtrada el resto á completar los 953,243 que forma el tutal de nuestra última estadística vital beben agua fangosa. ¡Perspectiva en verdad desconsoladora! Atrocidad del Cielo!

Estas causas intrínsecas (Corresponden también á las extrínsecas ó externas) en tanto que por la perniciosa costumbre de andar descalzos, las puertas de infección que, den de par en par abiertas.

Casos no faltan en los cuales las larvas han penetrado por la piel y han determinado úlceras en extremo rebeldes á todo tratamiento.

Las larvas pueden al penetrar la piel ser arrastradas, por el torrente circulatorio, alcanzar la vena porta y de allí llegar al intestino, su alojamiento preferente.

Generalmente la larva se introduce por el tuvo digestivo, pero se admite que puede también entrar por la piel en los fabricantes de ladrillos, tejas, etc., penetrando entonces por los folículos pilosos y por las desgarraduras de la piel todavía pueden las larvas encerrarse en una vaina puntia, guda y penetrar de este modo con más facilidad en el organismo.

En el lodo y en las aguas sucias ó estancadas se mueven las larvas lánguidamente y pueden vivir allí por espacio de semanas y aún meses. De esta suerte se comprende como pueden tan fácilmente infectarse los utensílios y las manos de los agricultores etc. Los Geofagos depositan en abundancia grandes masas de larvas.

La acción directa de los rayos del Sol destruye la vitalidad de los vermes, tanto como una temperatura de 140. F., al paso que se mantienen en vigor sobre la superficie de la tierra. Debajo de la capa superficial de terreno sucumben pronto.

Hay la errónea creencia profundamente arraigada en la conciencia pública, sobre todo en Puerto-Rico que la causa esencial determinante de la anemia, obedece á la mala alimentación que trae consigo la miseria.

Tal fundamento se basa, en que además de la estrechez en que viven los desheredados de la fortuna, víctimas del pauperismo más acentuado, tienen que dormir soportando todas las vicisitudes de la intemperie.

Y no faltan quienes aducen razones al parecer incuestionables de que las recias penalidades y fatigas á que por efecto del desvalimiento en que se encuentran sometidas las clases menesterosas, viven en una atmósfera pobre de aire puro y escasa la ración alimenticia al extremo de que el torrente circulario se vea privado del material rico en sustancia proteida y agregan además que la pérdida de color que se desprende por irradiación del organismo durante las noches húmedas y frías de nuestra zona, al dormir sin más cubierta que la túnica azul del Cielo, ni más reclinatorio que la tierra, sean precisamente causas engendradoras del mal.

Cierto es que estas transgresiones en la higiene imprimen deterioros graves en el hombre, sobre todo si pernocta en parajes húmedos por cuanto predispone el organismo al decaimiento, reduciendo el vigor y la fuerza de resistencia vital enormemente deprimidas, pero nunca como cau sa esencial como generalmente se cree.

Mas ¿por qué no pasa lo mismo en Europa? ¿Es que

en aquellos climas los cambios que animan el funcionamiento son más bien progresivos que descendentes?

Aquellos semblantes en verdad no pueden compararse con el tinte pálido, ceroso y bronceado del nuestro.

Parecemos una legión de enfermos al pie de tan rosa dos rostros.

Y es que el hombre, también, no nace, crece, se produce de la misma manera en todos los países.

Nuestro clima de por sí enervante, nos predispone por nuestras tendencias, nacidas también de nuestro medio ambiente, á amar todo lo que ha de restar vitalidad á nuestro cuerpo.

Y así nuestros vicios, costumbres y modalidades de vivir influyen en nuestra decadencia orgánica, en nuestro pauperismo fisiológico, pero nunca actúan estas causas co. mo agentes determinantes de la anemia.

El fósforo que ganamos durante el día se pierde es verdad durante la noche, pues el medio ambiente, la impresión que caldea nuestro sistema, le impulsan al sensualismo, y nos hace gozar cuanto infunde pavor y de ahí nace la necesidad de sentir y sentir con fuerza.

De ahí el tabaco, el café, los licores, la diosa Venus etcétera, etcétera.

No obstante, ¿por qué en aquellas ciudades Europeas, donde si bien la abundancia de grandes capitales, tiene su asiento también la miseria es más grande y el pauperismo más; mucho más acentuado en intensidad, y no ocurre lo propio?

¿No hay allá mayor miseria?

¿No es eu aquel clima más intenso el frío? No es más extremoso el calor? No son más fuertes las impresiones de calor á frío y vice versa?

¿No es allí la lucha por la existencia más tenáz, más ruda, más batalladora? ¿No es mayor el trabajo intelectual dentro del menor descanso corporal, en el más inferior desenvolvimiento?

¿Y no decimos que el hombre es superior cuanto mayores sean sus diferenciaciones extremas?

Tengase en cuenta en aquel ambiente, el polvo durante el día, los ruidos durante la noche, y que sin sol, sin luz, sin aire, sin sosiego, la salud sufre profundos desequilibrios, y dacaso la anemia caracteriza el tipo natural de sus regiones?

En los Estados Unidos, las clases proletárias sufren más las privaciones que trae consigo la miseria, y no obstante los trabajos, fatigas y penalidades que sufren, es un pueblo de hombres atléticos, vigorosos, en extremo saludables.

La falta de alimentos no puede ser más deficiente y en el Africa Central, en donde la carne se come raramente y en donde el obligado y el concertante de la ración alimenticia es casi exclusivamente compuesta de yerbas y plantas tuberculosas y quierase mejor modelo de hombres robustos y sanos que aquellos?

Además, aquí mismo, podemos afirmar que no es una enfermedad totalmente esparcida por todos los ámbitos del país. Ahí están una infinidad de Pueblos en donde por rareza ocurre.

Y ya sean pueblos situados en parajes montañosos, ya en zonas de tierra baja y lo mismo puede decirse respecto á situación de ellos con relación al mar.

En algunas playas las defunciones son alarmantes, mientras que en otras apenas si es conocida la afeción. Y no obstante nuestra situación económica es la misma de extremo á extremo en toda la Isla.

Esta limitación geográfica natural, indica además que si fuese sola la mala nutrición el factor principal determinante de la UNCINARIASIS, deberia ésta extenderse por igual en todo Puerto-Rico en donde la situación económica en toda la Isla no puede ser más aflictiva y en un promedio de tierra que solo cuenta 30 leguas de largo por 12 de ancho.

Si bien es verdad que más de 1000 campesinos mueren mensualmente, creemos que con un poco de aseo, profilaxia y un pequeño interés por parte del Gobierno Sani, tario, puede aminorarse el tanto por ciento de víctimas y lograr que desaparezca totalmente tan terrible azote.

Si los hombres más robustos y sanos se colocasen bajo las mismas condiciones de infección en que viven estos labradores no tardarían en un lapsus de tiempo relativamente corto en convertirse aun los más atletas, en debiles y edematosos "JIPATOS."

# PATOLOGIA.

Las víctimas de la UNCINARIASIS, no demuestran el deterioro del organismo como á primera vista pudiera creerse sino que se mantienen en un plano aparentemente sano, cuya robuztes poco á poco va tomando los caracteres de una edema que se extiende después por todo el cuerpo.

El derrame y la anemia no tarde en manifestarse. Las cavidades serosas son las que se infiltran primero.

Los trastornos mórbidos se inician tan luego la sangre ha perdido su normalidad.

El corazón sufre profundas medificaciones anatomopatológicas, se dilata y pierde su dureza y consistencia fisiológica, sus tejidos musculares se degeneran y estos cambios tróficos se reflejan de igual modo sobre el hígado y los riñones.

De las degeneraciones la grasosa es la forma más corriente.

La sangre que baña estos tejidos trae consigo si viene pobre en hemoglobina trastornos naturalmente que coinciden con la pobreza de la hemoglobina propia del músculo.

El hígado amenudo es asiento de una degeneración grasosa, como el bazo y el riñón; éste último órgano se encuentra con más frecuencia interesado por efecto de la función eliminadora de la toxina tomando un caracter crónico la variedad intersticial de la lesión

En los casos severos de infección una ANEMIA profunda deja cierta dilatación cardiaca y por ende la consecuente debilidad ó adelgazamiento de las paredes del corazón.

Examinado el hígado microscópicamente Daniels ha encontrado tanto en este órgano como en los riñones dentro de las celulas parenquimatosas granos de un color amarilloso, cuyo pigmento contiene haematoidin, indicando destrucción de sangre intravascular tal como se vé en los casos de anemia perniciosa y los estados morbosos en los que la hemolysis es el caracter distintivo peculiar de su patogenia.

Estos estados anémicos en parte se traducen por la destrucción de la sangre dentro de los vasos, por efecto de una sustancia toxíca producida por los nematodes.

El Doctor Beaven Lake cree que la anemia es la consecuencia de la abstracción sanguinea que efectua el parasito y que el hierro hepático no es normal.

Examinados los cadáveres á poco después del fallecimiento se le encontraron los nematodes alojados en el intestino y perfectamente adheridos á la mucosa del duodenum, jejunum é ileum mientras que si este examen se efectua algunas horas después de la muerte, se verán los vermes totalmente desprendidos de la mucosa intestinal, la cual nos dejará ver pequeños orificios brotado ligerasn

exudaciones sanguinolentas, indicando el sitio de implantación del parásito mientras estuvo adherido.

Más de 500 diminutas heridas se han encontrado en algunos casos en la mucosa intestinal.

El púlmón es asiento de una congestión hipostática sobre todo éuando la muerte ocurre á causa de una anemía específica abandonada precedida de la inflamación intersticial del corazón, ascites, edema de la cara y extremidades inferiores, y la anemia celebral. En estos casos no faltan las enfermedades cardiacas, cancer, hepatitis, acoria, tuberculosis, y tantos y tantos desórdenes y cambios atróficos cuantas lesiones orgánicas acarreen la negligencia de una intervención terapeútica eficaz á tiempo.

Vemos pues que las lesiones anatomo-patológicas se reducen á los fenómenos locales en el intestino, como equímosis, hemorragias mucosas y sub-mucosas, catarros crónicos intestinales, atrofias y cambios tróficos de caracter que señalan más bien una degeneración grasosa, y por último tras éstas apariencias desnutritivas, la alteración hematológica con el sequito de la dilatación cardiaca.

Durante los dos ó tres meses que duró nuestras pesquizas que empleamos en conjunción con el doctor Ashford en el Laboratorio Bacteriológico del Hospital Militar de Ponce, tomamos las siguientes notas.

He aquí los resultados importantes y de interes por más de un concepto á los cuales hemos llegado.

La relación normal de las cuatro variedades de glóbulos sanguíneos es como sigue:

| Poliformos mucleados | 60 á 72  | %           |
|----------------------|----------|-------------|
| Linfocitos grandes   | 6 á 8    | %           |
| Linfositos pequeños  | 20 á 30  | %           |
| Eosinófilos          | 1 á 4    | %           |
| Hemoglobina          | 30 á 50  | %           |
| Glóbulos rojos10     | .000.000 | á 3000.000. |

En Europa las cifras normales dan el siguiente resultado:

| Glóbulos rojos por m. m. e. | 5.073.880 |
|-----------------------------|-----------|
| Hemoglobina                 | 82. %     |
| Polinucleados               | 73.%      |
| Mononucleados               | 2 á 4 %   |
| Linfocitos                  | 20 á 12 % |
| Eosinofilos                 | 3 á 14 %  |

Basta lanzar una mirada sobre la fórmula que precede para darse cuenta de la notable desproporción existente entre ambos caracteres fisiológicos.

Los exámenes hematológicos acusan las desproporciones siguientes en los efectos de UNCINARIASIS.

La hemoglobina nos revela el hematómetro reducida á un tipo verdaderamente desconsolador, en casos severos hemos encontrado la cifra acusando solo un 7 por %.

Y los glóbulos rojos que contamos en estado normal de un millón á tres millones por m. m. C., los vimos reducidos á la mitad en el HEMATINOMETRO.

Las alteraciones de relación en los demás glóbulos es camo sigue: los eosinofilos en grave cantidad aumentados, al paso que los polimorfos nucleados notablemente se vieron reducidos en número.

Los primeros casos encontramos enormemente tan subida la cantidad que contamos hasta un 66 por %.

El tanto por ciento de hemoglobina y la relación de los eosinofilos son los puntos más perentorios y los que han de llamar más nuestra atención.

La disminución de la cantidad normal de la hemoglohina indudablemente es debida á la acción de la toxina, esta toxinemia no solo destruye la materia colorante sino, que ejerce igual influencia sobre el poder oxigenante de la sangre. En estos casos, la anemia es debida á la toxina hemontica específica, elaborada por el parásito y á la abstracción de sangre que directamente ejercen los vermes.

Poderosas razones tenemos para acudir en favor de que la anemia producida por la UNCINARIA DUODENA-LIS se debe más que á la directa abstración de la sangre ejercida por el parásito á la acción toxica hemolítica especifica que elaboran los vermes.

Esta toxina se ha encontrado en la orina, de personas afectas de UNCINARIASIS.

Los cambios rápidos en el mejoramiento de los fenómenos nerviosos después de la expulsión de nematodes, la relativa inmunidad que algunas gentes de la raza de color gozan en parangón con la suceptibilidad de otros individuos y por último la eosinofilia causada por la triquinosis, filariasis y otras afecciones parasitorias, cuyos vermes son precisamente nematodos también son fenómenos que se observan independientemente de la anemia causada por una hemorragia profusa ó por otras formas de sustracción sanguínea, nefritis etc. etc.

La UNCINARIASIS, siempre trae consigo tarde temprano la eosinofilia.

En la forma crónica, ó en aquellos casos en que la anemia ha sido profunda la eosinofilia toma con más facilidad el tipo alto que el bajo. La causa se explica por la mala nutrición de la sustancia medular del hueso.

En estos casos crónicos y en aquellos estados que siguen en postrimería de la enfermedad tras un tratamiento eficiente si la eosinofilia se presenta en forma abundante, es un signo de pronóstico excelente. Se deberá necesariamente á la mayor actividad regeneratriz de la sustancia medular del hueso.

Si la eosinofilia decreciese de acuerdo con deficiente mejoría en los signos físicos, el resultado inmediato acaso sea la muerte. Distíngase no obstante esta forma de la que aporta consigo el decenso de una cosinofilia que indica la recuperación del equilibrio sanguíneo en el receso á la salud.

Un paulatino alze de la cosinofilia induce á demostrar una convalecencia tardia, fenómeno aparente con más visible insistencia en las personas ancianas cuyos poderes recuperativos son débiles.

Por último, la evolución hacia el estado normal no faltacuando la enfermedad desaparece.

Ashford afirma que en comun con otras anemias secundarias hay policromatilia, poikilocytosis, de un bajo "color index." Que hay nomoblastos y megaloblastos pero al reves de lo que ocurre en la anemia perniciosa predominan los primeros. No obstante la oposición á este parecer de tales autoridades como Monson Boycolt y Haldane, el joven médico del Ejército Americano aboga que si bien on hay leucositosis en esta dolencia puede presentarse solocoincidiendo y dependiente de otras condiciones, pero no como un síntoma.

#### SINTOMATOLOGIA.

Dolor de cabeza, más ó menos severo que va por lo general acompañano de una sensación de plenitud y dolores intensos en el epigastrio.

El apetito casi siempre está abolido y cuando no pervertido á tal punto que el enfermo apetece á comer para llenarse: lo que necesita es sentirse repleto el estómago.

El conjunto morboso, trae á veces consigo, el repugnante vicio de comer tierra, ceniza y carbon, depravación más frecuente en los enfermos de tierna infancia.

Estos Geofagos como es natural sufren todos los errores de la dilatación gastrica, meteorismo, etc.

En un caso que tuvimos que hacer la autopsia á un cam-

pesino de Santa Isabel encontramos tal grado de dilatación gastrica que para depositar la materia excrementicia fueron menester grandes valdes.

Tales fueron los sufrimientos de aquel infeliz que al fin tomó la desesperada resolución de suicidarse.

Entre los síntomas del aparato digestivo no faltan aquellos propios de las dispepsias, así como las úlceras gástricas, tan frecuentes sobre todo en el sexo contrario.

La piel adquiere un tinte semejante ál de los que sufren el mal de "BRIGHT", la cara toma una expresión de apatía y la ascites y el edema de las piernas completan el cuadro sui géneris y tatal que ata estos desgraciados á la muerte.

La aparición de la anemia va con frecuencia precedida de una erupción especial designada con el nombre de USA. GRE y de un catarro más ó menos reflejado en el tubo digestivo. Generalmente va precedida de la diarrea.

Los fenómenos de la intoxicación, imprimen á la fisonomía de estos atacados una soñolencia y marasmo, esa lasitud general tan en contraste con el caracter alegre de nuestros sencillos pera inteligentes y perspicaces campesipos.

La erupción sobre todo en las piernas adquiere un aspecto pustular, demostrando esto la habilidad que el gu sanillo tiene al entrar al organismo por las piernas.

Las úlceras en las extremidades casi nunca faltan y tan rebeldes que aun impera la creencia en los médicos que éstas son de carácter sífilítico.

El aparato circulatorio presenta profundos trastornos. Hay fatiga, palpitación del corazón, dispepsia, mareos TINNITUS AURIUM, vértigo, ruidos sistólicos por encima de las válvulas mitrales y pulmonares, con la dilatación cardiaca.

Estos soplos anémicos, van acompañados del ruido venoso, la palpitación de las jugulares y el "BRUIT DU DIABLE."

Las palpitaciones del corazón STATUS PROECOR-DIS y opresión en el pecho deprimen fuertemente sus espíritus.

En cuanto al aparato respiratorio concierne, generalmente no está afectado excepto trasformas secundarias que traen consigo las lesiones orgánicas del corazón, tales como emfisema, congestión hipostática, broncorreas etc.

## SISTEMA NERVIOSO.

No obstante el caracter festivo y alegre de nuestros "jibaros" se vuelven apáticos y taciturnos, efecto de la intoxicación cuyo letargo obedece á la pérdida del poder oxigenante de la sangre.

Los trastornos nerviosos con frecuencia toman un curso más serio y las neurosis de estas pobres víctimas toman la forma de melancolía ó la neurastenia hipocondriaca.

He aquí también la falta de ambición é iniciativa que tan indolente condición acarrea.

El dolor de cabeza, los zumbidos en los oídos, los mareos, los vértigos y las neuralgias completan el horroroso cuadro.

En los casos más leves, la parestesia, el hormigueo en los pies y las manos les molesta engorrosamento.

El dolor de rodillas y los desórdenes de la visión son de caracter nervioso.

En el sexo femenino, la función propia de las damas es irregular y las perturbaciones sugestivas van acompañadas de estenuación, vértigos, estreñimiento habitual y la dismenorrea consecutiva va acompañada por lo general de hemorragias desviadas de la nariz. Las exoneraciones ventrales irregulares, la amenorrea y la leucorrea.

La muerte corta sus vidas á una edad temprana. Generalmente sucumben de las afecciones que con tanta frecuencia se asocian, esto es, al mal de "BRIGHT", la cirrosis hepática, la tuberculosis, y las degeneraciones grasosas del corazón, hígado, etc. etc., y la congestión hipostática de los pulmones.

Las úlceras del estómago, la acolia y las neuroses, arrastran á la tumba prematuramente, dentro de los crueles sufrimientos á tan infelices como desgraciadas víctimas.

## TRATAMIENTO.

Consiste primero en la expulsión de los vermes y segundo en levantar la depresión del organismo regenerando la sangre y atendiendo las complicaciones.

De todos los agentes terapeuticos el timol aunque es el más peligroso, es el que ha dado mejores resultados. El peligro precisamente estriba en la absorción del medicamento, pero no es el fin terapéutico del timol sino al contrario evitar la absorción. Al efecto con objeto de evitar este incidente, es preciso evacuar el estómago, prescribiendo una buena dosis de sulfato de magnesia la noche antes.

Como el timol es soluble en las grasas, conviene aconsejar al paciente no tome leche, caldo, ó sustancia alguna grasosa.

El tratamiento de Lutz modificado por Asford consiste en administrar después del purgante, y mientras aún en cama y en desayuno dos gramos de timol en seis obleas á las siete de la mañana.

La dosis se repite á las 8 y á las 11, es decir tres horas después, se administra otro purgante como el primero.

Mientras permanece el timol en el tubo digestivo, siempre en decubito el enfermo, debe tenerse en cuenta la solubilidad del medicamento en el medio grasoso ó en las bebidas alcoholicas.

El objeto del segundo purgante estriba en evacuar el canal intestinal del timol, cuya acción no solo es eficaz en la expulsión de los vermes sino que actúa como antidoto fisiológico. En obleas se evitan los peligros que acarrea la administración del timol en solución, suspensión ó en polvo.

En los niños y ancianos ó personas débiles reduzcase la dosis á la mitad.

A la una de la tarde aliméntese al enfermo.

Este tratamiento debe repetirse cada 8 ó 10 días, hasta que la mejoría se inicie con el aumento de la hemoglobina.

Generalmento repitiendo el tratamiento tres ó cuatro veces los resultados son altamente satisfactorios.

En cuanto al azote que hay que imprimir al organismo para restaurarlo al vigor normal, los ferruginosos reconstituyentes más eficaces son las preparaciones de hierro cuyo gran servicio consiste en rehabilitar la pérdida de la hemoglobina.

El peptonato de hierro, presta en estos casos grandes servicios.

Como estimulante de la circulación, digital estricnina, estrofantus, cloruro de adrenalina. Esta última reduce el edema comprime los linfaticos y tonifica el corazón.

La estricuina es un medicamento irresponsable sobre todo cuando se trata de fortalecer los neurastenicos.

La digital se sustituye generalmente en Puerto-Rico por la esparteina.

La elaterina por la abundante dinresis que produce descargando el organismo de los líquidos extravesados tiene una indicación soberana en el edema de la anasarca y ascites. El arsénico y las preparaciones de su simil, el orgánico ni éste ni sus múltiples derivativos han dado resultado práctico alguno.

La dieta debe ser rica sobre todo en albumina.

#### PROFILAXIS.

El parásito en su medio natural ya hemos visto como se mantiene en la bumedad, en el calor y en la sombra.

Lo importante es pues prevenir la esparción del mal. La profilaxis ha de consistir en la aeración que hará bajar la temperatura en las minas y destruirá su parásito. La cal es excelente destructor,

Ya dijimos también que el parásito necesita aire para llegar á su estado de larva, de ahí que en la profilaxia tengamos que insistir en la construcción de letrinas y de este modo habremos evitado la infección de las tierras. Así el embrión queda privado de aire.

Evitar los trabajos en la humedad.

El aseo personal tiene aquí una indicación primordial, pues que con las manos sucias la infección sigue su rumbo y el infectado habrá de contaminar todo lo que toque.

Fíltrese el agua, y lávense los frutos ántes de hacer uso de ellos.

Las ropas sucias, las casas mugrientas y llenas de cieno son condiciones favorables al desenvolvimiento del parásito.

Practicamente nada iguala al efecto del calor y seque dad para destruir esos parásitos.

El fuego ha dado bueños resultados.

STILES nos habla de un sistema de regar petroleo, tal como lo emplea la GYPY MOTH COMMISSION en Massachutts. Y nos indica el "quemador clicon" capaz de limpiar cualquier area infestada.

Constitúyanse letrinas y téngase presente la utilidad de la higiene.

No andar descalzos, é insístase en aconsejar á los campesinos no infectar las tierras con las deposiciones.

Téngase presente que no hay mejor desinfestante ni más económico que el Sol. La acción de los rayos solares sobre todo en la estación calurosa destruye la larva infecciosa.

Destrúyase cuanto sea posible la sombra en las tierras de labranza y recomiéndese quemar la paja y escombros. El fuego sobre la superficie del terreno priva la vida á las grugas.

140. F. son fatales á las larvas y éstas no pueden desarrollarse sino á una temperatura que varia entre 18º y 30º centígrados. Las minas tienen por lo general una temperatura próxima á 25. Precisamente el término medio del calor que las orugas necesitan para su evolución.

Si la UNCINARIASIS es causada por la presencia de los ANKYLOSTOMOS, cabe entonces el epigrafe de Horacio en nuestro trabajo: "La pálida muerte con el mismo pié conculca la cabaña del pordiosero que la mansión de los magnates."

La simpática acogida que la profesión médica ha dispensado á este trabajo, las inmerecidas demostraciones de adhesión que me han tributado, son preciosos auxilios que me animan á creer que tan imperfecta tarea, mal reseñada y pobre en todos conceptos, con todas las imperfecciones que imprime lo humano, será acojida con fraternal benevolencia en el Cuarto Congreso médico Pan-Americano de la República de Panamá, por aquellos compañeros, verdaderos campeones de la ciencia.

Si con mis débiles y escasas fuerzas coadyuvo á los esfuerzos intentados por ellos de excitar tan noblemente los intereses de la ciencia entre los Comprofesores de la America latina en pró de la doliente humanidad, guardo la satisfacción de haber aportado con mi gran deseo, un grano de arena, á la obra, que indefectiblemente habrá de ser coronada por el éxito más brillante dada la nótoria validez y merecimiento del grupo de hombres de ciencia que la forman.

Si con mi trabajo, demuestro que no he rehusado con mi pobre contingente la cordial invitación de mis hermanos profesionales de la vecina y pnjante República de Panamá, mis desvelos y mis esperanzas habrán sobrepujado mas, mucho más allá del logro de mis humildes deseos.

## SHORT AND EASY METHODS

OF ARRIVING AT GOOD RESULTS IN COMMON DISEASES OF THE EAR AND UPPER AIR TRACT, ILLUSTRATED BY RECENT CASES.—BY W. SOHIER BRYANT, M. D., NEW YORK.

AUDITORY DELUSIONS. Miss A, K. Age. 27 Jan. 13, 1904. She complains of voices and sounds. The voices talk about the thoughts that are in her mind. They say bad things about her. She has a slight "chronic middle ear catarrh." I treat her with catheter, Seigel, and nitrate of silver. Jan. 21.—Patient looks well. She does not hear the voices as clearly. The tinnitus is mostly in the right ear. The voices are heard in which ever ear that is down on the pillow at night. March 19.—Hearing slightly improved. The voices have ceased. No recurrence three weeks later.

A very important case, showing the connection between tinnitus and insane delusions. The tinnitus in a psycopathic patient taking the form of voices. Insanity cared in 9 weeks.

Caries of tympanum; radical operation. Miss Mc, C.,

age 24. A year ago she lost a sister, after a radical operation, who had the same aural complications as herself. 14th September, 1904, when I first examined the patients the tympanum had been curetted for otorrhea, some time previous but otorrhea continues and there is a large carious surface on upper and inner wall of tympanum and antrum. Tenderness on pressure over antrum. Temperature 999 Slight, very fetid discharge and perforation. Radical operation. Owing to the anatomical irregularities, the sigmoid sinus impinging against the posterior wall of the auditory canal, with only 1 m. m. of bone intervening, the posterior cranial fossa has to be opened, exposing the greater part of the sigmoid sinus. The carious condition of the tegmen necessitates opening the middle cranial fossa and exposing a considerable area of dura. All diseased tissues are removed. The meatus is split and stitched back into the wound, which is closed and packed from the meatus, leaving only a pencil drain from the exposed dura. Temperature did not rise above 100.59 Drain removed 18th September. Patient went home on the 28th September, with wound healed by first intention. Epidermitization progressed favorably. On october 26th, the tympanum was all covered with skin except at mouth of Eustachian tube. November 11th, the ear was dry and sound. November 25th, watch 9 inches. Patient has gained twelve pounds since the operation. Last seen December 17th, in perfect condition.

Shows satisfactory healing of tympanic cavity in eight weeks without skin grafting more than the plastic with the meatal flap mastoid wound entirely healed in 13 days.

Epidural abscess, operation, rapid recovery. Mr. G. T., age 21. (Patient of Dr. Mithelis, shown at the 1904 meeting of the American Otological Society). Three months ago "grippe" and ear ache. Two monts ago severe

headaches commenced. When I saw him first, had seropurulent non-fetid discharge and not very marked tenderness behind ear. No superficial redness nor swelling. Tympanum filled with sensitive tissue. Marked tenderness over base of mastoid, extending posteriorly. Continuous severe headache. Constant seropurulent dischar-Temperature 1009, pulse \$5. I performed my usual masteid operation, using the front bent gauge, on June 19th. The mastoid cells and the whole process are filled with granulations and are removed. Posteriorly there is an area of bare dura about as big as a silver dollar, covered. With pus and granulations. All the diseased bone is removed. Wound irrigated with saline solution and closed. Dry treatment for the tympanum. Temperature did not rise about 1009 July 4th, tympanum perfectly healed. acoumeter 13 inches. July 10th, wound healed solid. Hearing very good. Patient still continues well.

Shows the advantage of closing a comparatively clean cranial wound for union by first intention, and dry treatment of the tympanum. Tympanum completely healed in fourteen days. Wound healed solid in twenty days.

Severe arral symptoms cured with expectant treatment. Mrs. X. age 32. A daughter of one of the few rich men of New York. Left ear discharged many years. Head symptoms commenced, May, 1903, became violent in the summer and a mastoid operation was done with transient relief. 15th March, 1904, on account of vertigo with epileptiform exacerbations, extreme tenderness in scar and over bone of mastoid and occiput, and swelling and tenderness down the peck. Eleadache, temperature 99? A radical operation was done by Dr. Crockett, of Boston. I assisted and bad subsequent charge of the convalescence. Patient much relieved by operation, wound healed by first intention. Maximum temperature 99? A facial paralysis appeared the day after the operation. 22d. March, mea-

tus and bone behind ear very tender, shooting pains. April, very annoying vertigo, convergent strabismus, more or less constant pain and tenderness behind, below, in ear and down neck, and in right occipital region, and paralysis worse. Cleaning the canal and tympanum seemed to relieve the condition. Exacerbation on the 12th, 23d and May 5th. A third operation was not advised on account of the primonent position of the patient. Pharyngitis was associated with these exacerbations. 20th May, feels difficulty in moving left leg and arm. 16th June, no dizzi-21st June, a relapse, walking difficult, on account of vertigo, tenderness. 24th June, ear discharge increased with relief of symptoms 25th July, ear dry, hearing good, symptoms verý mild. 12th November, tenderness gone. 18th, bad attacks, fluid involved, but ear remains dry and healed, no redness of canal. 14th December, another similar attack. It appears that the submerged tonsil is chiefly to blame for these attacks. The facial paralysis very much improved with strychnin, massage and electricity. Cleaning the tympanum and nitrate of silver to the pharynx rapidly relieved the attacks.

An alarming group of symptoms due partly to the ear and partly to the throat, but apparently without any immediate danger.

Epithelioma of concha. Mr. S., age 60. October 31st, 1903, has an ulceration of the concha as large as a five-cent piece; behind posterior edge of right meatus. The said ear has discharged for six years. No glandular enlargement noted. I removed a specimen for histological examination. It was pronounced epithelioma by Dr. Dixon. 24th March, 1904, ulceration has slightly extended. After three weeks, with four X-ray exposures per week, by Dr. Morton, the ulceration has entirely cicatrized and disappeerd. No recurrence.

This justifies a good prognosis for epithelioma of the anricle before involvement of the glands.

Facial paralysis. Mr. X., age 28-25th Octuber; 1904, left facial paralysis four days standing. Cause not known. The eye can be three-quarters closed, paralysis most marked about mouth. Ear normal. Tenderness below and in front of the ear extends unto mastoid process. Valsal van inflations easy. Hearing slightly defective by air conduction. Left side of pharynx red and somewhat swollen has been painful for two weeks. Pain in the throat in the posterior and inferior mandibular region. Could not eat for pain in ear. Could not shut mouth for a few days. Treatment strychnin and heat; silver applications to the pharynx. Patient improved rapidly. In 10 days could whistle slightly.

Shows an unusually rapid recovery in spite of the neglect of electricity.

ABSENSE OF TYMPANIC CONTENTS FROM ATTIC AND ANTRUM. HEARING IMPROVED DRESSINGS OBSTINATE FETID OTORRHEA. N., age ..... Referred to me by Dr. Joseph A. Kenefick, October, 7th 1904. She has had a running ear for more than five years, and much treatment, including ossiculectomy four years ago. Tympanum is devoid of all structures except stapes. There is scanty, very fetid discharge. The epitympanic space very extensive and filled with decomposing material. I cleanse the ear with H 2 02, alcohol, and boric acid, and nitrate of silver solution. vault and tegmen are extremely sensitive. October, 7th. nearly dry but fetid. October, 29th, clean, damp, but no smell. November, 12th, less tenderness. November, 28th very little tenderness. December, 5th, dry and not sensitive. December, 14th, ear in fine condition. Hearing by watch 3.5 inches; after insertion of cotton tack it is 8 inches, and with paper dressing 9 inches.

Fetid discharge from vault of attic and mastoid anatrum cured in 8 weeks.

FETID OTORRHEA FROM THE ANTRUM THROUGH A SMALL PERFORATION OF VERY LONG DURATION. Mr. T. C. J., merchant. December, 1st, 1903. Scanty, thin, fetid, purulent discharge from left ear, which has lasted for many years in spite of prolonged treatment by others. There is a perforation occupying the upper posterior quadrant, leading up into the antrum. The anterior part of tympanum is shut off by a cicatrix. I syringed the ear with Blake's canula and solutions of boric acid and nitrate of silver. After five treatments on alternate days the ear has ceased discharging and is healed.

December, 1904, hearing.

Patient has gained much strenght.

Constant fetid discharge from mastoid antrum cured in 8 days.

CARIES OF THE MALLEUS AND PERFORATION OF SCHRAPNEL'S MEMBRANE. Capt. D., U. S. A., Referred by Dr. Clarence J. Blake, of Boston, who made the diagnosis of perforation of Schrapnel's membrane with caries of the neck of the mallens. Puru. lent discharge came on in right ear during service in Cuba, 1898. Ear has discharged more or less ever since, in spite of varied treatment. It was much aggravated by recent service in the Philippines. Capt. D's application to the Surgeon General for allowance for special medical treatment being granted, I commenced treatment. February. 27, 1904. I find a perforation in Schrapnel's membrane and a slight amount of muco-purulent discharge. I syringe with boric acid solution, nitrate of silver, and alcohol. On March, 3rd, hears accumeter 5 feet. On March 9th, discharge has ceased. Aconmeter 72 feet. Discharge soon reappeared, but was brought under control once March, 27, acoumeter 15 feet. Again the discharge reappears, and again was stopped. May, 3rd, the ear became permanently dry, and treatment discontinued.

May 17, hearing was 35 feet with accumeter. Patient last seen November 28th. Ear has not bothered him any more.

Purulent discharge throught Schrapnel's membrane lasting for over 6 years permanently stopped after 9½ weeks of treatment.

CHRONIC PURULENT OTITIS MEDIA WITH PINHOLÈ PERFORATION OF MEMBRANE. Mr. K. First seen May 20th, 1904. He has had purulent discharge from right ear for 4 years on account of which he is not now serving in Austrian army. He has had much treatment in Europe. I find fetid muco-purulent discharge oozing through a small pin-hole perforation behind the tip of the malleus-Membrane opaque, slightly red and very thickened. Thick muco-purplent discharge in vault of pharynx. Acoumeter 3 feet. I enlarge the perforation in membrane by a horizontal incision, and treat by syringe of boric acid. nitrate of silver, and alcohol for the ear, alcohol spray for the nose. July, 23rd, hearing, accumeter 15 feet. August, 22nd, hearing, aconmeter 30 feet. Discharge stopped Perforation shows notendency to close up. September, 14th. Patient still in good condition.

A very obstinate purulent inflamation of the tympanum is healed in 132 weeks.

Acute salpingitis and epitympanitis. Miss J. A., age 26, refered by Dr. Van Loan, 18th December, 1904. Has had cold in the head a month. Deafness two weeks. Lost weight pain in left ear and ringing sounds, discomfort in right. Watch left ear 4 inches; after treatment 17 inches hight ear 18 inches, after treatment 48 inches. Left Shrapuel membrane red and bulging. Right ear partly filled with fluid. Catheter and saline sprays. 15th December, no pain nor noise. Right ear watch 96 inches, left ear watch 24 inches.

Rapid recovery of an acute condition in 48 hours. Hearing watch right 4 inches increased to 24 inches, and in left ear from 18 inches to 96 inches.

MECHANICAL ASSISTANCE FOR DEFECTIVE HEARING IN LOSS DUE TO SUPPURATIVE PROCESS CURED BY NASAL TREATMENT. Mr. F. B., age 25 June 15th 1904. Has had purulent ears for many years. Left ear discharging now, right cicatriced. I find hypertrophied lower turbinates and thick muco-purulent discharge. Acoumeter, right ear 2 inches, left ear zero. After inflation, left 2 inches, right 4 inches. I improve the nasal condition with operative and palliative treatment and the ears dry up. July, 3rd, both ears cicatrized. August 14th, with cotton dressing, hearing for right ear, acoumeter 7, left ear 14 inches. August, 31st, without cotton, 4 inches in right ear and 2 inches in left ear. With cotton replaced, hearing 18 inches in the left ear. September 6th, right ear, accumeter 48 inches with cotton; left ear, 2 inches without and 9 with. October, 24th. Right ear, without cotton, 23 inches; left ear 10 inches with paper dressing in ear, 12 inches with cotton dressing. Patient whistles hears well enough for ordinary business purposes.

Otorrhea stopped in 17 days, Hearing brought us from accounter right 5 inches by use of dressings to over 48 inches in 3 weeks. Then without dressing to 28 inches in 10 weeks. From accounter left 0 inches, by use of dressing to 12 inches in 10 weeks.

GRAVE TINNITUS. Mr. J. M., stationer. aged 40 referred to me by Dr. Alfred Michaelis, February, 14th, 1904. Patient neurotic and haggard in appearance. Says he has an unbearable tinnitus in his left ear, preventing sleep and attention to business. Conversation and appearance suggest lack of mental balance. The ear began to run 36 or 37 years ago, the tinnitus began 12 years ago.

In September, 1903, underwent the radical mastoid operation for tinnitus without any effect on the tinnitus. The ear shows a large epidermatize tympanic cavity; no discharge. I tell the patient that it is possible to remove the auditory nerve and thereby stop the tinnitus, but milder measures had better be tried first. Give hygienic suggestions. February 27th, 1904, patient attempted to end his troubles by taking poison. 24th June, general condition improved, sleeps better, has been practically free from tinnitus a few days. December 1904. Hygiene has improved his physical condition and restored his mental balance. He says he is getting used to the tinnitus.

After ten months the patient's mental attitude is much improved.

COMMENCING STAPES FIXATION. Mr. F. L., aged, referred to me by Dr. C. A. Crockett, of Boston, October 21, 1904, with diagnosis of commencing stapes fixation of right ear. The right drum membrane is dark colored and of normal transparency, nasal mucous membrane dark red. Tinnitus, like a sea-shell, crackling and musical notes. I use catheter, iodine vapor instillations, and nitrate of silver to the pharynx. Valsalva does not go. Ear feels and looks much better after treatment. December, 12th. Acoumeter 96 inches. The shell-sound tinnitus remains but is much lower and intermittent. Valsalva posible but slow. Strychnin sulphate 7.60 grains per day.

In  $7\frac{1}{2}$  weeks the stapes fixation has been materially released.

ADHESIVE MIDDLE EAR CATARRH. Mrs. P., referred to me by Dr. Potter, of New York. Age 71. Gouty tendency. 2d December, 1904, Itching of canals, ears feel thick. Nasal mucosa dark red. Accounter, left 27 inches, right 10 feet. Advenal powder, silver nitrate to tubes and lanoline to canal. 14th December, subjective

symptoms stopped. Left ear accumeter 42 inches, right ear, 15 feet.

Rapid improvement of hearing in adhesive prosesses in the aged, from right acommeter 120 inches, left 21 inches, to right acoumeter 180 inches, left 42 inches, in eleven days.

A VERY OBSTINATE CASE OF THE ATROPHIC FORM OF CHRONIC CATARRHAL OTITIS MEDIA WITH DEAFNESS AND TINNITUS. Seen at the New York Eye and Ear Infirmary, February, 4th, 1904. G. G., aged complains of tinnitus, simultaneous or alternating in the ears. High and low bells ringing. she has had the sounds in her right ear for two years and in left ear six. Right drum membrane has a large calcified area in anterior half. Hearing by air conduction very bad in left ear, good in right. Air passes by catheter and Valsalva, best into left tympanum. Fork lateralized in left ear. Nasal mucous membrane dark red and thickened I treat her with the catheter vapor of iodine and amplications of nitrate of silver to the naso-pharynx. Negative results continue for a long time. August, 9th, 1904. Has been better of late, and now hears well. August, 18th, 1904. Tinnitus stopped in right ear, and nasal mucous membrane is slight pink and clean. Finally tinnitus stopped. and hearing very good.

A short relapse in November, easily controled, mucous membrane good color, all right again Dec. 9th.

In 28 weeks the atroppic condition has been overcome. Result entirely satisfactory to the patient.

DEAFNESS DUE TO ADHESIVE PROCESSES AND RELAXATIONS IN THE SOUND CONDUCTING MECHANISM. Mrs. S., a society lady, aged 43, refered to me February 8th, 1901 by Dr. Clarence J. Blake, of Boston, for continuance of treatment he had commenced.

Right ear has a dry perforation which is being treated by paper dressing to induce proper adhesion. Left ear; Drum membrane relaxed, being treated with collodion dressing. The acoumeter heard at a distance of 4 inches by the left and 12 inches by the right ear. I continue the treatment of paper and collodion dressings. On March 22nd, the perforation is healed and the hearing in the right ear is, acoumeter 96 inches and in the left 72 inches, in spite of the patient's being quite exhausted from the season in New York.

In 6 weeks the hearing has improved from accounter 12 inches right and 4 inches left, to 96 inches right and 72 inches left.

SUBACUTE CLOSURE OF EUSTACHIAN TUBE: Mr. H. D. H., architect, age 28. Referred to me by Dr. Joseph Collins, December 1st, 1904. Has had a cold in the head since November 12th. Has had various kinds of treatments four others. He hears, accumeter 14 inches in right and 48 inches in left; after Politzerization, right 54 inches, left 96 inches. I insuffate of powdered suprarenal gland. Apply a solution of nitrate of silver in the red and swollen nasal fossae, and gave a menthol-eucalyptol spray for home use. December 3rd, accumeter left 12 feet, right 8 feet. After Politzerization accumeter heard over 20 feet by each ear. December 8, accumeter in right over 15 feet and watch 3 feet, after Politzerization, watch 6 feet. Dec. 18th. Wacth right 7 feet, left 5 feet. Patient more than satisfied.

In 48 hours the hearing improved from 14 and 48 inches for acoumeter, to over 240 inches per each ear. This improvement increased 50% more on the seventh day treatment.

STRICTURE OF EUSTACHIAN TUBE WITH AD-HESIVE CATARRHAL PROCESSES IN THE TYMPA-NUM. Miss. D., referred to me by Dr.Clarence J. Blake, of Boston. September 10th. 1904. When a child she had a discharge from the right ear, and recently an acute attack of streptococcic infection in the attic.

Nasal mucous membrane is dark red, nose clear, no air enters tympanum by Valsalva. The patient has closure of the right Eustachian tube and occasional tinnitus. I treat her with the catheter. The air enters tympanum with dificulty. Then applications of nitrate of silver in the naso-pharynx, and alkalol spray. After the third treatment she hears watch, left 9 inches, right 5 inches. Air goes into left tympanum by Valsalva. On the 21st of October Valsalva easy; patient feels, much better. No abnormal sensations in ears. Drum membranes look very nearly normal. Watch, right ear 40 inches, left 54 inches. October 28th, no unpleasant symptoms. Patient satisfied to stop treatment.

The stricture was cured in six weeks with releaf of the adhesive condition.

LOSS OF ACUOSTIC BALANCE WITH TREBAL STRICTURE. The Rev. Mr. J., 26 yers old. October 25th, 1904, complains of impaired hearing in left ear. Tuning fork lateralized to the left with much increased boneconduction, slight ringing tinnitus. Valsalva not free. Membrane good color, slightly relaxed. Apply solution of nitrate of silver to the nares. November, 1st, Valsalva easier. On the fifth visit, November 11, hears watch 72 inches in right ear and is well pleased with improvement. Treatment: catheter, strychnia, supra-renal powder, and nitrate of silver. December, 7th, watch 7 feet; fork still lateralized in the left. Apply thin collodion dressing to left ear. Watch heard 10 feet. December 9, watch heard 15 feet by left ear. Valsalva very easy, and ready return. Application of collodion. Hears watch twice as far in left ear as in right. Left ear 30 feet, equivalent to 30-40. Right ear 15 feet, equivalent to 15-10.