



TRANSACTIONS

OF THE

FOURTEENTH ANNUAL MEETING

OF THE

AMERICAN LARYNGOLOGICAL ASSOCIATION

HELD IN THE CITY OF BOSTON

JUNE 20, 21, AND 22

1892

NEW YORK

D. APPLETON AND COMPANY

1893

PRESIDENTS OF THE ASSOCIATION

ELECTED.

- 1879. LOUIS ELSBERG, M. D.
- 1880. J. SOLIS-COHEN, M. D.
- 1881. FREDERICK I. KNIGHT, M. D.
- 1882. GEORGE M. LEFFERTS, M. D.
- 1883. F. H. BOSWORTH, M. D.
- 1884. E. L. SHURLY, M. D.
- 1885. HARRISON ALLEN, M. D.
- 1886. E. FLETCHER INGALS, M. D.
- 1887. R. P. LINCOLN, M. D.
- 1888. E. CARROLL MORGAN, M. D.
- 1889. JOHN N. MACKENZIE, M. D.
- 1890. W. C. GLASGOW, M. D.
- 1891. S. W. LANGMAID, M. D.
- 1892. MORRIS J. ASCH, M. D.

OFFICERS

(ELECTED SEPTEMBER 24, 1891)

PRESIDENT

S. W. LANGMAID, M. D., BOSTON

1st VICE-PRESIDENT

MORRIS J. ASCH, M. D., NEW YORK

2d VICE-PRESIDENT

SAMUEL JOHNSTON, M. D., BALTIMORE

SECRETARY AND TREASURER

CHARLES H. KNIGHT, M. D., 20 WEST THIRTY-FIRST STREET, NEW YORK

LIBRARIAN

THOMAS R. FRENCH, M. D., BROOKLYN

COUNCIL

FREDERICK I. KNIGHT, M. D., BOSTON
D. BRYSON DELAVAN, M. D., NEW YORK
HARRISON ALLEN, M. D., PHILADELPHIA
W. C. GLASGOW, M. D., ST. LOUIS

TABLE OF CONTENTS.

	PAGE
Address of the President	1
<i>Papers :</i>	
I. The Influence of Certain Diathetic Conditions upon the Prognosis in Operations upon the Throat. Dr. DELAVAN	4
II. Some Pathological Conditions of the Upper Air Passages Coincident with Attacks of "La Grippe." Dr. CHAPMAN	13
III. Pharyngo-mycosis. Dr. F. I. KNIGHT	20
IV. A Case of Fibrous Epithelioma at the Root of the Tongue. Dr. WRIGHT	27
V. Cancer of the Tonsil treated by Lactic Acid. Dr. INGALS	30
VI. Report of Some Cases of Membranous Sore Throat. Dr. ROBINSON	33
VII. Intubation for Stenosis of the Larynx in a Boy Twelve Years Old. Retention of Tube for Ten Weeks. Tracheotomy. Death from General Tuberculosis. Dr. C. H. KNIGHT	46
VIII. Rare Forms of Laryngeal Growths. Dr. MACCOY	52
IX. A Case of Tumor of the Larynx. Dr. SWAIN	55
X. Two Cases of Laryngectomy for Adeno-carcinoma of the Larynx. Dr. J. SOLIS-COHEN	60
XI. The Value of Sprays in the Treatment of Catarrhal Affections of the Upper Air Passages. Dr. RICE	66
XII. Nasal Hydrorrhœa. With Illustrative Cases. Dr. BEAN	77
XIII. An Eligible Method of Repairing a Broken Nose. Dr. DALY	80
XIV. The Correction of Deformities of the Nose resulting from Abscess of the Nasal Septum. Dr. ROE	86
XV. The After-results of Nasal Cauterization. Dr. DE BLOIS	94
XVI. Diseases of the Frontal Sinus. Dr. RANKIN	100
XVII. A Case of Suppurating Ethmoiditis. Dr. BRYAN	104
XVIII. A Case of Partial Laryngectomy. Dr. FARLOW	111
XIX. A New Method of administering Iodide of Potassium. Dr. DELAVAN	112

*Table of Contents.**Presentation of Instruments:*

	PAGE
Nasal Tampon made of Rubber Tubing. Dr. ASCH	112
A Post-nasal Forceps. Dr. WRIGHT	112
An Electric Tonsil Snare. Dr. C. H. KNIGHT	113
A New Forceps for straightening the Nasal Septum. Dr. ROE	113
Business Meetings	117
Obituary, Francis Donaldson, M. D.	117
List of Fellows	119

TRANSACTIONS
OF THE
FOURTEENTH ANNUAL MEETING
OF THE
AMERICAN LARYNGOLOGICAL ASSOCIATION,

HELD IN THE CITY OF BOSTON, JUNE 20, 21, AND 22, 1892.

ADDRESS OF THE PRESIDENT.

By S. W. LANGMAID, M. D.

It is my honorable and pleasing duty to announce the opening of the fourteenth annual congress of our society. Estimating the value of the association as I do, I can conceive of no greater honor than to be its presiding officer. The enjoyment which I always have in our annual meetings is enhanced by the evident desire which was shown that we should meet in Boston and because you are our guests.

The present membership of the association consists of forty-five active, one honorary, and ten corresponding fellows. The council recommends the enlargement of the society by the reinstatement of a former member, and by the election of eight active fellows. It will recommend for corresponding fellowship three well-known European laryngologists.

During the past year the association has lost by death one active fellow. Dr. Frank Donaldson, of Baltimore, emeritus clinical professor of diseases of the throat and chest in the University of Maryland, died December 8, 1891. The loss to our association by the death of Dr. Donaldson is real. We have lost his genial companionship, his sympathy, his manly sweetness of character, his active interest in the society, and his fair-minded judgment. We have lost a learned friend and most valuable member, and the association mourns to-day and will continue to regret his untimely death.

Another loss to the society and to the world is already in your mind before I can utter it. The death of Sir Morell Mackenzie removed not only the personal friend of many of us, but an interested friend and member of our association. Any words of mine would be sadly incompetent to convey an idea of what the loss to laryngology is by Mackenzie's death. Fortunately, the most sympathetic and comprehensive utterances have already been made by his associates and friends all over the world, and although we can not add to them, we can make these utterances our own through our sincere indorsement of their truth.

A remarkable man has departed, a teacher and arbitrator in all laryngological matters, and in our grief at our loss we selfishly murmur that we can not longer avail ourselves of his skill, his knowledge, and his judgment. The office of the teacher has no superior, and in that office Mackenzie was pre-eminent.

The programme of the present meeting consists in the reading and discussion of no less than eighteen papers. The subject of each paper is of vital interest, and the time for discussion will be far too short for our satisfaction and instruction. Under these circumstances the preliminary address, which is expected at the opening of the congress, must necessarily be short.

I can not refrain, however, from giving utterance to a few thoughts which have presented themselves in anticipation of this occasion. When I think of the present status of this association: of what it is, and what it has done; when I consider the wealth of laryngological knowledge of which the world is possessed, to which this association has been a not small contributor, I can not forget the small beginning, the tiny rivulet from which this quiet stream of knowledge had its rise, and that some of us began our voyage of professional life almost at its source. I hold in my hand the rare but interesting words of Beunati.* So rare that our lamented Elsberg, whose bibliographical knowledge was second to none, had never seen them until a few years before his decease.

To me they are intensely interesting because of the original investigation which they record, and because they are the last worthy publications of the old dispensation—the dispensation of darkness and guesswork—before the new dispensation of light and certainty was ushered in by the discovery of the laryngoscope. No special student was ever more in earnest, and no one has given a better account of

* *Recherches sur le mécanisme de la voix humaine. Recherches sur les maladies de la voix humaine.* Par F. Beunati. Paris, 1832.

what could be seen in the singer's throat, than Beunati. The reader can not help a sigh of pity that the means by which that wonderful mechanism, the living larynx, can be seen, had not then been discovered. Beunati's investigations were of necessity confined to parts which were then visible—namely, those which constitute the buccal pharynx. All below and all above were *terra incognita*. Throughout Beunati's works one can read between the lines his burning desire to be able to see the living glottis.

When I began the study of throat disease as determined by the laryngoscope, almost the only works upon the subject were the well-known paper of Czermak, a small treatise by Elsberg, and the volume by Sir Duncan Gibb. The original paper of Garcia was inaccessible. Since then, as we know to our cost, the literature of laryngology has increased by standard publications and ephemeral magazine articles until no one without assistance can hope to keep quite abreast of discoveries and clinical observations. Such industry in observation and study, and such rapid discoveries, evince the greatest activity in the laryngological specialty. To this multitudinous literature this association has contributed largely and valuably.

In the address of welcome which I had the pleasure of making ten years ago on the occasion of the former meeting under the presidency of Dr. Knight, I said in effect that I believed the coming years would show as good work from the members of this association as had already been done by them. My belief was not unfounded. During the last ten years I find in our archives, among others, most valuable papers and discussions upon the following subjects: Upon the respiratory function of the human larynx, upon the special senses of smell and taste, tension of the vocal bands, the nervous origin of diseases, the physiology of the voice, the paralysis of the larynx, morbid growths in nose and throat, new operations for deformities, descriptions of many new instruments, new remedies, climatology in connection with laryngeal phthisis, photography of the larynx, correction of the faults of the voice, investigations with regard to brain centers, etc. These papers are the result of *original* thought, invention, and discovery, and we have reason to be proud of them.

Ten years ago I said that in no special branch of medicine were such advances being made as in our own. I am pleased to say that within these ten years there has been an advance all along the line of medicine and surgery, perhaps more marked in the special departments of brain and abdominal surgery. The methods used and the

results obtained are largely due to the discoveries which have been made in the biological laboratories. Let us hope that the future will not find us behind in the rapid march of improvement and discovery.

I believe that our advance will be greatly helped by faithful adherence to this association. A man's education does not consist entirely of what he can acquire by his own effort. Companionship with fellow-workers is necessary to complete his growth. The kindly but severe criticism of those who are engaged in similar pursuits, and who are, therefore, best fitted to estimate the value of any theory or invention, is of incalculable use. Membership is not only a means of information, but it is a stimulus to work and production as well.

Let us hope that the next ten years will show such a record of work performed, of knowledge gained, that the American Laryngological Association will not occupy any other position than that which has always been accorded it—namely, the first in merit as well as in priority of establishment.

Paper.

THE INFLUENCE OF CERTAIN DIATHETIC CONDITIONS UPON THE PROGNOSIS IN OPERATIONS UPON THE THROAT.

By D. BRYSON DELAVAN, M. D.

THE influence of diathesis upon the general physical forces of a patient is always of sufficient importance to challenge attention. Under no circumstances is it so worthy of study as to the surgeon when estimating the chances of success and the possible sources of danger in the case of a proposed operation. That the success of an operation may be seriously threatened through the presence of some systemic fault is not more true than it is that in the existence of certain known dyscrasias any attempt at surgical interference may be followed by disastrous results.

It will be the object of this paper to call attention to several general conditions that may be associated with one or two of the more common forms of disease of the throat, and to study whether in such cases the methods of operation are as simple and free from danger, recovery as good, and the ultimate results as lasting as under ordinary circumstances.

The conditions to which reference will be made are exophthalmic goitre and lymphadenoma, and the strumous, the rheumatic, and the hæmorrhagic diatheses.

Beginning with exophthalmic goitre and lymphadenoma, both of these diseases present points of marked similarity, so far as concerns the throat, for in both the tonsils are often enlarged and the sufferings of the patient greatly increased thereby. Unless contra-indicated by some special reason arising from the general disease, the obvious treatment for the relief of the obstruction would be the removal of the obstructing glands. Experience teaches us that amygdalotomy may be performed in these cases without unusual difficulty. The writer has operated in several cases of both diseases without undue bleeding and with excellent ultimate results.

In both conditions, however, the process of healing is generally somewhat slower than in the ordinary subject.

This may be accounted for, in part, by the great size of the glands removed. If we regard exophthalmus as a disease involving disturbance of the vaso-motor system, it would be fair to ask whether under the influence of this condition the possibilities of hæmorrhage would not be materially increased and operations upon such patients be thus attended with greater risk.

Some authors have held that exophthalmus might be cured by the removal of adenoid enlargement of the pharynx. While by no means prepared to accept this view, the writer is of the opinion that both in exophthalmia and in lymphadenoma operations upon the adenoid elements of the throat do not involve unusual elements of danger and are followed by excellent general results. Further investigation, however, upon this point is desirable.

CASE I.—Mrs. X., aged thirty. General lymphadenoma, cervical glands especially enlarged. Tonsils greatly hypertrophied, meeting in median line. Swallowing difficult. Dyspnœa marked, especially at night. Amygdalotomy caused average amount of bleeding, and was followed by complete relief of dyspnœa and dysphagia. Cervical glands, of course, unaffected.

CASE II.—Miss Y., aged twenty. Exophthalmia, with enlargement of thyroid, palpitation of heart, and enormous hypertrophy of tonsils. Duration of disease, four years. Both tonsils were removed at the same sitting with the Mackenzie amygdalotome. Very slight bleeding. Pharynx completely healed in five days. Local symptoms entirely relieved, and marked improvement in general condition one month later.

In rheumatic subjects with enlarged tonsils, with which are associated recurring attacks of acute amygdalitis and of abscess of the

tonsil, the removal of the gland is attended with no special difficulty or danger, and the results are so beneficial as to place the operation among the most brilliant in surgery.

A large number of the more severe cases of adenoid enlargement of the throat occur in strumous subjects. As is well known, the progeny of tuberculous or of syphilitic parents will commonly suffer from local conditions that call for operation. If these diatheses are uncomplicated, operation upon such cases appears to be simple and free from extraordinary danger. Recovery may be somewhat delayed, the bleeding may be more pronounced, and the various reactions possible under such circumstances may be somewhat more active than usual. Otherwise there is little difference between them and the ordinary uncomplicated case. As to the ultimate results, however, there is decidedly greater difficulty in these cases in the complete and thorough removal of the offending tissue, and the fragments that may be left behind are more likely to increase in volume as the patient, if a child, grows older. Occasionally they may, in time, attain sufficient size to require a second operation. In spite of this, indeed, for the very reason of it, it is urgently necessary that these cases be relieved as soon as possible, even although it may be necessary to interfere again at some future time, as the presence of adenoid hypertrophies directly predisposes to the development of similar enlargements in their immediate vicinity, and the general effects are so injurious that the patient can not be relieved at too early a date.

CASE III.—Miss B., strumous. At eight years of age both tonsils were enormously enlarged and were thoroughly removed by a distinguished specialist. At fourteen she consulted the writer, who found a pair of tonsils of great size meeting in the median line. Their removal required the largest-sized amygdalotome. Examination of the upper pharynx revealed an adenoid growth which filled the retronasal space. This was removed under ether. Three years later the patient, then living abroad, suffered a return of the old symptoms of retropharyngeal obstruction, and was again operated upon for its removal by a surgeon who stated that its mass equaled that of a pigeon's egg. There has been a very slight recurrence since.

Passing now from these more common and better understood topics, let us consider one that, although less usual, has for us a far greater and more active interest—namely, the condition known as “hæmophilia” or the hæmorrhagic diathesis. While well-marked, typical hæmophilia may be a somewhat rare condition, it is certain

that cases now and then present themselves in which it is possible to trace it and to prove that it exists to such a well-defined degree that the performance of a surgical operation would subject the patient to actual risk. The writer discovered eight such cases in the space of one year. In his experience the relative proportion of cases of adenoid enlargement among hæmophilic children is greater than the average. Instances therefore must occasionally come to our notice in which an operation would be desirable were it not for the existing dyscrasia, and the problem of dealing with them becomes a most serious one. Again, certain cases of struma show a marked tendency to bleed, and this tendency may be noticed in several members of the same family without, however, the typical signs of hæmophilia being present.

Let us glance over the statistics of accidents and operations in general in hæmophiliacs and study their results. Not to quote many others reported, fatal hæmorrhages have occurred from the following wounds: Slight scratches on the skin or abrasion of the dermis; laceration of the frenum of the lip; bite of the tongue; blow on the nose; injury to the finger; cut in paring the nails; rupture of the hymen. Death after operation has occurred from cutting of the frenum linguæ (1), leeching (5), venesection (4), blistering (2), extraction of tooth (12), circumcision (10), cutting the umbilical cord (4), vaccination (2), uvulotomy (1), and after numerous more important operations. All authorities agree that traumatic hæmorrhage must be prevented by avoiding all surgical operations upon a person affected with hæmophilia unless life is in peril.

The statements just quoted, incomplete although they are, have been long on record, and are doubtless well known to all.

Returning, however, to diseases of the throat, I find a state of affairs quite as striking although by no means so well known and generally recognized. Indeed, I am not aware that the attention of specialists has ever been definitely called to this particular phase of the case, and I would urge its careful consideration, in view of the prevalent idea to the effect that for the removal of pharyngeal adenoids certain surgical procedures are entirely justifiable. Thus, several authors state that, in the presence of the hæmorrhagic diathesis, the galvano-caustic methods should be substituted for cutting operations, while others have gone so far as to devise specially constructed instruments for this very purpose, thus proving that in their view operation upon these cases is perfectly legitimate. Such an opinion is at direct variance with the whole precept and experience

of the past. In looking over the history of our own department for the last few years, an interesting collection of facts is developed. Amygdalotomy has been performed with greatly increased frequency, while the value of operation for the removal of adenoid hypertrophies has become universally recognized and the operation performed hundreds of times and by many operators. While hæmorrhage after amygdalotomy in the child is very rare, the writer has reported one case in which it proved alarming, and this occurred in a child who was unquestionably a bleeder. Fortunately, the hæmorrhage, which was distinctly capillary, was stopped. The history of adenoid hypertrophy at the vault of the pharynx has not been so favorable. A case is referred to by Hooper, in which, following the simple examination of the pharynx with the finger in an infant, a slight abrasion of the surface of a large adenoid resulted in a fatal hæmorrhage. In another case the removal of an adenoid of moderate size from a child of four produced a hæmorrhage which ultimately resulted in death. A third instance occurred, unfortunately, in my own practice about two years ago, and is of sufficient interest to warrant it being placed on record.

CASE IV.—Boy, aged two years and a half. Operation under ether by means of Löwenberg's forceps and finger nail. Amount of bleeding at time of operation not unusual. Blood coagulated well and bleeding ceased shortly after completion of operation. Nothing occurred until eight hours after operation, when there was a somewhat profuse bleeding from the nose, followed by a slight rise of temperature and a rapid, irritable condition of the pulse. These symptoms subsided before morning, and when seen by the family physician at 9 A. M. the child was bright and natural in appearance, with normal color and no indication whatever of reaction from the operation or of impending danger. At 12.30 the patient began to grow pale and restless. At 1 he vomited for the first time after the operation, throwing up a large quantity of blood. At 2, having become more and more restless, he again vomited an amount about equal to that first thrown up. At 2.30 he threw up a smaller quantity, and again at about 3 a still smaller amount. When seen by the writer at 3.30 the child was moribund, the surface being cold and pallid, the lips pinched and purple, and the pulse at the wrist imperceptible. Examination of the throat revealed a slight oozing from the upper pharynx. Active measures for relief proved useless, and seven hours after the last attack of vomiting the child died.

The points of special interest in this case are as follows: 1. It has for years been the custom of the writer to investigate before operation the history of every case with a view to finding whether

or not any tendency to bleeding existed. In the present instance he had questioned both parents closely and both had denied all knowledge of any such predisposition. Afterward in a general family discussion it was demonstrated that the boy's maternal grandfather and several other relatives of that line had been distinctly hæmorrhagic, and two weeks after our accident a maternal aunt of the patient sustained a slight cut of the finger from which she nearly bled to death. 2. The typical exhibition of hæmophilia given by the patient, although the condition had never been recognized. The grandfather was a bleeder. The mother was distinctly not so, although her younger sister was. The patient was not the first-born of his parents. He was under five years of age and had light hair, blue eyes, thin skin, and prominent veins. The family were German and German-American on both sides. All of these points are especially emphasized in the books. 3. The peculiar course of the hæmorrhage. There was no unusual loss of blood at the time of operation. Recurrence took place eight hours later, but the flow was easily checked, and there was no appearance whatever of a return of it for twelve hours, when a second recurrence took place, of such severity as to destroy the patient within little more than two hours.

Thus it appears that operations upon the throat are not less dangerous, other things being equal, in cases of hæmophilia than are surgical procedures upon other parts of the body. If this be true, what reliance, if any, can be placed upon the special methods of operation that are said to be at our command? Are we justified in accepting the statement that the galvano-cautery may be used in these cases? The answer would be in the affirmative if it were possible to prove that the galvano-cautery is a reliable hæmostatic. Unfortunately, the contention so freely advanced can hardly be supported. It is a matter of common experience to find a slight hæmorrhage following the application of the cautery to the nasal mucous membrane, and in cases where no special tendency to bleeding is present. Of course, it may be argued that under such circumstances the cautery has not been applied with sufficient care, and that, raised to an unduly high temperature, it has been allowed to do its work too rapidly. All this is true, but, even so, it is not uncommon for bleeding to be caused at the hands of the most experienced operators. This would prove that the perfect regulation of the cautery is a somewhat difficult matter. Moreover, we may escape the danger of immediate hæmorrhage only to be confronted later on by

secondary bleeding. Several cases of secondary hæmorrhage after the use of the cautery have been reported, while in the case of a boy, not a hæmophilic, upon whose tonsils the writer used the galvano-cautery, a brisk though not important hæmorrhage occurred on the separation of a slough upon the eighth day. The same phenomenon is not uncommonly manifested in the nasal cavity.

If, then, the galvano-cautery can not be trusted to prevent immediate or secondary bleeding in ordinary cases, it is certainly not a sure reliance in the presence of the hæmorrhagic diathesis. And we have no method calculated to take its place. What, then, should be done in cases which seem absolutely to require operation, as many of them do? Left to themselves, they are exposed to the certainty of severe suffering and the possibility of mortal peril. Take such an example as the following:

CASE V.—The daughter of wealthy parents, aged eight, suffered from extensive hypertrophy of the tonsils and pharyngeal adenoids. She was distinctly hæmorrhagic. She was placed in the hands of one of the most distinguished of living specialists, who advised against operation, and did the best he could to relieve the patient by local applications and general hygienic means. The child contracted diphtheria, which rapidly progressed from bad to worse until, with every other possible complication, dyspnœa, caused by swelling above the larynx, which rendered intubation impossible, became so urgent that tracheotomy was required. Although the operation was performed with the greatest care, the edges of the cervical wound bled up to the moment of the patient's death, thus proving the hæmorrhagic tendency, and establishing the objections against the surgical treatment of the hypertrophied glands.

Obviously the physician pursued the only course open to him in the light of our present knowledge. Any other would have been at distinct variance with the established rules of surgical pathology. And yet, in reviewing the case, we find the patient placed between the horns of a veritable dilemma. To operate was to invite the almost certain result of severe, if not of actually fatal, bleeding. Not to operate was to expose the child to the hardly less imminent peril associated with the first attack of diphtheria or of scarlet fever, with which she, more than any other patient, was likely to be seized.

As has been already stated, hæmophilic children seem to suffer from throat troubles to an unusual degree. Is it necessary that we, fearful of operating upon them by known methods, should leave them to their fate? Let us hope rather that it may be possible to discover some means by which they may be relieved easily and without the dangers attending those in present use.

To sum up :

1. Rigid examination as to the possible existence of the hæmorrhagic diathesis should be made prior to operation in every case.
2. In the existence of hæmophilia, operation by any procedure at present known is absolutely contra-indicated.
3. Since many of these cases urgently require relief, it is most desirable that a method of reaching them more satisfactory than any heretofore practiced be suggested.

[Since the presentation of the foregoing paper an interesting article, by J. L. Watkins, M. D., Nashville, Tenn., upon the pathology and treatment of hæmophilia, has appeared (*New York Medical Journal*, August 13, 1892). In this the writer holds that the actual condition in hæmophilia is a deficiency of calcium salts in the blood, and particularly of the chloride of calcium. He shows that bleeding is not likely to occur when these chemicals are present in normal quantities, that they are lacking in the blood of hæmophiliacs which he has examined, that their addition to hæmophiliac blood will cause it to coagulate and *vice versa*, and that, in hæmophiliac subjects, their administration has been followed by an almost immediate relief of the condition. While he does not explain the fact that hæmophiliac blood may, in certain cases, show a decided tendency to coagulation, and while the number of patients treated is yet small, the article is most welcome, as offering a possible explanation of this hitherto dreaded condition, and a simple means for its relief. If it can be proved beyond doubt that the hæmophiliac condition can be cured, there will no longer remain the necessity for special methods of operation on the one hand, nor the abandonment of the patient to the evils arising from his throat troubles on the other, and in cases where the history admits of any doubt, a short course of preparatory treatment before operation will remove the patient beyond the possibility of danger.]

Discussion.

Dr. S. H. CHAPMAN, of New Haven: This subject is one of very great importance to all of us. In operating we have all met with cases in which hæmorrhage was unusual and was the cause of great anxiety. While I have not looked over my records for cases of hæmorrhagic diathesis, I have no doubt that some cases might be found on which this paper would throw some light. There undoubtedly are cases of the hæmorrhagic diathesis, but the diagnosis may, as in one case which came under my observation, prove somewhat puzzling. My patient was the wife of an officer, and consulted me for some trouble with the throat.

Examination, however, showed the throat to be in perfect order, except that it was somewhat anæmic. There was only slight dullness over a limited portion of the left lung. There was no history of fever or of debility, or of anything unusual, except that, upon much exercise or during overheat in the night, severe hæmorrhage would take place either from the lung or, as she thought, from the throat. It had begun six years before, and until I saw her she had had perhaps a dozen severe hæmorrhages each week, had become very anæmic, her pulse was rapid, and metrorrhagia had developed. I told her husband that it looked to me like a case of the hæmorrhagic diathesis. There was a family history of syphilis one generation back, and to that I was inclined to attribute the hæmorrhagic diathesis. My diagnosis was, however, incorrect, for three years ago she was taken with a violent attack of coughing, and coughed up something which her husband brought to me, and which proved to be a smooth piece of bone. After that the coughing and the hæmorrhages ceased, and the woman gained wonderfully in health, becoming quite robust. On carefully interrogating her as to the occurrence of the first hæmorrhage six years before, she recalled the fact that it occurred when she was eating in haste of lamb stew at St. Paul, where she was about to take a train. While eating she felt a sense of suffocation, arose from the table, and had a severe hæmorrhage, which came apparently, like the rest later, from the throat. I suppose that in hurriedly eating she swallowed a piece of bone which caught in the throat, cut a vessel, causing hæmorrhage, that this hæmorrhage had recurred from time to time until in the course of years the bone had become small enough from erosion to be coughed up. At all events, since coughing up the piece of bone she has had no more hæmorrhages, her periods have become normal, and she expresses herself as feeling wonderfully well.

Dr. J. WRIGHT, of Brooklyn: The author's reference to adenoid tissue in the naso-pharynx was of especial interest to me from a diagnostic point of view, as I have in the past few years seen a number of cases in which it was difficult, by a microscopic examination made by myself and also by expert microscopists, to say whether the case was one of simple lymphoid tissue or of round-celled sarcoma. I remember one case, supposed to be a lymphoid growth implicating the tongue, in which the subsequent history proved it to be a sarcoma. It seems to me that in some of those cases in which a diagnosis of adenoid growth has been made and it returns again and again, possibly it is sarcomatous.

Regarding severe hæmorrhage after post-nasal operations, a case recently occurred at my clinic, operated upon by Dr. Newcomb, similar to the one related by Dr. Delavan—that is, the child began to bleed five or six hours after the operation, the doctor was not sent for until too late, and death took place next morning from hæmorrhage. I have also had a case of severe hæmorrhage in private practice (reported elsewhere), in which I was called the night after operating by taking out several

pieces of adenoid growth, and found the patient still bleeding from the nose and pharynx, and even from the perforations in the ears, having lost a large amount of blood. In this case the ordinary means of stopping hæmorrhage were resorted to, but finally I had to plug the posterior nares, which was done with absorbent cotton dipped in an iron solution. By the aid of vaseline continually introduced in the anterior nares the plug came away of itself after several hours, without injury to the mucous membrane or recurrence of hæmorrhage.

Dr. BEVERLEY ROBINSON, of New York: Regarding the value of the galvano-cautery in cases of hæmorrhage, while Dr. Delavan may be correct in stating that it can not be relied upon in hæmophilia, yet it is certainly true that at times when all other means absolutely fail this agent will stop hæmorrhage. A case illustrating this statement occurred in one of my domestics who had been to a dentist for the removal of several teeth. She had been bleeding since evening, but I was not notified until in the middle of the night. All ordinary means were employed, but failed to arrest the flow of blood, and Dr. Charles A. Powers was called; but our combined efforts were not successful until the galvano-cautery was introduced into the cavity left by the tooth. In the opinion of both of us the woman would have died had it not been for the cautery. Whether she had the hæmorrhagic diathesis I can not say, but she was somewhat anæmic.

An agent on which we do not ordinarily rely may sometimes serve to arrest hæmorrhage. For instance, I recall an occasion when Dr. Charles K. Briddon was operating in a case at the Pre-byterian Hospital. Hæmorrhage persisted in spite of various means which he resorted to for its control, until it occurred to me, as I was near the operator, to suggest the application of powdered antipyrine upon the wound. This succeeded at once.

Paper.

SOME PATHOLOGICAL CONDITIONS OF THE UPPER AIR PASSAGES COINCIDENT WITH ATTACKS OF "LA GRIPPE."

By S. HARTWELL CHAPMAN, M.D.

DURING an epidemic of the disease popularly called "the grip," extending over a period of five months, beginning with the early days of November, 1891, it was my pleasure to observe certain secondary affections of the upper air passages coincident with it.

From a record of a large number of cases I have selected sixteen, which are of more than ordinary interest to me, since they had previously been under observation and treatment for other diseases

for periods ranging from seven years to six months. They may roughly be divided as follows :

Eight cases of spinal disease, one case of diabetes insipidus, four cases of renal disease, three cases of rheumatic gout. The onset of the disease was quite similar in all these cases. Headache, nausea, anorexia, flying pains, exhaustion progressing to extreme malaise, fever moderate, pulse either considerably accelerated or greatly retarded, mild delirium, pain and stiffness in the back.

Permit me to call your attention to the fact of the close similarity between these symptoms of *la grippe* and the symptoms of the milder forms of epidemic cerebro-spinal meningitis called cerebro-spinal meningitis abortiva.

Upon hearing a description of the eight cases of spinal disease you will, perhaps, agree with me that the epidemic of *la grippe* is closely allied to the other and severer form of disease. In a description of the cases which follows I will endeavor to give only the salient points in order to consume as little of your valuable time as possible.

The three cases of rheumatic gout were as follows :

Sex.—One female, two males.

Ages.—Fifty-two, sixty-five, sixty-seven.

Position.—Affluent.

Condition.—Enlarged joints, muscular stiffness, uric-acid diathesis. In one case, chronic bronchitis with dilated heart. In two cases, mitral stenosis. Under observation about six months.

Coincident Affections of the Upper Air Passages.—In one case, laryngitis crouposa complicated with broncho-pneumonia. In two cases, aphthæ of mouth and pharynx extending to the brim of the larynx.

Duration of the Disease.—In the latter cases the aphthous inflammation entirely disappeared in eight days. In the former, the pneumonia confined the patient to her bed for six weeks, and has left the lungs permanently diseased.

The phenomena attending the laryngitis were the following: On the second day, the patient being able to speak only in a hoarse whisper and complaining of some constriction about the throat, a laryngeal examination revealed an intensely congested condition of the cords and ventricles. Near the center of the left ventricle was seen a grayish-colored slightly raised oval spot, which at first sight had all the appearance of a diphtheritic membrane. From day to day this spot increased in size and thickness until the entire ventricle was covered, and the mass overhung the rima glottidis so that the left cord was concealed and only the attachment, the base of the right, could be seen.

On the fifth day the entire mass came away. This mass was half an

inch long by three eighths in diameter; ovoid in shape and composed of dense fibrinous tissue.

The laryngeal congestion rapidly declined after the expulsion of the mass.

The four cases of renal disease were the following:

Sex.—One female, aged thirty-seven; three males, aged forty-three, forty-seven, and fifty-nine. All four patients in moderate worldly circumstances.

Condition (previous to the attack of la grippe).—In the female, analysis of urine gave specific gravity 1·012; albumin, large quantity. Blood cells, cells from kidney, granular casts. Secondary cardiac dilatation with insufficiency of the aortic and mitral valves. Under observation and treatment five years, with gradual intensifying of all the symptoms.

Coincident Affections.—Sanguineo-purulent naso-pharyngeal inflammation, combined with acute amygdalitis and sympathetic enlargement of cervical glands. The swelling of the tonsils became so great as to threaten suffocation, but was relieved by free slashing with a bistoury. The three male renal cases were cases of hyaline degeneration. Under observation a little more than a year. Specific gravity of the urine varied from 1·010 to 1·013, with hyaline casts plainly observable in every specimen examined. In two of these cases the accompanying affection was purulent naso-pharyngeal inflammation, with free but not dangerous hæmorrhage.

In the third case was seen the second laryngitis crouposa. The description previously given answers equally well for this case, the mass being, however, not so large or so dense. The duration of the naso-pharyngeal inflammation was about two months; of the laryngitis, only four days.

Case of Diabetes Insipidus.—Sex, female. Age, thirty-nine. Position, affluent. Mother of four children. Under observation two years.

Condition Previous to Attack of La Grippe.—Greatly emaciated. Very excitable and nervous, with occasional attacks of mild delirium.

Temperature normal or diminished; pulse ranging from 130 to 150. Urine passed, about four quarts daily, with specific gravity of 1·005 to 1·006.

Heart and lungs normal. Menstruation always delayed from ten to fourteen days, but normal in quantity and character. No uterine affection beyond a moderate prolapse. The epidemic began in this case with an elevation of temperature to 101·5°, with moderate delirium continuing two days.

On the third day the patient complained of feeling suffocated and of a constriction in the throat.

An examination disclosed intense congestion of the entire pharynx and œdema of the larynx.

This œdema, contracting the rima glottidis to a very narrow slit, continued without diminution eight days, during which time the patient

retained the erect posture, was cyanotic, and breathed with the greatest effort. Although I was anxious to insert a laryngeal cannula, the patient was thrown into so violent a state of agitation by the mere mention of it that I promised her to do so only if it were absolutely necessary.

By the eighth day the œdema began to subside, but had not entirely disappeared until after the lapse of three weeks from the time of onset.

Permit me to point out two phenomena, which I do not attempt to explain, that are of singular interest aside from the secondary throat disorder. One is this: That during the severest period of the disease the pulse fell to 70-80, and remained at this rate for about ten days; that during this period the patient was less nervous, and often intimated that, with the exception of her throat, she felt better than she had before for months. The other is this: That the quantity of water passed fell from four quarts daily to about one quart. Both of these curious symptoms remained constant during the height of the disease, but gradually gave way to the old conditions as the disease diminished, until finally the former distressing symptoms of rapid pulse and large volume of water became again constant.

Of the eight cases of spinal disease, the first is that of a "humpback." Owing to an injury to the spine by a fall from the arms when a young child, he was for many years more or less of a cripple.

He is four feet one inch tall, but the length of leg would make him a man six feet in height. He is an educated printer setting all the type for the Latin and Greek writings of the Yale professors. His age is thirty-four.

Seven years ago he came under my observation, suffering from symptoms of compression of the spinal cord—namely, intense neuralgia, partial paralysis of legs and of the sphincters. Six months' treatment at that time sufficed to control the disease. Three days after the beginning of an attack of *la grippe*—having been quite well for seven years—these symptoms returned and progressed gradually to full paralysis, accompanied by aphasia. The aphasia was slight and continued only two weeks, but the paralysis is still complete after the lapse of three months. There were two interesting symptoms in addition to those mentioned—viz., the pulse was reduced during the attack to fifty beats, the normal rate being about eighty, and the spinous processes were intensely painful to the touch.

Three cases of curvature of the spine—in females—may be described together, as the secondary affections were similar.

The first, married, one child. Antero-posterior curvature moderate, of twelve years' standing. Under observation six years. Aged twenty-three years.

The second and third are cases of double lateral curvature, severe and progressive, of about fifteen years' standing; ages, twenty-five and twenty-seven years; unmarried. They have been under observation five years.

The attacks of grip in these three cases were not severe, but they had these symptoms in common: Reduction in rate of pulse about one third, extreme malaise, and very sensitive points along the course of the spine. The secondary affections were: Aphonia lasting from one to three weeks, without any visible alteration in the organ of sound, and purulent naso-pharyngeal inflammation of several weeks' duration. In one of these cases, one of double lateral curvature, during mild delirium of four days' duration, the aphonia disappeared, to reappear again on the cessation of the delirium. In conjunction with the aphonia occurred, in all three cases, intense neuralgia of the larynx which disappeared at the same time with the former symptom.

The question arises whether this aphonia was not voluntary, owing to fear of increasing the pain by emitting sound; but it seemed to me not an act of volition, because local anæsthesia temporarily banished the pain; but the aphonia still remained. The cases of spinal irritation had been under treatment about a year when the epidemic seized them. Ages, nineteen and twenty-one; females of hysterical temperament, suffering from suppressed and difficult menstruation with inflammation and misplacement of the uterus. During the attack the spine was more than usually sensitive; the pulse was reduced in rate, combined with great prostration.

In both cases the naso-pharyngeal inflammation already spoken of constituted the secondary affection, and in one of these cases this form of inflammation extended through the larynx and well into the trachea. Aphonia was also a prominent symptom in one of these cases, but was evidently of a hysterical character, for she had suffered from repeated attacks of it, and during sleep she would speak out with natural voice.

The seventh case was one of spinal neurasthenia, in a lawyer, aged forty-seven years, whose coincident affections were laryngeal neuralgia with high development of aphthæ on the tongue, buccal mucous membrane, and pharynx. My first introduction to the case was during this attack.

Finding a greatly reduced pulse, I looked for sensitive points on the spine. Finding these well marked, I questioned him with regard to previous history, and thus learned of the cause of both symptoms in a spinal

neurasthenia, dating from a severe attack of sunstroke occurring three years previously.

The last case is that of a female of twenty-seven years, who presented herself four years since to be treated for neuralgia pudendo-hæmorrhoidalis. On account of the intense pain on motion, she had been practically bedridden for two years. The correctness of the diagnosis of tabes dorsalis has been proved by the subsequent conduct of the case. The first symptom of the disease *la grippe* was an alarming prostration, with a reduction in the rate of the pulse from 74 to 30, and the second symptom most violent attacks of pain in the head and spine, with darting lancinating pains through the limbs and chest and the larynx.

The coincident disorder of the upper air passages was a purulent naso-pharyngeal inflammation, with severe and dangerous hæmorrhage, and aphonia lasting several weeks and from which she has not yet fully recovered.

Permit me, a moment longer in recapitulation, to remark—

First.—That disease of the upper air passages is not uncommon, coincident with attacks of the epidemic called *la grippe*.

Second.—That the usual form is a sanguineo-purulent inflammation of the pharynx, frequently extending upward into the dome of the pharynx and nasal cavities, and downward into the larynx and trachea.

Third.—That other incidental forms of disease may occur, a contributing influence toward which may be discovered in the previous pathological condition of the subject, as, for example, a plastic form of inflammation in those of a rheumatic or gouty diathesis, a lymphangeal inflammation in subjects of renal disorder, and forms of neuralgias and paralysis in cases of disease of the nerves and spine.

Fourth.—A reduced instead of an accelerated pulse is so constant a symptom in cases of previous disease of the spine that it may be considered of some diagnostic value in the detection of an unsuspected spinal disorder when occurring during an attack of *la grippe*.

Fifth.—That attacks of *la grippe* have such curious action in cases of previous spinal disorder, this action being illustrated by symptoms so closely allied to those of epidemic cerebro-spinal disease, that the subject of the connection between these two diseases is worthy of further investigation.

Discussion.

Dr. BEVERLEY ROBINSON, of New York: Some weeks ago I tried to put in shape what I might have observed of the local manifestations of grippe in the upper air passages, and I found that personally I had not encountered certain things which have been mentioned by some authors, among them two referred to by Dr. Chapman—namely, a localized fibrinous membrane in the larynx and a local œdema, at least not of so pronounced a type as to attract particular attention. But this negative experience only goes to impress upon one how limited is his individual horizon. We all have our peculiar experience, and this experience may not tally at all with that of others. While looking for the things to which Dr. Chapman refers during several winters, both in a throat hospital and in a general hospital, I have not yet encountered them. I have seen some curious hæmorrhagic manifestations; some spitting of blood, for instance, which I thought came, in all probability, from the larynx or just below it, and in one instance at least there was hæmorrhage from the soft palate, which was the seat of large petechial spots which led me to suppose there was probably a similar condition of the mucous membrane below. While there may be some analogy between grippe and cerebro-spinal meningitis, yet, judging by the limited experience which I have had with the latter disease, no direct relationship between the two has at all seemed apparent.

Dr. J. C. MULHALL, of St. Louis: At the first visitation of *la grippe* at St. Louis three years ago I saw my first case of membranous laryngitis complicating this disease in a man sixty-two years of age, and, of course, was much astonished. The man had for two weeks kept one position in a chair, with his arms over its back, coughing almost incessantly. He could not lie down, because in the recumbent position the cough was rendered worse, and as it was it had almost succeeded in killing him. He had been an old bronchitic, and the physicians who had attended him thought the cough was due to some condition of the lungs, as over them they heard certain physical signs. The laryngoscope revealed a distinct membrane in the larynx, non-diphtheritic in character. At that time its real nature did not occur to me, but later it became evident that it was one of the complications of *la grippe*. I cauterized it with nitrate of silver, which seemed to arrest the disease and relieve the cough so that he was enabled to lie down, and after three or four hours the œdema disappeared from the larynx. This same person had another distinct attack the past winter, with the same membranous laryngitis, puffy condition of the mucous membrane, and hæmorrhagic specks at the outlying edge. I have seen quite a number of cases of membranous pharyngitis from influenza, and I therefore see no reason why membranous laryngitis may not occur. At the Climatological Association last year I made the statement that, according to my experience, *la grippe* seemed to have the faculty of awakening old dormant

pathological processes, and I mentioned two or three cases in illustration. It seems self-evident that an attack of grippe must be modified in its course to some degree by antecedent pathological conditions. The paper just read gives some of those peculiar manifestations of this disease as modified by previous pathological conditions.

Dr. H. L. SWAIN, of New Haven: Being in the same provincial town as Dr. Chapman, it may be of interest to state that I have had one case somewhat similar to those he has related in which a membrane formed in the larynx. In several others as well as in this one the face and ear were the seat of a number of vesicles. In the case in which the membrane formed, the vesicles were present in the external auditory meatus and on the face in the line of one branch of the fifth nerve, in the latter locality passing into blebs. The tongue was also swollen and had numerous ulcerations. Several times there were slight hæmorrhages which came from varices at the base of the tongue. The membranous condition in the larynx resembled that sometimes seen following the use of Koch's "lymph." The larynx cleared up in a very few days.

Dr. CHAPMAN: As you will see by the title of my paper, I spoke of pathological conditions coincident with an attack of *la grippe*; perhaps I should have said *unusual* pathological conditions, and I took pains to select cases that had been under observation for some time, and to show some of the more curious conditions. The character of my practice enables me to keep under observation for many years a good many cases, and therefore when other diseases spring up it gives me an opportunity to observe their modification by the old disease or the effect upon this of the new process. What I have related consists really of old pathological conditions which have been revived or aggravated by an attack of influenza. I used the term laryngitis membranosa, or crouposa, because I knew not what else to call it. Unlike a diphtheritic membrane, this membrane was exfoliated without any apparent loss of tissue or harm to the laryngeal mucous membrane.

Paper.

PHARYNGO-MYCOSIS.

By FREDERICK I. KNIGHT, M.D.

INASMUCH as the subject of pharyngo-mycosis has never been discussed or even mentioned, as far as I know, in a meeting of this association, I thought it might be profitable to start a discussion on the subject by a few introductory remarks, which would bring out the experience and opinions of members.

Ever since special attention has been paid to diseases of the

throat, observers have been struck by the peculiar obstinacy of chronic folliculitis of the tonsils, which has been not infrequently accompanied by a similar condition of the base of the tongue, and occasionally of the arches of the palate and of the pharynx. An excellent description of this condition was given by Dr. J. Solis-Cohen in his work on *Diseases of the Throat*, also by Morell Mackenzie under the name of exudative follicular pharyngitis, and by Störk, who called it seborrhœa of the follicles of the pharyngeal mucous membrane.

The affection consists of whitish, yellowish, or grayish exudation situated at the mouths of the follicles in one or more or all of the above-mentioned regions—viz., the tonsils, base of the tongue, arches of the palate, and the pharynx, sometimes cheesy and easily removed, sometimes cretaceous, and sometimes only tough, stringy, running deep into the follicle and perhaps projecting far from it, very tenacious, and difficult to remove. Another peculiarity which has struck every one who has had to deal with these products is the quickness of recurrence after removal, and even after the subsequent application of strong medicaments.

B. Fränkel, of Berlin, in 1873 first pointed out an abundance of leptothrix threads in such products, and since then the relation has been noted and described at length by many observers—Bayer, Hering, Töplitz, Vander Poel, and others, and quite recently by Hemenway and Newcomb. Some of these have looked upon the parasite in a causal relation to the condition.

A number of other forms of parasitic growth in the throat have been described. Among others, Ubisch in 1875 first described a diffuse form of leptothrix of the tongue, in which its surface (sometimes both upper and under) is covered with a shiny, milk-white mass of sufficient density to obscure the papillæ. E. Fränkel and Sadebeck have described bacilli occurring in bundles which they called bacilli fasciculati. This form Hemenway finds more constant than leptothrix, and says that it differs from the latter in being longer and much more slender, besides occurring in bundles. Aspergillus mycosis has been described by P. Schubert and Siebenmann.

As said before, the leptothrix has been found so constantly that it has been looked upon by many as the essential causative factor of a pathological entity which has been called mycosis tonsillaris benigna (B. Fränkel) or pharynx-mycosis leptothricia (Hering). In the endeavor to establish a distinct disease of parasitic origin, however,

certain differential points in diagnosis have been made which are not warranted. For instance, a distinction between this disease and folliculitis of the tonsil has been drawn in that the latter is attended with fever and systemic disturbance, whereas in mycosis there is no fever and no general disturbance, thus drawing a comparison between mycosis and acute folliculitis instead of making it with chronic folliculitis of the tonsil. Another point of distinction which has been given is that the contents of the follicles are always hard to remove in cases of mycosis and easy in cases of simple caseous secretions. This is not always true, as some cases have been reported in which the leptothrix threads were abundant, and yet the masses were easily expressed (Chiari, Jacobson).

Until very recent years only one communication has been made in this country on this subject. In the April, 1882, number of the *Archives of Laryngology* Dr. Emil Gruening, of New York, published an article (without any allusion to the previous publications of Fränkel) which began thus: "While the constant presence of leptothrix elements in the mucus of the mouth and the frequent occurrence of concretions in the tonsillar crypts are facts with which every medical man is conversant, the relation existing between leptothrix buccalis and the formation of tonsillar concretions does not seem to have been recognized even by the throat specialist." From an examination of fifty cases, Gruening advanced the proposition that all tonsillar concretions were composed of leptothrix elements, and that the calcification of these masses might be induced by the presence of the alga leptothrix, just as the presence of certain non-parasitic algæ in liquids containing salts of calcium in solution induces a precipitation of the calcium in the form of a carbonate. He further says that "the presence of these concretions in tonsillar crypts and carious teeth is merely a substantiation of the more general fact that leptothrix concretions will form in all these normal and pathological recesses of the mouth and pharynx which are not reached by the ordinary process of cleansing, remain undisturbed by any mechanical action during the processes of mastication and deglutition, and are devoid of any secretory *vis a tergo* sufficiently potent to dislodge the parasite."

This is a strong statement of the case by one of those who believe that the parasite is the *fons et origo malis*. Other observers, notably Chiari, believe that the parasite is simply an accidental complication.

It would, however, seem reasonable to classify those cases in

which the growth has become excessive, and is rapidly reproduced again and again on removal, as cases of mycosis, whatever the exact mode of origin, and although it is difficult, as stated by Newcomb, to say just where the process ceases to be a natural accident and becomes a pathological entity, the typical cases of tough, adherent, spear-like, projecting masses can be set down as cases of mycosis, but the less marked cases will be hard to classify.

In the treatment of typical cases of mycosis I have experienced the same difficulty as all those who have spoken or written on the subject, and have found nothing satisfactory but boring deep into each follicle with a galvano-cautery point. This, in some of the more extensive cases, is almost as tedious as the electrolytic treatment of superfluous hair. If it happens that any of the disease is situated on a part of the tonsil which can be excised, this will materially shorten the treatment.

Bibliography.

- B. Fränkel. *Berl. klin. Woch.*, 1873, p. 94.
 Bayer. *Revue mens. de laryngologie*, 1883.
 Hering. *Revue mens. de laryngologie*, 1884.
 Töplitz. *Neu-York. med. Presse*, 1886-'87.
 Vander Poel. *N. Y. Med. Jour.*, Feb. 9, 1889.
 Hemenway. *Journal of Laryngology*, 1892, p. 53.
 Newcomb. *Med. Record*, 1891, p. 232.
 Ubisch. *Berl. klin. Woch.*, 1875, No. 52.
 E. Fränkel. *Zeitschrift f. klin. Med.*, Leyden, 1882, p. 288.
 Schubert. *Arch. f. klin. Med.*, Bd. xxxvi.
 Siebenmann. *Monats. f. Ohrenheilkunde*, 1889, No. 4.
 Chiari. *Revue mens. de laryngologie*, 1887, No. 10.
 Jacobson. *Internal. Centralblatt*, ii, p. 161.

Discussion.

Dr. D. B. DELAVAN, of New York: In my hands rough and severe mechanical means in the treatment of these cases have proved unsatisfactory. By the use of the galvano-cautery and scraping instruments, the exuberant part of the mycotic mass may be removed, but generally enough is left behind to establish renewed growth, and in the course of time the condition returns to its former state. Treatment of this kind if persisted in becomes irritating and annoying to the patient, and ends unsatisfactorily. But when such treatment has not been too severe and has not been carried too far, and has been aided by frequent application of solutions of borax and of bichloride of mercury to the throat, the best results have been obtained. The patient should spray the throat with a

fairly strong solution of bichloride of mercury once or twice a day, and several times a day with the borax solution, touching the entire surface involved by the leptothrix. In addition to this, attention should be given to the digestion. Many cases in which, after local treatment, the white spots still persisted, have showed marked improvement after the correction of some error of the digestion. Recurrence of indigestion has sometimes been followed by a return of the mycosis. Up to the present, then, I have found the best treatment to consist in scraping away the masses, but without causing too much irritation, thorough cleansing as described above carried out systematically by the patient, and attention to digestion and assimilation. All foci for the development of the leptothrix or of other micro-organisms that may be concerned in the production of this disease should be carefully investigated and cleansed. Thus, carious teeth should be filled or removed, the stomach washed by the Dujardin-Beaumetz method, and everything done to keep the various corners and depressions of the pharynx as thoroughly clean as possible.

Dr. T. A. DE BLOIS, of Boston: In the management of these cases of mycosis I have usually found it necessary to treat other conditions as well. I have very frequently employed alkaline treatment of the stomach at the same time that I scraped out the deposits of leptothrix. As a curette for the latter purpose I have sharpened and bent the little scoop used for removing cerumen from the ears, put it into a little vise, and found it answer the purpose very well indeed. After curetting out the mycotic masses a mild astringent—say a solution of nitrate of silver, twenty grains to the ounce—should be used. But it is important, as Dr. Delavan has already said, to correct any disorder of digestion.

Dr. DELAVAN remarked that lavage of the stomach was also useful.

Dr. S. JOHNSTON, of Baltimore: The cases of this nature which have come under my observation have invariably been in debilitated subjects, usually school children or men who are much overworked and suffering from disordered digestion. These deposits have occurred at the base of the tongue, and looked almost like spicula of bone, caused the patients much discomfort in swallowing, and were accompanied with impairment of nutrition. The cases which I have seen have been completely relieved, and the course which I have adopted has been to look after the digestive apparatus, give calomel and soda, afterward a tonic, and locally use chromic acid and bromide of iodine.

Dr. J. C. MULHALL, of St. Louis: In my opinion, this condition of pharyngo-mycosis may be either acute or chronic. It may disappear spontaneously—that is, without treatment. It may recur again and again. I have had one case under observation six years. It is very difficult at times to judge whether our efforts have effected a cure or whether this result is due to Nature alone. I agree with all that has been said as showing that the condition of the stomach has much to do with it. It has been told me by two patients, without suggestion from me, that recurrent attacks have been coincident with recurrent attacks of indigestion.

As to treatment, I have found nothing of effect except attention to the stomach. Dr. Bremer, of St. Louis, has under culture quite a number of specimens from one of my cases, also microscopical sections which I may show at the next annual meeting, but, so far as his studies have gone, there appears to be no special bacillus connected with this mycotic process. Some of the gentlemen have spoken of these growths as being from the crypts of the tonsils. It has seemed to me they are from between the crypts, and there they project, long and slender, resembling a cock's comb, whereas at the base of the tongue they are round and resemble a pea in shape. The symptoms are mechanical—tickling or sensation of dryness or burning, or some sensation which would not bring to my mind any other acute affection of the throat whatever. The difficulty may be acute or chronic, may recur, may disappear spontaneously.

Dr. J. WRIGHT, of Brooklyn: In two or more cases of pharyngomycosis I have examined the affected structures under the microscope. It has seemed to me that such cases of pharyngitis differ from other forms in having some systemic condition which furnishes nourishment for the fungi present, for they are fungi and grow like a plant in suitable soil. In one subject they become exuberant, in another the ground is unfavorable, and they only grow sparsely at the bottom of the tonsillar crypts.

Dr. BEVERLEY ROBINSON, of New York: I was familiar with this condition from reading several years ago, and since then have diagnosticated it in four cases. One of the patients had been under the care of Dr. Gleitsman, and everything had been done locally in the way of using the curette, etc., for its cure, without success. There was no doubt of the condition present, and also no doubt of the fact that the patient got rid of it only after going through a course of treatment at Sharon Springs. Whether the sulphur waters had anything to do with the cure I am unable to say.

Dr. MULHALL: As to contagion, I tried to determine this, but was unable to do so. Yet, in the last case I saw, the patient told me that her room-mate, who occupied the same bed, was similarly affected. As to local mechanical treatment, I think the only effect it can have is to remove the larger projections, and these I have seen even as large as the end of my finger. I do not think nitric acid would be of any use, and I have tried caustics, germicides, etc., but nothing seemed to benefit except general treatment.

The PRESIDENT: When the title of this paper was announced it excited a good deal of curiosity on my part, for it so happened that I had three troublesome cases during the winter, in all three of which the physician was called upon to do his utmost. All three occurred at the same time, and were so alike that various kinds of treatment employed could be compared as to efficacy. Two were in young females, the other in a male. All were robust. In none was there any evidence of dyspepsia, or of anything except the mechanical trouble which came from the presence of

these growths. In all three they consisted of the hard, spear-like masses to which Dr. Knight has referred; in the three the growths existed in the tonsils and at the base of the tongue; in none did they exist in the palate. The means used were various, but I did not try fuming nitric acid. Certainly the treatment by acids—not fuming nitric acid—was of no service. That which I resorted to finally, and which resulted in almost complete cure of the three cases, consisted in violently pulling away the growths and cauterizing as deeply as possible with the cautery point. The growths seemed to take hold of the tissues, did not lie loosely in the already formed lacunæ, but clung somewhat firmly, so that their removal was followed by a little blood. It is also true that I saw no renewal of the growth after removal and cauterization, but I could see successive crops make their appearance, smaller ones which were buried in the tissue coming to the surface where they could be removed later. The very method which Dr. Delavan described, of frequent spraying with a solution of borax and less frequent spraying with bichloride of mercury, I found of no avail whatsoever in these three cases. Where these masses protruded horn-like, even the curette was powerless to remove them. They had to be seized with forceps, be violently removed, and the base afterward be cauterized. I have not considered them indicative of a wrong systemic condition, but have looked upon them as local, as accidental; but I am perfectly willing to admit that many conditions of the buccal pharynx have their origin in a systemic condition, and it may be that those tonsillar masses, which we frequently remove by merely opening the lacunæ and scraping them out, have their origin in some constitutional trouble or dyspeptic state.

Dr. F. I. KNIGHT: There is no doubt that if the secretions of our mouths should be examined, probably more than half of us would be shown to have the leptothrix elements with us, although in small numbers; but something sets these elements into developmental activity in certain cases. Some of the cases which I saw were in strong subjects, and, as Dr. Langmaid has said, probably some local condition was the cause. When the trouble has got started and fully developed, I can not conceive of any constitutional treatment which would alone have a curative effect. I can, however, conceive that it might develop in low states of the system, and that correction of the systemic disturbance would retard further development and aid local treatment. But in my experience all mild measures, such as the application of solutions, which must necessarily be superficial, have comparatively little effect upon the disease when it is deeply seated, and the only procedure which does answer is removal of the masses mechanically as far as it can be done, and then the application of a destructive agent. I said the galvano-cautery, because it is easily applied and answers the purpose. Nitric acid introduced into the deep recesses would, of course, accomplish the object. After this has been done, there is every reason why we should fortify the constitution against the tendency to the development of these parasites.

Paper.

A CASE OF FIBROUS EPITHELIOMA AT THE ROOT OF THE TONGUE.

BY JONATHAN WRIGHT, M.D.

THE following case is reported because of its extreme rarity and because it possesses certain features unique, at least in my experience, and possibly in medical literature :

P. W., aged sixty, came to consult me on July 19, 1890, and these are the notes from my case-book :

He is a nervous, active man, with many large business interests. There is no hereditary history of interest obtainable. There is no history of syphilis. He is a moderate drinker and smoker. He has suffered for many years from nervous dyspepsia and constipation. For sleeplessness at night he has been accustomed to take large doses of svapnia (a preparation of opium). He has never had any throat trouble previous to last March, when he noticed a spasm of the glottis in drinking water. There was little or no pain associated with it. This reflex trouble in swallowing became gradually so marked that he could only swallow cool water a little at a time. He has less trouble with warm water. The spasm would at times come on at night, so that, as he expresses it, he thought he was going to choke. He has difficulty in taking solid food from the same cause, worse at times than at others. In speaking much during the day his throat becomes dry. He has a tired feeling in his tongue, and slight twinges of pain occasionally shoot to his ears. He has lost no flesh of consequence. He is a robust-looking man for his age.

Examination by direct inspection shows nothing abnormal excepting a reddened fauces. Introduction of the laryngoscope produced a spasm of the glottis, which caused the patient at first to start from the chair; he gradually became accustomed to it, however. At the base of the tongue two prominences—one at each side, about three quarters of an inch long—can be seen on its dorsal or upper surface, running forward and occupying at each side the posterior two fifths of the organ. On palpation they feel hard and firm, but when the tongue is spasmodically retracted, as it usually is during examination, it is with some difficulty that these ridges can be distinguished from the longitudinal muscular fibers in a condition of contraction. At the base there is great congestion and redness, with a quantity of mucus and saliva between the epiglottis and the tongue. The lymphoid material is red, swollen, and hypertrophied, and rubs against the epiglottis, which seems to be red, stiff, and hard, but not swollen. A good view of the glosso-epiglottic fossa, therefore, is hard to obtain. The veins are large and congested. The

reflexes are all abnormally excited. No distinct tumor or ulcer can be made out. The larynx is practically normal, there being only some slight thickening of the mucous membrane over the arytaenoid cartilages and between their tips. No abnormal glandular enlargement can be made out. The submaxillary glands are large and prominent, but the patient says they have always been so. They are not hard to the feel, and can scarcely be distinguished from the cellular tissue.

October 1, 1890.—The patient has been seen on the average once a week, but irregularly on account of his business arrangements. The ridges of hypertrophied tissue and the enlarged veins and lymphoid follicles have been cauterized with the galvanic cautery, and applications of nitrate of silver, a drachm to the ounce, were made. The nostrils, which were slightly occluded, have been relieved by cauterization. The greatest care has been given to his stomach and bowels. There has been a slight improvement in the symptoms, and the local condition has improved somewhat, there being less inflammation and congestion at the lingual base. The reflex trouble in swallowing has abated very much. He has gained several pounds in weight and declares himself much better.

From this history, I thought the cause of the trouble was hypertrophy of the lymphoid tissue at the base of the tongue, the great irritability of the part being due to the excessive gastric and intestinal dyspepsia and constipation and the general neurotic temperament of the patient. Nevertheless, the suspicion of malignant disease was entertained from the first and was never abandoned.

14th.—Latterly the patient has complained a little more of pains shooting to his ears and of the secretion in his throat. The cautery has not now been used for six weeks. Examination shows now an increase in the congestion at the base of the tongue, and there seems to be some increase in its size, though this can not be positively asserted. On raising the epiglottis, pain was caused, and the red surface bled a little. A lymphatic gland lying on the submaxillary on the right side was found to be enlarged. The right glosso-epiglottic fossa seemed a little fuller on the right side than on the left. My suspicions of malignant disease being strengthened, at the patient's request a consultation was had on October 8th with a member of this association. The latter was not able to make a positive diagnosis, but was inclined to think there was a neoplasm in the substance of the tongue. Applications of Mandl's solution of iodine were made two or three times a week, with no result.

29th.—I have learned that the patient for two years previous to the beginning of his trouble was accustomed to pass a stomach-tube on himself in order to wash out his stomach. He noticed that it hurt him on one occasion and he desisted.

On October 3d to 4th the patient was examined by another member of this association, who, after a very careful examination, was unable to make a positive diagnosis, but thought the probabilities against cancer. As this coincided with my own convictions, the patient and his family were notified of the result of this consultation, as well as of the first. At the suggestion of the latter consultant, the patient was given mixed treatment, but this aggravated his condition so that it was soon abandoned. He complained of a great deal of pain in his throat as a result of the last examination.

November 7th.—The patient, very naturally, having become dissatisfied, went to Dr. McBurney, who made the diagnosis of carcinoma in the submaxillary region and proposed an operation with the view of preventing or lessening future suffering. Dr. McBurney was able to make out a mass, by palpation, which was exactly in the median line, involving the under portion of the tongue near its base, and the tissues anterior, which neither I nor the other gentleman had been able previously to appreciate, possibly due to its less complete development. Before submitting to the operation the patient consulted still another member of this association, who made the diagnosis of cancer with ulceration at the base of the tongue, and advised against operation.*

24th.—Operation to-day by Dr. McBurney, who extirpated the whole tongue, the hyoid bone and epiglottis, and some cellular tissue from the side of the larynx. The growth was found to be in the substance of the base of the tongue, involving also the hyoid bone. It felt extremely hard and fibrous. There was no infiltration of the submaxillary gland itself. The growth sent upward and forward two prolongations into the substance of the organ, one on each side, which were the ridges noted in the history. There was no ulceration or solution of continuity anywhere on the surface.

A microscopic examination by Dr. Hodenpyl showed the growth to be a fibrous epithelioma.

May 11, 1891.—Patient's death notice was to-day seen in the papers.

Dr. McBurney, at my request, has added the following facts to the patient's history subsequent to the operation:

"P. W. made a rapid and very perfect recovery. He was fed by the rectum for several days, and then with the stomach-tube, which was readily introduced. He gradually learned to swallow fluids and even soft food without assistance, and could articulate so as to be readily understood. Accumulations of saliva and mucus were difficult to dislodge and gave considerable annoyance. No recurrence of disease occurred, but in April the patient became quite melancholic and hysterical, and gradually

* This was a mistake on the part of the observer, as will be seen in the next paragraph. Reports of the paper in the various laryngological reviews have erroneously stated that there *was* ulceration toward the last. That there was no ulceration from first to last makes the case most peculiar if not unique.

lost strength and vitality, without developing disease of any kind. He died in a feeble state, without any evident cause, in May last, and without any distress or pain.

CHARLES MCBURNEY."

Butlin,* out of eighty cases of carcinoma of the tongue, reports one as occurring at the base. No details are given.

Noquet† has reported a case of epithelioma just in front of the epiglottis, and Rosenberg‡ also has given an account of diffuse cancerous infiltration and ulceration at the base of the tongue.

Paper.

CANCER OF THE TONSIL TREATED BY LACTIC ACID.

By E. FLETCHER INGALS, M. D.

G. R., a man, aged fifty-nine, came to me the 13th of July, 1891. He stated that about a year previously he began to be annoyed by an excessive quantity of mucus in the throat, and a sensation of an unusual enlargement or lump which interfered with swallowing. He experienced pricking sensations in the part at times. The trouble had been steadily growing worse during the six months immediately preceding his visit. His strength was good, but he had lost eighteen pounds in flesh, though his appetite and digestion remained fair. No hereditary or other cause could be assigned for the affection.

Upon examination of the throat, the diseased right tonsil was found fully four centimetres in diameter, with thickening extending from the gland to the anterior pillar of the fauces and the uvula. The diseased tonsil could be felt externally, but the cervical glands were not involved. I learned that this enlargement had all taken place within the previous few months.

Diagnosis.—Sarcoma of right tonsil.

Treatment.—A week later the entire gland was removed with the steel wire écraseur and the thickened uvula was at the same time taken off. The wound had nearly healed in three weeks, and I did not see the patient until about a month later, when he returned, complaining of a peculiar taste from the secretions in the throat. I found that the wound had healed, excepting a small spot six to ten millimetres in diameter, but new deposits had taken place at the site of the tonsil, forming a tumor about fifteen millimetres in diameter by six or eight in thickness.

* *Diseases of the Tongue*, p. 260.

† *Bull. méd. du Nord*, 1889, No. 8 (ref. Rosenberg's).

‡ *Deutsch. med. Woch.*, 1892, No. 14.

To the ulcerated portion of the growth I applied a sixty-per-cent. solution of lactic acid, and the patient was given a weak solution of carbolic acid to use as a gargle. Similar applications were made every three or four days for about three weeks, with the effect of improving materially the appearance of the surface of the ulcer, which shortly after completely healed; but at this time thickening was noticed back of the posterior pillar in the right side of the pharynx, which rapidly increased in size until at the end of three weeks it measured about eight millimetres in thickness by ten in width and thirty in length. He suffered in the mean time some severe neuralgic pains, radiating from the tumor to the ear and side of the neck. There being no possibility of removing this thickened mass, it was injected with five minims of a twenty-per-cent. solution of lactic acid. At this time and for some weeks later profuse bleeding followed each injection. The strength of the solution was gradually increased to sixty per cent. of the acid, but this latter proved too strong, and two or three times occasioned sloughing, though the abscess formed would heal kindly. Subsequently the strength of the solution was reduced to fifty per cent. of the acid, and from eight to ten minims were injected in one or two places about three times a week, with the result of speedily diminishing the size of the indurated mass into which it had been thrown. The cancer, however, progressed, affecting the base of the tongue, the side of the pharynx, and the right side of the larynx, at times causing much difficulty in deglutition and often a good deal of pain; but the injections would reduce it, each time apparently causing the disappearance of a mass of the growth six or eight millimetres in diameter. By following up this plan until the present time the disease has been kept so far in check that the patient has been able to swallow with comparative comfort most of the time, and has had no difficulty in respiration, the condition now, ten months after the first injection, being but little worse than it was at that time, excepting that the disease has extended slightly to the cervical glands. During the progress of the treatment masses the size of a large filbert have been frequently caused to disappear in a few days.

The free bleeding which, during the first three or four months, usually immediately followed the injection has not occurred latterly, and no sloughs have formed when a solution not more than fifty-per-cent. strong has been employed. In all cases where sloughs have been produced the cavities have healed readily with one exception; in this a small opening remains, but the surface has healed.

The injections have always been made deep into the tissues and have sometimes given very considerable pain, which has lasted in some instances for several hours, but, on the whole, the amount of suffering has not been great. On several occasions when the disease was spreading rapidly in the base of the tongue or in the pharynx, three or four injections have reduced it again almost to the normal condition. The patient

has experienced considerable inconvenience from the injected solution running out of the opening as the needle was withdrawn, or from the needle having been thrust into a cavity, formed by some former injection, which communicated with the surface so that the acid would run down to the larynx and cause severe coughing and spasm of the glottis; but these spasms have always disappeared in a few seconds.

To day the patient's general health and strength remain good. He seems to have lost but little if any in flesh, and I feel satisfied that his life has been prolonged for several months, though gradual extension of the disease beyond the reach of my hypodermic needle warns me that a time is coming when my efforts will prove futile. The injections into the base of the tongue and larynx have been made by means of a hypodermic point soldered into a firm bent brass nozzle about four inches in length, which was attached to an ordinary hypodermic syringe. Usually from six to twelve minims of a solution varying in strength from thirty-five to fifty per cent. have been employed at each sitting, and on a few occasions, where considerable pain was caused or expected, a small amount of cocaine has been added to the solution.

I have followed the injection of the acid immediately by a spray consisting of morphine, gr. iv; carbolic acid and tannic acid, ãã gr. xxx; glycerin and water, ãã f 3 iv, with the effect of materially reducing the pain caused by the injections, lessening the hæmorrhage, and thoroughly disinfecting the throat.

Though the treatment of this case has not been curative, it suggests the possibility of retarding the growth of cancerous tumors not accessible to the knife by the use of interstitial injections of lactic acid. I hope that others will try it in similar cases, and also for the reduction of glandular enlargements. I would recommend that whenever used beneath the skin the amount should not exceed ten or fifteen minims of a solution of from twenty to forty-five per cent. of the acid.

The needle used for the purpose should be cleaned with alcohol, and it is well to have a small amount of some light oil, such as liquid albolene, drawn through it, directly afterward, to prevent rusting.

Paper.

REPORT OF SOME CASES OF MEMBRANOUS SORE THROAT.

By BEVERLEY ROBINSON, M. D.

THERE are few subjects, to the general practitioner or specialist in throat diseases, which have a greater interest than the prophylaxis and treatment of *membranous* sore throats. I use this term membranous advisedly, for are we not constantly reminded in our daily routine of practice how difficult it is to place precisely this or that form of sore throat, which presents, after all, but one absolutely general distinctive feature, and it is the presence of a false membrane on the tonsils, fauces, or pharynx?

I am ready to hear some one of my hearers declaim against this statement and affirm that, according to the latest information received of an accurate kind from bacteriological research, we can now distinguish cases sufficiently to be able surely to judge a sore throat of the type referred to and put it where it properly belongs. Doubtless this is at times true, and we have little or no difficulty in making a positive diagnosis of a case. Alongside, however, are others the nature of which is undetermined, and which require all our medical acumen to watch and follow them knowingly and with the consciousness that we are doing the right thing as regards patient, relatives, and friends, not to say the general public.

I have seen only lately three cases of sore throat in different households which have made me painfully alive to the foregoing impressions.

The first was that of a cook in the family of one of my near relatives. This woman was taken ill with sore throat and fever, and I was sent for. On my arrival at the house, inspection of the cook's throat revealed merely the ordinary signs of follicular amygdalitis, for which I prescribed an antiseptic gargle, moderate doses of quinine, and a cathartic pill. The following day the right tonsil was covered with an adherent white membrane, with swelling of the fauces on both sides, induration with tenderness of the submaxillary glands, marked weakness, and fever unabated. I now suspected diphtheria, and prescribed, as far as I could rationally, having consideration for the moral effect on others and for the possible mildness of the attack, such restrictions in regard to isolation and disinfection as seemed judicious. Two days later the membrane on the tonsil had disappeared and a quinsy sore throat had developed. This disease rapidly went on to suppuration, and the right tonsil soon gave exit to pus,

which relieved the patient for a few hours. The left tonsil then became swollen and suppurated, but only after two or more lancings was the pus afforded a way by which it could reach the exterior. The day following the outlet of pus from the left tonsil this organ was covered with patchy membranous deposits of uncertain nature which did not appear follicular, and which made me anxious as to their possible diphtheritic nature. They were examined microscopically, and cultures were made from them which only showed the presence of streptococci and no Loeffler diphtheritic bacillus. Later and in a brief period this patient wholly recovered, and I concluded that I had to do with a form of sore throat that I have some difficulty in designating, and which, at all events, was unlike either, in its terminal stage, follicular amygdalitis, herpetic sore throat, or true diphtheria. At the same time I was attending the preceding patient I had another case of a different type, but puzzling and uncertain from more than one point of view. This case was that of a lady about middle age who, without knowledge of previous exposure to contagion, awoke in the middle of the night with a sore throat on the left side. When she went to bed in the evening she felt more lassitude and fatigue than usual; that was all in the way of appreciable symptoms. When I saw the patient in the early morning of the following day she had quite a firmly adherent patch of white membrane between the pillars of the fauces on the left side. After this membrane was brushed off I could see what were manifestly several points of follicular exudation coming out of the left tonsil. I prescribed my usual treatment of quinine, a cathartic pill, and Dobell's solution as a gargle, and said I thought the throat trouble would prove to be of innocent type. The next day my patient had some general malaise, slight fever, pain in limbs, and the false membrane had extended to the pharynx. During the following days the uvula was attacked and became coated with bits of false membrane. It was red, elongated, and infiltrated. The membrane on the tonsil and pharynx remained *in situ* for that day and during nearly a week afterward. Meanwhile the fever completely disappeared, there were few or no general symptoms, and the urine was free from albumin. The throat was quite sore, however, the sub-maxillary glands tender, and upon the spots where the membrane existed and was brushed off there was an eroded surface which bled slightly, and subsequently the membrane returned several times in the same locality. This case, when examined by means of the microscope, as applied to the exudate on the fauces and pharynx, presented essentially the same bacteria—viz., streptococci—that my previous case had done. Manifestly, however, the other clinical features were in several particulars distinct. What was this case? Was it diphtheria, was it a case of pseudo-diphtheria, or, in other words, a membranous sore throat? The latter was my judgment, and hence I declined myself to report the case to the health board, or to label it in a way that must of necessity carry terror to many hearts. Meanwhile I endeavored, by judicious isolation,

so far as I could, and proper local medication, to rid the case of whatever danger there might be to the patient and others. A carbolic gargle was used every hour or two, and immediately after the use of the gargle the back of the throat was painted with bichloride-of-mercury solution (1 part to 500 parts). After several days, as the membrane continued obstinately to form, I employed a drachm of the tincture of iron and half an ounce of glycerin, in repeated pencillings. Quinine, in moderate doses, was given internally. The throat still showing a tendency to the return of false membranes at the pharyngeal site, I ordered two pinches of freshly powdered cubebs to be taken every half-hour, and to allow them to be swallowed slowly, so as to have an intimate contact of the drug with the fauces, tonsils, and pharynx. The latter medication, I am glad to state, terminated the cure.

A third case, which has just recovered, presented some features of interest, which also carry with them reflections, of which the practical outcome may be considerable.

A delicate child, aged two years, is taken with nasal obstruction and sneezing, but no other symptoms obvious to an anxious mother. When I saw the child, late in the evening, I would not have examined the throat in view of the apparent innocence of the attack had I not been led to do so in view of past regrettable oversights in other cases. When I did, moreover, I was not much surprised to find both tonsils covered with numerous isolated patches of membranous deposit of white color. On the post-pharyngeal wall there was also a deposit apparently similar in nature. Upon a closer investigation of other signs, I discovered that the eyelids were swollen and œdematous-looking and the submaxillary glands were much enlarged and very tender on palpation. The urine passed during the day was small in quantity and very cloudy; on standing some hours, a noticeable quantity of uric acid deposited in the phial containing it. Upon examination with heat and nitric acid, no albumin was detected. The temperature was moderately elevated, as shown by the thermometer in the rectum—viz., 102° F.; yet the surface of the skin was cool and pallid. The medication employed was iron and glycerin applications to the tonsils and pharynx, cubebs and nitrate of potassium in pinches dry on the tongue, or mixed with a little sweetened water frequently, and whisky and milk as food and stimulant. In one week's time the child was well so far as the throat was concerned. For several days during the time the deposit was present on the pharynx and tonsils there was a considerable cloudy and watery discharge from the nasal passages, and although I could at no time detect any false membrane in the nasal passages, yet I thought it prudent to spray the nose several times daily and during the night with a moderately strong solution of borax and carbolic acid. During the continuance of the sore throat the child was isolated from the other children in the house; perfect cleanliness was enjoined in regard to all things used for the child; all cloths

used for wiping the child's nose or mouth were burned; suitable disinfectant agents were employed in the room during the attack; and later the room was thoroughly cleaned and ventilated. In this case no bacteriological examination was made, but it was assumed that the Loeffler bacillus was absent, in view of the fact that the disease was at no time severe and general blood-poisoning of serious import was evidently held in abeyance.

The three cases reported will serve as a basis for the remarks I shall now make and which I trust shall be sufficiently interesting to excite discussion. It is clear that old methods of differentiation between true and false diphtheria are not even as satisfactory as formerly, or rather they are even more unsatisfactory than formerly. The reason for this statement lies in the fact that the bacteriologist tells us that usually these cases can be classified solely with the aid of the microscope and by means of cultures and inoculations. The visible appearances of the false membrane and the other clinical features are frequently deceptive as regards both the diagnosis and prognosis of the disease. A membrane may be white or dirty-gray in color, perhaps, adherent to the mucous membrane beneath, leaving behind it an ulcerated surface when forcibly detached, and yet the microscope may show only different forms of cocci, and the patient may either succumb or recover, according to the intensity of the march of the disease, so far as the symptoms and sequelæ are concerned.

In other instances, like clinical evidences may be present, and the microscope and cultures may reveal the true bacillus of diphtheria. In these cases we may also have either a favorable or fatal termination. We must admit, however, that the percentage of deaths in these latter instances is much larger than those in which cocci alone are discovered. Practically, then, our minds are relieved very much when the cultures are favorable and even though the symptoms of disease are threatening. Whenever the diphtheria bacillus is discovered, and despite the fact that the march of the disease is at first apparently mild, we have a dread of what the probable outcome of it will be. Now, as regards remedial treatment, should we make any differences? I believe not, so far as I can at present determine. The same local and general agents should be employed, and in either case the throat must be properly disinfected and the system protected against the constitutional poisoning by suitable local or systemic remedies.

The only but very essential difference in such cases, so far as

remedial interference is concerned, is that we work with our remedies very trustfully, or else we have a continuous anxiety as to the manner the disease will end. In regard to prophylaxis of others, I believe our duty is different according to the precise diagnosis which is made. If we have to do with a case of true diphtheria, it behooves us to say so, and to follow all the most rigid rules of isolation and disinfection, so that the disease may be prevented from extending. At times the carrying out of this protective treatment is far less troublesome and expensive than at others. Where the patient is living at home and where there are one or more vacant rooms, the problems are readily satisfied. In hotels, boarding-houses, and, worse still, among the tenement-house population of New York, we have many considerations to look to, and which necessarily increase our difficulties. We wish to save our patient expense and great annoyance. We are compelled to protect well persons by every motive of right and expediency. Whenever the cases are clearly defined by the clinical manifestations and by the bacteriological tests, we can not, we must not, hesitate as to our plain duty; but alongside are just the class of cases which I have briefly reported, and which give us many a pang in our effort to reconcile conflicting interests. About these instances I think the physician should be permitted to use his judgment and not be forcibly compelled to label them in such a way as to carry terror and great anxiety to many people with a word of evil import, but to speak, as I have stated, with good sense, and say membranous when the case is innocent or undetermined, and employ the term diphtheria solely when macroscopic and microscopic examinations unite together to fix the nature and character of the disease.

In regard to the use of *sulphur* in disinfecting rooms and apartments after a case of sore throat, and especially of the form I would continue to call *membranous sore throat*, I would emphatically say that I believe it to be a very pernicious method of dealing with them. I say this, first, because I believe it is practically useless as a means of disinfection, as seems distinctly shown by the investigations of Prudden. In the next place, I believe sulphur disinfection necessarily alarms many people. There is a certain air of mystery and preparation about its use, and the health board must, as a rule, be there in their official capacity, which adds, seemingly, to its importance, as well as to the gravity of the situation. Now, then, why not abandon this show of doing for reality? Are not cleaning, plenty of air and sunlight, if they can be had, purifying

agents of far greater importance and value than the burning of a few pounds of sulphur in a room? As to the agent of the health board—the working part of the disinfecting apparatus—is his presence an innocent factor in this scene of activity? Does he not appear sometimes in doubtful cases direct from genuine and most malignant ones? Does he appear solely among cases of diphtheria or pseudo-diphtheria? Is he not moving constantly from house to house and perhaps carrying with him microbes of scarlatina, measles, and it may be of small-pox? These are queries certainly most pertinent and which have not yet been met and answered in a wholly rational and convincing manner.

A few words in regard to the cubeb treatment of membranous sore throats. There is little doubt in my mind, even at the present time, that cubeb has a very remarkable curative effect in all the various forms—not merely the innocent type which will usually get well under different treatments, but also in grave forms, which I have always believed hitherto were cases of real diphtheria. This treatment by cubeb is not at all new, as you are aware, and I myself wrote an article lauding it, which appeared many years ago in the *American Journal of the Medical Sciences*. I have always believed in it and thought I had acquired very considerable evidences of its great value. For several years, until the past winter, I had practically abandoned its use, hoping that we had found in the internal use of bichloride of mercury a medication of greater importance and efficiency. In this belief, so far as my experience goes, I have been greatly disappointed. Bichloride of mercury, in my judgment, when given for several days continuously in large doses, is objectionable by reason of its general depressing effect on the system and its possible destructive action on the blood. Moreover, I have never been able distinctly to observe any good effect of the bichloride when taken internally in a case of real diphtheria. This statement may be wholly reversed when I speak of cubeb. I know of no great objection to its use in bad cases of diphtheria, continued throughout the course of the disease in frequently repeated and quite large doses. Formerly I gave it in the form of a mixture, as I believed in its general favorable action on the system, and was of the opinion that its special value was through its being eliminated, in part at least, through the respiratory mucous membrane, and perhaps also through a portion of the digestive tract. This belief I still entertain; but I now believe, even more than formerly, in the decided utility of its local action. For this reason my manner of

giving it differs from that hitherto employed by me. I order the cubebs to be freshly ground in the form of a fine powder, and this powder is given dry on the tongue frequently, every half hour, or oftener, if possible; several pinches of the powder are taken on each occasion. Occasionally I mix a little nitrate of potassium with the cubebs, and rarely with children a small quantity of sugar to make the powder more attractive for them. I try, however, to add as little sugar as possible, because I am of opinion that it lessens the power of the local action of the cubeb on membranous sore throat. The nitrate of potassium, besides being cooling and refreshing upon the faucial and pharyngeal mucous membrane, has an unquestioned antiseptic action; whether or not the cubeb has, I am not yet prepared to state positively. I am, however, desirous of having this subject tested by the bacteriologists, and I would urge those who may read this communication and who shall have the opportunity of testing it to endeavor to determine to what degree, if any, a strong infusion or maceration of powdered cubeb shall show itself inimical to streptococci of different kinds, or indeed to the real Loeffler bacillus. Clinically, however, I am positive in regard to the excellent curative effect obtained by the use of cubebs. With small children a very simple way of administering the remedy is simply to moisten the index finger, put it in the powder once or twice, and then rub it off in the mouth of the baby. Many children suck the powder from the finger without apparently having any unpleasant sensations, and in this manner we obtain a very efficient local and general medication. Contrast this way of doing with an innocent drug with that of giving the $\frac{1}{30}$ or $\frac{1}{100}$ grain of bichloride of mercury every hour to an infant for many successive days, and I believe you will agree with me that there is no proper comparison between the two remedies.

For those who are skeptical about the value of cubebs in all forms of membranous sore throat I can only say, Try it for yourselves and see. I shall be greatly surprised and disappointed if after an extended use of the remedy you shall be prone to disagree with me as to its great power and efficacy.

Discussion.

Dr. MORRIS J. ASCH, of New York: I do not know of any better way to assist Dr. Robinson as he desires than by relating one's own experience. The same difficulty which he has met with I have myself encountered. During the past winter I have seen cases in which it was extremely diffi-

cult to make the diagnosis between diphtheria and membranous sore throat. Like the author, I know of no way to make an absolute diagnosis except where there are striking clinical features or by microscopical examination. As to the use of the microscope, you will all agree with me that it is not practicable for the practitioner in every case coming under his observation. The cases of membranous sore throat to which I refer had at first the appearance of a light attack of diphtheria. Take, for example, the case of a man about forty years of age, of great business responsibilities, whose brother was a general practitioner in New York, and feared that the patient was going to have an attack of diphtheria. I found a membranous appearance on the surface of the tonsils, not thick and white as it usually is in diphtheria, yet presenting a suspicious appearance. I did not wish to alarm the family, yet I believed it was right that certain precautions should be taken. Therefore, without going to the extremes of quarantine, I simply requested that the family be kept away from him as far as possible. He was not sick enough to be in bed. As is my usual custom in such cases and in diphtheria, I made a local application of tincture of chloride of iron, gave quinine after the old fashion, and then, in deference to the new method, sprayed the throat two or three times a day with 1-to-500 bichloride solution, directed a more frequent spraying or gargling with a solution of chlorate of potassium, and ordered whisky several times a day. The membranous patch began to disappear from one side, and I believed that he was getting well, when the patch appeared upon the other side. That was treated, when it appeared on the pharynx, looking more like the ugly, shiny membrane of diphtheria, and thus it continued to reform in new places as fast as it was attacked at a prior one by the treatment just mentioned. Finally getting tired of this, I applied a solution of nitrate of silver, forty grains to the ounce of water, after which there was no further reproduction of membrane and in a few days the patient was well. No other member of the family became affected, although there were several children. He was not strong after the attack, and required stimulants for three or four weeks. That was one of a series of cases which I saw during the winter, and it was impossible to say at their outset whether they were cases of diphtheria or of membranous sore throat. I treated them as if they were cases of membranous sore throat and not as pure diphtheria, and all terminated favorably.

In another family one of the children had sore throat with the formation of a membrane. As two or three boys at the same school had a similar sore throat, I suggested that he be put into a room by himself, as I feared diphtheria. The mother asked if I was sure that he had diphtheria, and I had to reply that I was not. She said she would take the responsibility of not quarantining him, and she proved to be right. It is frequently wise to take the opinion of a mother about her child's condition when one is in doubt.

I thoroughly agree with Dr. Robinson with regard to labeling a house in which diphtheria is present. We think it necessary to do certain things because they are modern and scientific, but I believe that, with all the suggestions made with regard to antiseptics, new remedies, bacteriology, etc., we are in danger of going too far. We should do well to halt, look back, and see if we have not dropped some things that are really useful and taken up some that are superfluous.

As to cubeb, I have found it very useful in diseases of the throat. I hope to employ it as suggested by Dr. Robinson, and will report at the next meeting.

Dr. D. BRYSON DELAVAN, of New York: I coincide with much that is contained in the paper. The suggestions made are valuable. Regarding bichloride of mercury, I was taught the use of this agent in diphtheria about 1878; I have used many other remedies, but have found nothing which seemed to answer so well as bichloride, and have obtained better results from it than from anything else. While, therefore, I am happy to hear of what may prove more useful, theoretically as well as practically the bichloride appears to take the lead, and I should be in no haste to discard it until a better method of treatment had been proved to exist.

Dr. J. WRIGHT, of Brooklyn: A few years ago at the hospital with which I am connected we were interested, as was also the profession, in cases called croupous rhinitis. In some cases the nose was full of membrane, so that casts, more or less complete, could be drawn out which resembled the cast of true diphtheria. Until recently those were called cases of benign croupous inflammation of the nose, but last winter Baginsky reported several such cases in which he had found the Loeffler bacillus, yet the patients had had no constitutional symptoms whatever and had recovered. The importance of this observation has been enhanced by its more recent confirmation by Concetti, an Italian physician. If that is true, it throws the whole question of diagnosis from the bacteriological and microscopic aspect into doubt, which is a serious matter, for we have to treat diphtheria and not the Loeffler bacillus. In any case of croupous inflammation of a mucous membrane we are, according to this information, unable to say, although the Loeffler bacillus may be present, what may be the prognosis, whether bad or favorable, and it justifies us in managing mild cases just as we would severe ones, so far as sanitary precautions are concerned.

Regarding the inutility of sulphur fumigation, I quite agree with the author. It has no effect on any micro-organism as used by the boards of health.

I have had no experience with cubeb, but it seems to me we need not expect to accomplish much in the way of disinfection by blowing a little of the powdered cubeb over the tonsils or by painting them with bichloride of mercury. While dead bacilli are numerous on the surface

of the false membrane, the majority of the live ones—those which do the harm—are buried in the membrane where the germicide will not reach them. If these agents do any good it is through the circulation; but I doubt whether the clinical evidence of their utility will stand critical analysis. At least, I can not conceive in what way they would have any effect except upon a few loose bacilli. Still, I use bichloride because I can do no better. These remarks apply equally to swabbing. I do not think the letter which Dr. Robinson has read helps him out of the difficulty, for it does not appear reasonable that enough of the cubeb can be absorbed to have the effect mentioned, and, as just stated, it can have no local influence upon the deeply situated bacilli.

Dr. JOHN O. ROE, of Rochester, inquired of Dr. Robinson whether he distinguished between membranous sore throat and diphtheria, holding that one affection was constitutional and the other local.

Dr. ROBINSON: I am at present in a doubtful frame of mind. I have regarded diphtheria as a constitutional disease, and have hitherto believed that membranous croup was a local manifestation of diphtheria or of a constitutional disease. In the doubtful position which I occupy, I simply provisionally use the term membranous sore throat to cover as well as may be a condition which I can not precisely define. That is to say, all cases in which I may be in doubt I would call membranous sore throat so as not to use a term of bad odor. When I am sure of what it is, I say it is either diphtheria or it is not; if it is amygdalitis, I say so. But, as just stated, if I do not know what it is, I think it best to speak of it as membranous sore throat.

Dr. ROE: It is an undisputed fact that all infectious diseases are caused by germs. The poison, however, does not consist in the presence of the germ itself, but in the ptomaines which it generates, a fact proved by Wood and Formad several years ago. They showed that all diphtheritic membranes remained equally poisonous after they had been absolutely freed from germs. In cases of diphtheria, as already stated, it is the Loeffler bacillus that is recognized as the germ which produces the disease and is found present in all diphtheritic exudates.

Before inoculation of the system with this bacillus can take place, however, we must have a constitutional derangement that furnishes in the body a good feeding ground for the bacilli. While a person is in good health inoculation is well-nigh impossible. Now, therefore, before we can have a membranous exudate, there must be a constitutional disturbance; and I believe that all membranous exudates of an infectious character are of constitutional origin.

It is not infrequently the case that an infection is of so mild a character and the exudate so slight that the affection is believed to be nothing more than an ordinary sore throat and no importance is attached to the case, whereas other members of the same family may shortly afterward be attacked with diphtheria of malignant form. The infection in the two

instances had doubtless been the same, but the difference in the severity of the affection depended, in each instance, upon the systemic condition of the persons affected. Therefore I believe that we can not be too cautious in regard to all cases of sore throat in which there is suspicion of a diphtheritic character; for a person having it in a very mild form may convey it in a very malignant form to another more susceptible individual.

In regard to the extreme precautions mentioned by Dr. Robinson, I quite agree with him that in some instances extreme precautionary measures are unnecessary, providing the patient is kept in a perfectly sanitary condition, and the infectious portions of the disease—all exudate and all expectorations or discharges from the throat—are disinfected or burned, that there may be no danger of communicating the disease to other persons. It is of the utmost importance that these precautions of thoroughly destroying all exudates should be observed, for if they are permitted to become dried and float in the air, communication of the disease may more readily take place.

In regard to the treatment of these cases, I use locally, in nearly all instances, peroxide of hydrogen in a twenty-per-cent. solution, and have found it an excellent remedy, not only in rendering the membranous exudate innocuous, but in preventing the further invasion of the disease. In using this remedy care should be taken to procure a solution as free from acid as possible. I have found this remedy more effective than bichloride of mercury, for a solution of the latter strong enough to have the desired effect upon the membrane would be intolerable.

Dr. ALEXANDER MACCOY: Some years since in my own family the appearance of membrane, accompanied with sore throat, was of frequent occurrence, and would have caused me the greatest anxiety had I not had a method of excluding true diphtheria—an arbitrary method, it is true, but clinically considered a very comforting one. It is as follows: As long as the membranous exudate remained marginal, confined *strictly* to the surface of the tonsil, I felt no alarm. In true diphtheria the membrane will rapidly spread beyond the tonsil. Involvement of other than tonsillar tissue I regard as true diphtheria. Cases of acute follicular amygdalitis, or pseudo-diphtheria, if you will, are always marginal in my experience. They belong to another category of diseases than that of true diphtheria. I am in accord with other observers who regard membranous amygdalitis as one of many manifestations of a rheumatic diathesis. The treatment by rapid elimination has found most favor in my own experience. In certain cases of true diphtheria—accepting a specific bacillus as the cause—we are often left in doubt as to the diagnosis if we fail from any cause to find the bacillus. This applies especially to the *exceptional* cases where the membrane is confined for some time to the tonsils.

Dr. J. C. MULHALL: I do not believe there is a member of this association who doubts that there may be a membranous inflammation of the

throat which is not diphtheritic. Can any one doubt that *any* mucous membrane of the body may be the seat of inflammation attended by the formation of membrane which is not diphtheritic? For instance, the mucous membrane of the rectum. But if not diphtheritic, what is it? I think this association should elucidate the question of membranous sore throat which is not diphtheria. Working in this line, I published a paper recently and detailed some cases of membranous sore throat which I thought were proved conclusively to be caused by the influenza. Why we did not see such cases during the epidemic the winter before I am unable to explain, but my attention was called to it last October in such a way that I could not help noticing it—namely, in my own child. I examined the condition perhaps six to ten times a day with perfect illumination, and the rule laid down by Dr. MacCoy—that so long as the exudate is marginal it is not true diphtheria—did not in this case hold, for it was not marginal. The membrane was on the tonsil, on the pharynx, and also on the uvula. There was also high temperature, yet catarrhal symptoms were almost totally absent; there was little or no swelling of the tonsils, little or no oedema of the soft palate. The membrane was well defined, but quite thin; was white, but not of the dirty white seen in diphtheria, yet there was enlargement of the glands at the angle of the jaw, with the general depression which accompanies diphtheria. The membrane disappeared about the eighth day, no local applications whatever having been made. That was the first and mildest case which I have seen of membranous sore throat attending the influenza; since then several have come under my observation. Three were seen in consultation, and in all it was agreed that it was not diphtheria, and that the houses should not be posted. One could not mistake such cases for diphtheria after having had them under observation a day or two. In diphtheria there is a catarrhal inflammation surrounding the membrane, while here the catarrhal inflammation was almost wholly absent. The edge of the membrane did not proceed in so crescentic an area as in diphtheria, the glands were not enlarged to the same extent, there was not such great depression; there was the alternate flushing and chilliness so common in *la grippe*, but I believe that in all cases of membranous sore throat there is a diathetic condition behind it. I am sure that there are cases of malarial membranous sore throat; I have the records of some such cases in which the membrane disappeared within twenty-four hours after cinchonizing the patient.

I am not in accord with Dr. Robinson with regard to labeling houses. People who do not enter houses in which there is diphtheria are not likely to contract the disease. And suppose it does alarm the public, is this not better than to spread the disease? Regarding cubeb, I believe it is mentioned in Morell Mackenzie's work, but I fail to see how, if diphtheria kills by the absorption of ptomaines, this agent can be of service.

Dr. WRIGHT: I would not be understood as saying that there are no

cases of membranous inflammation that are not really diphtheria. On the contrary, there are a number.

Dr. ROBINSON: This discussion has been very instructive to me. I will not try to review it all, but should like to have one or two points go forth from this association strongly emphasized, and carry such weight as they necessarily will, being the expression of opinion of specialists devoting study to this subject. The chief point is a statement of the uncertain position which we must yet necessarily occupy with regard to certain forms of sore throat. The public should in some way learn through the general medical profession that there are cases of membranous deposit in the throat, accompanied by general phenomena, more or less severe, which we are justified in pronouncing not diphtheria, which we are able to manage intelligently and without the obligation of at once naming a dread disease and thus possibly sounding a false alarm.

I differ entirely with Dr. Mulhall on the advisability of posting houses; I consider it highly pernicious. As bearing on this point I may mention the fact that at a meeting of the Practitioners' Society of New York the past winter Dr. Henry F. Walker read a very able and attractive paper, taking the view that croupous pneumonia was a contagious disorder, and that therefore it devolved upon the physician to warn the family and friends, and to take such measures as would prevent as far as might be exposure of the well. Now, in some remarks upon that paper, I tried to express the view that it would be highly pernicious to have the public look at it in that way. It is not exactly the scientific view that I am now arguing; it may not be exactly the medical aspect, but it seems to me to be the view of common sense. I believe it is prejudicial to the comfort of families and to the general well-being of the public, certainly prejudicial to the comfort of the practitioner of medicine, to carry too far the idea of contagion of very many acute diseases. I should be very loath to see that idea carried beyond the point at which it would prove practically useful. So much in general terms. Specifically, I disagree with Dr. Mulhall regarding the posting of houses in diphtheria, because I think there is very little evidence that the disease is conveyed through the air, except immediately about the patient. I do not believe this of measles, scarlet fever, and small-pox, but I do believe it is true of diphtheria. A contrary view acts perniciously on the public.

Two or three summers ago I had at Newport a case of throat trouble which I feared might be diphtheria, yet it was not of malignant type and I doubted whether it was a genuine case. So, while taking due precautions, I chose not to notify the board of health, as that would mean the labeling of a house at the end of one of the most traveled avenues and would cause alarm throughout the entire town and do much mischief. Last summer I had a case in the same city which for ten days I thought was one of typhoid fever, yet I reserved my diagnosis, kept the patient in a private room, and at the end of that time was able positively to say that

it was a case of malarial poisoning. By this conservative course, waiting until a positive diagnosis was possible, a large amount of money and much trouble were saved the person whose house was rented, as well as the general public.

I should like very much indeed to have a statement go forth from this association expressing an intelligent appreciation of the difficulties involved with reference to diphtheria, and what should be our conduct in cases of doubtful diagnosis.

Paper.

INTUBATION FOR STENOSIS OF THE LARYNX IN A BOY TWELVE YEARS OLD. RETENTION OF TUBE FOR TEN WEEKS. TRACHEOTOMY. DEATH FROM GENERAL TUBERCULOSIS.

By CHARLES H. KNIGHT, M. D.

THE question of intubation *versus* tracheotomy in chronic stenosis of the larynx is still unsettled. The history of the following case is interesting in many particulars, and may be of value as a contribution toward its solution.

The early notes were taken by the house staff of Bellevue Hospital, to whom I am indebted for many courtesies:

The patient, a boy twelve years of age, was admitted to the hospital on October 14, 1891. According to the statement of his physician, who brought him, he had been ill for a week or more with dyspnœa, aphonia, cough, and fever, his temperature reaching on one occasion 104°. No family history was obtainable, but it may be assumed that bad hygiene and poor diet were important elements in the ætiology of his disease. At the time of his admission the boy was fairly well nourished. He could not speak above a whisper and his breathing was quite noisy and labored. He had some cough, with very moderate frothy expectoration. The temperature was slightly elevated and the pulse rather more rapid than normal. There was no complaint of pain. On physical examination, sibilant and sonorous râles were heard over both lungs, and the expiratory murmur was somewhat prolonged. The percussion note was normal. All the other viscera seemed to be healthy. It does not appear that the larynx was examined with the laryngoscope or that a microscopic examination of the sputa was made. For a time there was some improvement under treatment, but the breathing continued difficult and the voice was not regained. A marked feature of the dyspnœa throughout was that it became decidedly more aggravated at night, so that the boy would frequently start up from sleep gasping for breath. These nocturnal attacks were relieved by inhalations of oxygen. The treat-

ment otherwise was mainly supportive, combined with the occasional use of cough mixtures, antispasmodics, medicated steam inhalations, etc. For three or four weeks the condition of the patient fluctuated, sometimes better and again worse, but on the whole it decidedly failed up to the time when I first saw him, on November 8th, by the kindness of Dr. W. B. James. On the day previous Dr. James thought he discovered with the mirror a neoplasm beneath the vocal bands. On examination of the larynx there was found to be general hyperæmia of the mucous membrane. The arytenoids were normal, except that the right aryepiglottic fold seemed slightly thickened. The vocal bands were red and did not approximate on phonation. Beneath the cords, extending along their entire length and invading the anterior commissure, was a mass of tissue paler in color than normal mucous membrane, having an uneven and at certain points an almost papillated surface. No ulcerations or erosions could be discovered. The air passage was converted into an irregular slit so narrow as to appear utterly inadequate for respiration. Pulse 120, respiration 32, temperature 102°. On November 9th, the patient having passed an unusually bad night, an O'Dwyer tube intended for a child of four was introduced. At first it excited a good deal of irritation and cough, which subsided shortly after withdrawal of the string. Stenosis was at once relieved; the respirations became quiet and were reduced to eighteen per minute. The child passed a peaceful night for the first time in many weeks. The tube was coughed out in about twenty-four hours, but for three or four days there were no indications of return of dyspnoea. Careful physical exploration at this time discovered no sign of pulmonary disease. In the mean time an attempt was made to remove a piece of the growth with the Mackenzie forceps, but the patient was so nervous and intolerant that it was impossible to get a large enough fragment for satisfactory microscopical examination. My first impression of the lesion was that it was tubercular, but the absence of pulmonary signs and the marked change for the better in general condition after intubation tended to indicate simple subglottic papilloma. It was finally decided to reinsert the tube in the hope of dissipating the neoplasm by pressure. Accordingly a tube of the next size larger was selected, and it was worn with perfect comfort for twelve days. The patient still continued to improve and the lungs remained free. The tube was then removed with the extractor under cocaine. A satisfactory view of the larynx was impossible and the tube was therefore not at once replaced, in the hope that the irritation might subside so as to permit an examination. On the contrary, however, toward night the dyspnoea began to return and after midnight became so urgent that oxygen inhalations were resorted to and the advisability of tracheotomy was considered. The following day was passed in tolerable comfort, but toward evening (November 25th) breathing again became labored, and a tube was for the third time introduced. The largest sized child's tube in the O'Dwyer case was passed

with ease and without cocaine, and gave the usual relief. This tube was worn until February 3d, a period of *ten weeks*. It was then removed with the extractor, as it appeared to be getting imbedded in oedematous swelling of the arytaenoids and ventricular bands. Through all this time the patient made steady progress, gained in flesh and strength, and made no complaint of the tube. On withdrawal of the tube the secretions were slightly tinged with blood. A hasty laryngoscopic examination showed reddening and erosion of the vocal bands and granulations projecting into the lumen of the larynx from its posterior wall. The subcordal growth seemed to have been effaced. At any rate, it had been so compressed that it no longer projected beyond the free margin of the cords. The subsequent history of the case may be briefly told. For several days the boy continued very comfortable. Obstructive symptoms then gradually returned and it was decided to transfer him to the surgical division for tracheotomy, thyrotomy, and radical extirpation of the neoplasm, the idea still being that it was a purely local affair. The trachea was opened by Dr. Markoe on March 16th, six weeks after removal of the intubation tube. From this time the patient steadily failed, and about seven weeks later he died of general tuberculosis.

The following description of the larynx and of the microscopical appearances has been kindly furnished by Dr. John S. Ely:

The larynx is of normal size. An opening through the first and second tracheal rings anteriorly represents the situation of the tracheotomy tube.

On opening the larynx, its mucous membrane is found to be everywhere much swollen and ulcerated. The epiglottis is thick and irregular in shape as the result of ulceration. The superior or false vocal cords are likewise much thickened, unduly overhanging the true cords, and materially encroaching upon the ventricles. In places the edges of the true vocal cords appear to be quite sharply defined and rather less affected than any other portion of the mucous membrane. But the tissue immediately below them is greatly thickened, causing decided stenosis. Here the ulceration of the mucous membrane is most marked, and in places small flakes of necrotic tissue appear to be about to separate.

Microscopical examination of a portion of one of the false vocal cords and the adjacent tissue discloses the characteristic features of tubercular inflammation. In places the tissue is denuded of epithelium, exposing a poorly nourished tissue, consisting of a loose reticulum, in the meshes of which are many small spheroidal cells, epithelioid cells, and giant cells. This tissue is widely distributed and is encroaching upon the normal tissue of the larynx. In places it is diffuse in nature, in others it is more or less concentrically arranged, presenting the appearance of the miliary tubercle. Scattered through this tissue and on the ulcerated surfaces are

small areas of finely granular or cheesy material, the result of coagulation necrosis.

Sections stained by the Ziehl-Neelsen method demonstrate the presence of tubercle bacilli in large numbers, more particularly in and near the necrotic areas above referred to.

The points of special interest to which I would draw attention are (1) the simplicity of intubation as compared with tracheotomy, and the ease with which the tube was extracted with the aid of cocaine and under the guidance of the mirror; (2) the slight amount of disturbance excited by the tube and the absence of objection to its prolonged retention. The patient took both fluid and solid food without difficulty on the second day after intubation, and the tube remained *in situ* for ten weeks. Meantime all unfavorable symptoms disappeared, the boy steadily gained in weight, and improved in general condition.

Finally, the question suggests itself, Was this a case of primary laryngeal tuberculosis? It is true that certain pulmonary signs of a suspicious character were recorded, but it must be admitted that their definite import was seriously masked by the presence of laryngeal stridor, and it is very sure that no sign whatever of pulmonary disease could be detected after the patient began to breathe quietly through the intubation tube. The contrast in the deportment of the patient after intubation and after tracheotomy was very striking. During the former period his improvement was without interruption; while wearing the trachea tube he steadily declined until a fatal termination was reached. It may be unfair to institute a comparison between the two procedures in this particular case, since in the gradual evolution of the general tuberculosis the boy's condition must have been less favorable when his trachea was opened than it was when the intubation tube was introduced. At the same time, it is impossible to divest one's self of the belief that he was far more comfortable with the laryngeal than with the tracheal tube. The objection to the former—that it interferes with phonation—did not hold in this case, because the voice was already abolished. The advantage of avoiding the annoyance and irritation of a tracheal wound, and more especially of conveying to the lungs in cases of this kind a supply of fresh air through the natural passages, can not be estimated. I believe there is a field for intubation in similar cases, and that it offers substantial advantages over other methods in that rare condition of obstruction of the glottis by tubercular infiltration.

[Since the foregoing paper was read, sections from the region of the stenosis and from the upper portion of the trachea have been kindly examined by Dr. Ely, who reports as follows: The submucous tissue over the cricoid cartilage is much increased in thickness in consequence of the development of a rather loose new tissue, rich in spindle-shaped and irregular cells, and fine fibers irregularly disposed in a more or less fine reticulum. More superficially (toward the lumen of the larynx) this tissue becomes somewhat richer in small spheroidal cells and shows a tendency to concentric arrangement around small cheesy areas. This latter tissue forms the floor of the laryngeal ulcerations. The thickening of the mucous membrane at the point of stenosis appears to be due to the development of tubercular tissue differing in no respect from similar tissue always found in the immediate neighborhood of tubercular ulcerations of other mucous membranes, and which is a pronounced feature of the elevated edges of tubercular ulcers of the skin.]

Discussion.

Dr. BOSWORTH: Dr. Knight's paper is of special interest to me as affording an opportunity of clearing up the obscure question of the pathology of this form of laryngitis. In the second volume of my recent work on *Throat Diseases*, I have taken the ground, in discussing the subject of subglottic laryngitis, that the especial lesion is due to hypertrophic changes in the lymphatic tissue in the subglottic portion of the larynx. Sappey has shown us that this region is the seat of an unusually rich distribution of the lymphatics in children, and in endeavoring to account for the enormous thickening which is met with in this region, in the disease which Dr. Knight has described, we are forced to the conclusion that it is lymphatic in character, especially as hypertrophic changes in the mucosa proper could scarcely assume such proportions. I trust that Dr. Knight will go farther in his case and have the tissue examined with reference to this point.

Dr. JOHN O. ROE: Intubation is not only an admirable method, but at the present time we might say it is the only proper method of treating certain cases of stenosis of the larynx.

An exceedingly interesting case of stenosis of the larynx came under my observation last February, in which the employment of intubation gave a most happy result. The stenosis in this case was due to a syphilitic gumma situated just below the left vocal cord. The patient had for three days been suffering from extreme dyspnoea, and it was thought on several occasions that she would die from suffocation. On my being called in consultation to see the patient, a laryngoscopic examination revealed the cause of the difficulty. The tumor was so located below

the cord as to press it upward and over against its fellow, and to cause great obstruction to inspiration, while expiration was comparatively free. I at once sent for my instruments for intubation, and as speedily as possible inserted a tube, which was with some difficulty forced past the obstruction. The relief from the dyspnœa was immediate and permanent. The patient was placed upon the use of large doses of iodide of potassium, and the gumma was so far reduced in four days that the tube became loosened and was coughed out, being no longer required, and the patient speedily recovered. This case will be found reported in full in the *Buffalo Medical and Surgical Journal*, 1890-'91, p. 718.

The method of treating stenosis of the larynx by intubation, in either acute or chronic cases, is far preferable to the use of Schrötter's dilators or in fact, any other method of dilating the larynx. It is only in exceedingly rare cases that it will not entirely take the place of tracheotomy.

Dr. C. C. RICE: The value of the O'Dwyer tube as a substitute for preliminary tracheotomy in cases of laryngeal growths is just beginning to be appreciated. In a case of multiple papilloma of the larynx in a child, several of the growths being attached to the vocal bands, I did not consider it safe to introduce the forceps before resorting to tracheotomy, but for the relief of the urgent dyspnœa which followed the introduction of the forceps the O'Dwyer tube was placed in the larynx. The growths were removed by several operations with the forceps, and the tube was replaced after each seizure with the forceps. The subsequent course of such cases is usually unsatisfactory, as Dr. Knight has said, and in my case regrowth of the tumor finally necessitated preliminary tracheotomy and thyrotomy. In syphilitic cases, like Dr. Roe's, and in those where the growth is single, intubation skillfully performed is a satisfactory substitute for preliminary tracheotomy, but in children, in whom a laryngeal operation is more difficult and in whom the growths are apt to recur, I think it will be conceded that tracheotomy is the wiser operation.

Dr. J. WRIGHT: I have been interested in the remarks of Dr. Bosworth regarding the nature of these papillomatous growths. I have examined a number of them and found the surface of the projection presenting the same appearance as papillomatous growths, while deeper the appearance was that of ordinary inflammatory tissue, very hard to distinguish microscopically from lymphoid growths. Regarding subcordal laryngitis, I have never had opportunity to make such examination.

Dr. KNIGHT: As already stated in the paper, the examination of what structure could be obtained during life was unsatisfactory. The pathologist's report on the post-mortem specimen refers to the ventricular bands. I will have the vocal cords and subjacent tissues examined, although there can be but little doubt that in the advanced stage of the lesion similar changes had taken place at the site of actual stenosis.

Dr. Bosworth replied to an interrogatory by Dr. Mackenzie that he regarded the change as hyperplastic in a large degree, quite similar to that occurring in enlarged tonsils.

Paper.

RARE FORMS OF LARYNGEAL GROWTHS.

By ALEXANDER W. MACCOY, M. D.

IN presenting forms of laryngeal growth exceedingly rare in my experience as an individual observer, I am not unmindful that some may prefer to class one of the cases herein reported among the frequent growths seen in the larynx. However, the consideration of these two cases is from the standpoint of my observations, which may be greatly at variance with yours.

The first case is a myxoma which came under my care in the year 1890. This is the first and only case of myxoma of the larynx which I have seen in twelve years' work in laryngology. It has been my fortunate experience to have seen most of the other rare tumors of the larynx. In a very cursory investigation of the subject of myxoma of the larynx I find the statement "exceedingly rare," "very rare" made by every observer excepting Fauvel. In the writings of Sir Morell Mackenzie the statement is made that he had never seen a primary case of myxoma of the larynx. In Ashhurst's *Surgery*, in the article written by Dr. J. Solis-Cohen on Tumors of the Larynx, Dr. Solis-Cohen mentions only four cases seen by him, one of these multiple. Since the time the article was written Dr. Solis-Cohen states that he has not seen another case of the kind. The annals of this society contain a report of a *very* interesting and remarkable case of multiple myxoma of the larynx reported in 1880 by Dr. Clinton Wagner. This case was remarkable in that spontaneous expulsion of the tumors took place at varying intervals, after which a complete cure resulted. In Fauvel's work on the larynx, in his summary of three hundred cases, the remarkable showing is made of fifty-three cases of myxoma. Of these fifty-three cases, I find only three microscopic examinations of myxomas. If this record is accepted, it is certainly remarkable, but if the microscopic test is taken, there are but three cases, in fact, which seems nearer the ratio, found by other observers outside of France. Fauvel also makes the statement that the myxomatous

growths are next to papillomata in frequency, and remarks that the number of myxomas shown by him to foreign observers at one of his *séances* was greater than these observers had witnessed in many months in their respective countries. The report of my case is as follows :

Mrs. Lena C., aged thirty-nine, four months advanced in pregnancy, had suffered from a defective voice for two years. There was difficult speaking, which was greatly increased by prolonged use of the voice; hoarseness was marked, respiration jerky. She had a slight and frequent cough. No marked embarrassment of respiration and no pain. General condition good. Laryngoscopical examination revealed a tumor on the right side of the larynx as large as a Lima bean and resembling it in shape. The growth appeared to spring from the ventricle of the larynx or from the margin of the orifice of the ventricles, and overlapped the right vocal band, excepting a small portion posteriorly, which was only exposed during phonation. The left vocal band was also covered by the tumor during the phonatory act. The growth was smooth in contour, flattened from side to side, and of a pale, pinkish-yellow color. The capillary network of vessels covering the tumor was plainly visible over the translucent mass. The macroscopic appearance of the formation was precisely similar to that of a nasal myxoma. The growth was easily removed by a Mackenzie crushing forceps. The attachment was seen to have been around the margin of the laryngeal ventricular orifice. The voice immediately became normal, and all laryngeal discomfort disappeared. The microscopical examination showed the tumor to be a true myxoma.

The second case was one of fibroma, which can not properly be considered so rare as a myxoma, yet, in comparison with the frequency of papillomata, must be considered as at least uncommon. Eleven per cent. is given by Mackenzie as the ratio of frequency. Fauvel gives it as five per cent. While I can not give the average percentage of a large number of cases, I am inclined to believe that it would not be over five per cent., possibly less. Individual experience goes for little, and must vary enormously with different observers, according to the position they hold in relation to the profession or the community in which they live. An observer of great eminence as an *expert* will see many more cases of rare and peculiar growths than will one even in large practice in the natural course of observation in ordinary lines of practice. But the *expert's ratio* of rare cases of a *class* would not express the consensus of opinion for the rest of laryngologists. The history of this case of fibroma is as follows :

Mr. G., aged forty, has suffered from tuberculosis for about four years. The tubercular manifestations are well marked in the right lung—cavity, induration, cough, expectoration, etc. During the course of the tubercular infection he had several severe pulmonary hæmorrhages and many slight attacks of “spitting blood,” continuing up to the present time. From the beginning of this history his voice and respiration have been altered. At the time of examination there were well-marked features of laryngeal tuberculosis, pyriform swelling of the arytenoids, papillomatous vegetations on the left band and over the floor of the larynx. General health remarkably fair, considering his history. Laryngoscopic examination, made when he was first under my care, showed a very complicated and dangerous condition of the larynx. The subject was in imminent danger of death from suffocation. Labored and stridulous inspiration were painfully marked. Illumination of the larynx showed the laryngeal cavity completely filled by a large, pear-shaped tumor, smooth in outline, movable, and bright-red in color. The tumor completely cut off all portions of the larynx below the ventricular bands. The attachment appeared to be on the anterior and right surface of the thyroid cartilage and to be chiefly beneath the anterior vocal-commissure. How respiration could be carried on at all was an interesting study. The only free space noted was a mere slit between the lowest part of the growth and the floor of the larynx. This slit was formed during expiration by the expiratory blast raising up the growth slightly, and the inspiratory effort was partly accomplished before the tumor was wedged in completely. During phonation the tumor was forced well upward, appearing much larger and tense, as if suddenly inflated. After phonation the growth quickly receded and rested on the ventricular bands and floor of the larynx. The demand for relief was urgent. After weighing well the risks with and without a tracheotomy, I decided to remove the growth without a prior tracheotomy, and to do it at once. Various strong forceps were tried, but none of them would hold or sustain the leverage necessary. I then encircled the growth with a cold steel wire in a Sajous curved snare, and, after great risk, removed a large portion of the mass, which was very dense and tough. Immediate respiratory relief followed, and all dangerous symptoms were modified. The remaining portion of the tumor will be removed by the galvano-cautery snare. The case is under observation. The structure of the growth showed interlacing bundles of dense fibrous tissue, the outer layers composed of thickened layers of mucous membrane.

Paper.

A CASE OF TUMOR OF THE LARYNX.

By H. L. SWAIN, M.D.

I HAVE to present to you to-day the simple clinical report of a case of tumor in the larynx which, from the unusual features occurring in it, is made more interesting than the common run of such cases, and I trust in the relation of my experience sufficient may be found to make up for the apparent simplicity of the title. The facts of the history are these :

Mr. X., fifty years old, presented himself in the latter part of June, 1890, complaining of hoarseness and trouble in breathing, latter only of a week's duration. He was evidently laboring hard to breathe, both inspiration and expiration having that peculiar sound which is always indicative of obstruction in the larynx or at its opening. Complete aphonia existed and speaking was exceedingly difficult and tiresome to patient. Had never had any pain in larynx. He stated that he had been somewhat hoarse for nearly a year past with a gradual increase, and had from time to time severe attacks of coughing, during which he was quite sure he felt something moving in his windpipe. Suddenly, about a week ago, he was attacked with dyspnœa after a severe coughing fit, and since that time has not been able to speak out loud or to breathe with any comfort or freedom. His physician had examined his throat and told him to consult a specialist without delay, sending him some fifteen or twenty miles to the city. While talking he had an attack of coughing, during which he got very red and cyanosed.

Proceeding to the examination of patient, I found nothing out of order with the exterior portions of the throat; the larynx was large and well developed without any sign of disease anywhere. Glands in neck not at all enlarged. A slight pharyngitis presented itself on illuminating the throat, and the epiglottis was normal and fairly erect. Filling up the entire glottis and moving up and down between the cords during breathing was a pedunculated tumor, which appeared easily movable, firm and smooth in consistence, the small, narrow pedicle being attached in and a little above the anterior commissure of the vocal cords. Neither of the latter were visible, although the posterior portion of the arytenoids was easily so. On applying cocaine, besides the strangulation which was produced—and the latter was severe—it was noticed that the tumor was decidedly dense and firm. The diagnosis was made of a fibromyxoma, lying on and between the vocal cords, and immediate operation was deemed necessary.

Without suspecting the breadth of the pedicle, which seemed very narrow as well as reasonably thin, still an idea of possible spasm of the glottis, in case of failure in extracting the mass, came like a specter to my mind, and, before making any serious attempts at removal, a few instruments for the purpose of making a rapid tracheotomy were put in readiness for immediate action. Then several unsuccessful attempts were made with various forceps, but they one and all slipped off. Despairing of these, the cold noose was tried, and on the third attempt secured a firm hold. An ordinary amount of traction, such as would be appropriate to the size and nature of the tumor had it occurred in the nose or nasopharynx, was brought to bear without any success. A second pull with more force followed, but the patient still held on his end. As the noose was pulled well home at the very first, more force still was exercised and muscle conquered, bringing out the tumor which you here see in nature and in photograph. Appalled at the size of the tumor—which has, of course, shrunk greatly after two years' sojourn in alcohol—as also at the breadth of the pedicle, the patient, who had been previously told what to do, was speedily got on to couch with head depending so that blood need not get into the trachea. Several generous mouthfuls of blood were

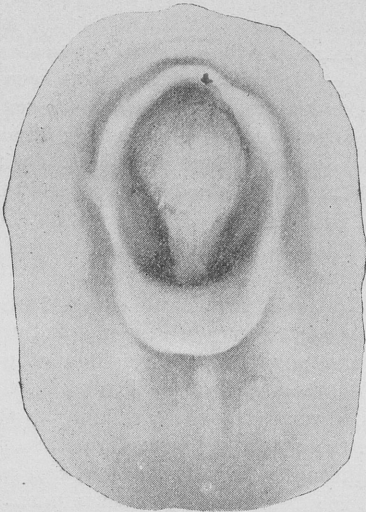


Fig. 1.—Tumor as it lay in the larynx.

raised and then the hæmorrhage ceased, the exceedingly tractable patient having meanwhile got very red in the face. The examination showed the laceration where the tumor had been, leaving a clear wound, which was not perceptibly bleeding. The vocal cords, which I had feared might have been injured, were intact, and the patient spoke quite clearly.

After warning the patient of the danger of after-bleeding he was sent home, to return in two days. To my great relief, he addressed me with a fine, clear, bass voice, and with scarcely a trace of hoarseness. Talking still hurt him and his throat and neck were sore and

lame. Otherwise nothing untoward had happened. Only once or twice did he cough up any blood. Inspection showed a wound from the tubercle of the epiglottis down between and below the vocal cords, the same healing nicely. Later he seemed liable to a recurrence of the growth, and I had to noose off a small projection and canterized the base. This

was some two months after the first operation, during which time he was twice cauterized thoroughly. When last seen there seemed to be a considerable projection, and it was by no means certain what the outcome would be. I then lost sight of the patient until June 4th of this year, when I wrote to him asking him how he was. His answer was in the presentation of himself, and I found him, save for some hypertrophic trouble in the nose, entirely in order. His larynx was without trace



FIG. 2.—Side of tumor.
Natural size.



FIG. 3.—Edge of tumor.
Natural size.

of any kind of trouble save a slight general congestion of the entire mucous membrane, perhaps a trifle more pronounced in the seat of the old trouble. No cicatrix was visible. He has no other difficulty in using his voice than what his chronic laryngitis would account for. He therefore has been two years without recurrence.*

In looking back over this one case, a few interesting points seem worthy of separate comment. First, the kind of tumor—a fibromyxoma—is one of the rarities of our clinical experience. Second, the size of tumor is unique in my own experience, especially as removed in toto. Only once in removing a large papilloma, piece by piece, did I ever meet so large an excrescence. Thirdly, the breadth of the pedicle, together with its toughness and situation, rendered two dangers imminent in its removal by evulsion—namely, those of rupturing the attachment of the vocal cords and of serious hæmorrhage, and yet this character of pedicle and tumor renders evulsion in general decidedly the best method. Fourthly, when it is considered that this tumor was between the vocal cords and lay its whole length in the larynx, how was it possible for the patient to breathe at all? Surely his larynx must have been unusually roomy and the tumor freely movable, or this would not have been the case. What would be very easily possible with a small tumor was also the case with this large one—namely, that by inspiration the tumor was actually made to sink down before the air could enter the wind-pipe and the tumor would have to be forced back again as the air went out. As this was the case, it seemed to me that the patient

* I am indebted for the photographs which show the tumor to Professor M. C. White, who kindly made them for me, and they help to make more graphic this simple clinical history.

was in very imminent danger as regards life. How easy it would have been for a piece of mucus, a particle of food, or floating body in air to produce a fit of coughing and spasm of glottis! Then the tumor might have become wedged in between the cords, perhaps have swollen the merest trifle, and then, not being dislodged, the patient must have suffocated. All this seemed so very possible that I held myself as almost holding the man's life in my hands and deemed it wise to rid him immediately of the obstruction, or, were I not successful, to put him somewhere where he could receive immediate attention by skilled hands in case of emergency. This brings me by easy gradation to the fifth interesting point—namely, the operation. The exceedingly fine point must here be drawn which of two methods to choose—*per naturæ vias*, or by external incision—to get at the impediment. In deciding this point the question naturally arises, How sure are you of the size of the tumor with which you are dealing? In general we are apt to conceive the growth to be much larger than is the real case, but at least in the case before us the reverse was true. What guarantee have we that the upper part of a given tumor, visible to us and blocking effectively further insight into the larynx, is the full size of the tumor, and how far does the tumor extend downward? As one can plainly see from the side view of the tumor compared with one taken from the upper end, a great disparity may exist. Fortunately, this shape of tumor and its situation is rare, so that we usually can judge tumors to be what they seem as regards size; but, as in this case, could a much larger tumor have been safely removed by the method adopted? For a small tumor of this kind it would seem, as in the nose and other situations, that the cold snare removed the growth cleaner, got more of the pedicle, and was less liable to troublesome hæmorrhage and return of growth, than is the case with the hot snare, which cuts off only that which is grasped, or the forceps, which is open to the same objections. In the case of the larynx one has also to think of the danger of the hot wire to other tissues. The only point against the cold snare is that if a tumor is very large or with a broad pedicle, too much force must be brought to bear, and the danger of rupture of important parts must be considered. To remove such a tumor by pieces would be almost impossible from the firm, smooth surface which they present. Another thing must be borne in mind in objecting to the cold snare: that if a greater resistance is to be overcome than is possible or deemed wise, how are you to extricate yourself? Surely not easily. And meanwhile how

is the patient breathing? Offhand, then, one would say immediately, Do a thyrotomy, open the larynx, remove the tumor, and sew the parts together again. But then comes a doubting Thomas who asks what proportion of successes attend your operation of splitting the larynx? Do the majority of patients remain possessors of clear voices? Are you able with the knife to remove a tumor of this kind as thoroughly as by evulsion and not cut other parts, and are not your chances of a recurrence very much greater than by the other methods? And, finally, can you forget that the tracheotomy and other disturbance necessary to the external opening subject your patient to the not very remote danger of lung troubles and secondary hæmorrhage? These doubts confronting one, with the acknowledged dangers of the other methods, what is one to do?

In answering the question for myself, I adopted the method as in the history read. Were I ever to be confronted again with a tumor of the same or less size, distinctly pedunculated, and in an adult, I should again elect the cold snare. In children, or in cases of tumor with a broad base, or more upon either cord, or larger in size, within the cavum laryngis, the external operation seems the more expedient and decidedly safer.

Discussion.

Dr. C. C. RICE: In the removal of very small laryngeal growths I have found the laryngeal loop guillotine easier to apply than any variety of forceps. It can be used in any part of the larynx. It is not large enough, however, for growths of the size removed by Dr. Swain. (The speaker referred to a case of laryngeal growth in which marked constitutional effects had followed the use of a four-per-cent. solution of cocaine.)

Dr. T. A. DE BLOIS: I think Dr. Swain has done well in calling attention to the small amount of hæmorrhage which takes place on removal of these growths. Whatever may be the reason, whether natural contractility of the vessels or something else, it is true that the removal of laryngeal growths is seldom followed by the loss of more than a few teaspoonfuls of blood. In other parts of the air passages we meet with considerable hæmorrhage.

The PRESIDENT: I am reminded by Dr. Rice's uncomfortable experience with cocaine to say something which I forgot to say in connection with another paper. Having seen nicotine recommended in a foreign journal for operations upon the larynx, I was induced to try this narcotic in one case during the past winter. I procured a ten-per-cent. solution, and diluted that at least one quarter, yet the effect was alarming, and I feel it my duty to warn the members of the association not to

try it without the greatest precaution. It was as severe a case of nicotine poisoning as I could imagine short of death. Yet the drug was most carefully used, being applied on a cotton swab well wrung out, so that no dropping could have taken place. One tonsil was rubbed with it, and in a very few moments the patient had alarming syncope.

Paper.

TWO CASES OF LARYNGECTOMY FOR ADENO-CARCINOMA OF THE LARYNX.

BY J. SOLIS-COHEN, M. D.

SINCE our last meeting I have performed laryngectomy in two cases of adeno-carcinoma of the larynx.

One operation was a unilateral exsection of the soft tissues with an anterior strip only of the thyroid cartilage, in accordance with the modified laryngectomy which I described and recommended at one of our previous sessions.

The patient died of inspiratory pneumonitis within forty-eight hours.

The other operation was a complete laryngectomy with preservation of the greater portion of the epiglottis. The patient had an uninterrupted recovery.

CASE I. *Intrinsic Adeno-carcinoma of the Left Half of the Larynx; Tracheotomy immediately followed by Unilateral Modified Laryngectomy, both under Anæsthesia by Ether; Death within Forty-eight Hours from Inspiratory Pneumonitis.*—Mr. —, aged fifty-four years, a merchant, had been successfully treated by Dr. L. Weber, of New York, for sub-acute catarrhal gastritis. On his return from a European trip, some six months after he first came under Dr. Weber's care, Dr. Weber noticed that he was unusually pale despite other objective and subjective indications of good health, and that his voice was hoarse. Dr. Gleitsmann was asked to examine the larynx, and he detected a laryngeal growth. Four weeks' treatment with potassium iodide having produced no impression upon this growth, two considerable fragments were removed by Dr. Gleitsmann and were submitted for microscopic examination to the Drs. Heitzmann, who pronounced the growth a malignant adeno-carcinoma. Nine days after removal, as I subsequently learned from Dr. Gleitsmann, proliferation had taken place, although the neoplasm had only slightly grown since he had first seen it. About this time, November 7, 1891, I was consulted, counseled a unilateral modified laryngectomy, and, after some correspondence with Dr. Weber and Dr. Gleitsmann, was placed

charge of the case. At this time the left side of the larynx was in part the site of two whitish sessile growths, the upper one upon the ventricular band and the lower one projecting from the ventricle. Except for the pallor, the general health seemed excellent, but there was some bronchitis and the heart was weak, probably the result of over-exertion as an athlete in the patient's younger days.

After a few days' preliminary antiseptic treatment of mouth and throat, I performed the operation on November 14th, with the assistance of Dr. Edward Martin and Dr. A. W. Watson, of Philadelphia, and Dr. Gleitsmann, of New York. After consultation with Dr. Gleitsmann it was decided that the condition of the heart required the preference for ether as the anæsthetic instead of chloroform. The ether answered charmingly, without the slightest evidence of nausea during its administration or afterward. Tracheotomy was performed first, and a very large tube was inserted, through which the anæsthetic was administered during the succeeding steps of the main operation. The head was kept at a lower level than the thorax so as to favor drainage of the blood from the direction of the trachea. A vertical incision being made so as to expose the anterior portion of the larynx, the thyroid cartilage was severed in the middle line, the wings were held asunder with blunt hooks, and a globular gauze tampon, completely covered with rubber dam and secured with a long thread, was packed down upon the cannula in the trachea. Then a second section of the left wing was made with strong cutting forceps about an eighth of an inch from the middle line, or just far enough to include that portion of the thyroid cartilage which receives the insertions of the vocal bands. The soft walls of the left side of the larynx were then stripped from the main portion of the wing of the thyroid cartilage, and the left half of the larynx was cut away with curved snipping scissors close to the cricoid cartilage. On account of the contracted space, I found this unilateral operation far more difficult and tedious than an operation involving both sides of the larynx, but, with the aid of Voltolini's electric search light for the nose and mouth, the parts were kept well illuminated and the exsection was thereby much facilitated. On looking into the wound while I was examining the specimen, Dr. Gleitsmann remarked that the vocal band did not appear to have been taken away. I had the vocal band in my hand, however, and, on examination, detected that the apparent vocal band in the wound was due to curling inward of the divided elastic crico-thyroid membrane which is anatomically a continuous structure with the vocal band. This condition therefore favored phonation in the future history of the case, and may be purposely produced in subsequent cases to replace an exsected vocal band. The wound in the larynx and in the corresponding portion of the pharynx was now thoroughly packed with iodoform gauze and the parts were lightly approximated. The patient was placed in bed with a temperature of 98°, a pulse of 100, and a respiration of 32. One hour had been con-

sumed in the two operations and the dressings. The patient did well all night and for the first twenty-four hours, his pulse remaining at about 90 and his respiration being normal, though his temperature had reached 100°. He was nourished with enemata. There was one feature about the case which I did not like, and that was an entire absence of cough. This is a bad sign after tracheotomy for croup. I thought at the time that the lack of cough was probably due to the dressings in the larynx, but subsequent experience does not favor this opinion. The patient complained a good deal of an almost continuous disposition to swallow, excited by the dressing in the pharynx, and which he could control only with difficulty. During the second night his temperature rose to 103°, the pulse being 100 and the respirations remaining at 20 to the minute. We removed the dressing and withdrew the tampon. The tampon was so firmly wedged that it had to be grasped with forceps, lest the tug with the string should break it off. As it was drawn out with a jerk, there was a gush of foul-smelling sanguineous mucus to the amount of a teaspoonful expelled through the cannula as by suction. The long cannula was removed and an ordinary one substituted. The night was passed comfortably—more comfortably, I was told, than the first night. At my morning visit next day, 7 A. M., I noted a marked change. Pulse 120 and weak, respiration 40, temperature 106° in the rectum. Pneumonitis had developed. It was distinctly embolic and occupied the lower portion of the right lung. The dressings were removed. Everything looked right and dry about the wounds, so that the tracheotomy tube was removed to lessen any source of irritation from its presence. The patient was raised and given boric-acid water to swallow as a trial. This being successful, several teaspoonfuls of whisky and water were swallowed without much trouble, and without any going astray, though the last swallow or two produced pain, probably in the sore epiglottis. The patient was laid down and a soft stomach tube was passed down the œsophagus, its entrance being facilitated by voluntary glutition. Several ounces more of stimulus were administered through the tube. This stimulation was repeated in three hours. The patient remained without much change for three or four hours, during which his respirations sank to 30 and his temperature to 104°, but his heart became feebler and feebler despite temporary stimulation from time to time with hypodermic injections of strychnine sulphate. His nutrient enemata were all retained and there was not at any time any complaint of hunger or of dyspnoea. Toward one o'clock slight delirium suddenly developed and the patient gradually sank by asthenia. There was no post-mortem. Pneumonia of influenza was very prevalent at the time. Sepsis was very prompt and toxic in this case, for I have rarely seen a case of simple tracheotomy with less access of blood into the air passages. The specimen removed was examined histologically by Dr. Walter J. Freeman, of the Philadelphia Polyclinic, who reported it an undoubted adeno-carcinoma involving the whole thick-

ness of the ventricular band, and appearing to have sprung from its under side and from the ventricle itself, but without having encroached upon the tissue of the vocal band, which appeared normal.

CASE II. *Adeno-carcinoma of the Larynx at the Site of a Papilloma removed Sixteen Years previously; Laryngectomy with Preservation of the Epiglottis; no Dressing in the Pharynx; Nourishment by Enemata; Recovery.*—X., a teamster, became hoarse when twenty-five years of age. Dyspnoea soon followed, and increased during three years to such an extent that breathing had become very difficult. He consulted Dr. Lefferts, of New York, who detected an extensive papilloma on the left side of the larynx. Dr. Lefferts removed this growth piecemeal with forceps in September, 1876, and published the case (Case II), with a series of others, in the *Medical Record* of New York, February 9, 1878. Relief was complete and continuous for ten years or more. Then subjective recurrence took place, and treatments of different kinds undergone in various hospitals. During 1891 the patient had gotten much worse, and a fungous growth had protruded externally. In this condition the patient applied for relief at my clinic in January, 1892. He had considerable pain, considerable dysphagia, great dyspnoea, and frequent cough, with considerable difficulty in respiration. Laryngoscopic inspection revealed two masses of myrtiform morbid growth superimposed upon the left side of the interior of the larynx, sessile and quite white. A sanious mass of similar growth protruded externally through and above the crico-thyroid membrane. On writing to Dr. Lefferts, he gave me the reference to the report of the case. The growth was a papilloma at the time he operated. I was struck with the fact that the growth I saw was almost a reproduction of the picture in Dr. Lefferts's paper, but the growths were white and had not any characteristic papillomatous appearance.

The history of the case indicated a recurrent papilloma, and I determined to perform tracheotomy and remove the masses laryngoscopically. I happened to fall ill with influenza at this date, and my colleague, Professor Forbes, kindly performed the tracheotomy for me at one of his own surgical clinics. Subsequently I removed several fragments endolaryngeally. They were pronounced to be sarcoma. I then exsected the diseased skin and the morbid growth from the exterior of the larynx, split the larynx, and removed with forceps, scissors, and sharp spoon all of the morbid mass that could be recognized as neoplastic. Everything went admirably for four weeks, when recurrence took place and the growth soon became as large as before the operation, and began to extend to the right side of the larynx anteriorly. It again protruded externally between the wings of the thyroid cartilage.

Laryngectomy was evidently the sole resource, and, after waiting as long as I deemed it prudent, I performed this operation before my class in Jefferson Medical College, assisted by Professor Keen and by Dr. O. Horwitz, the chief of the surgical clinic. The parts had become so much

altered by the previous operations that I found it impracticable to tie the laryngeal arteries before extirpating the larynx, and had to trust to my assistants to seize and secure the bleeding vessels as they were severed. The incision was made everywhere through healthy structure. The diseased skin and inclosed morbid mass was circumscribed by elliptic incisions in sound skin joining a vertical incision from the hyoid bone above and region of the tracheal cannula below; and then a transverse incision was made at the level of the hyoid bone so as to make a T-incision and two lateral flaps. The incision was carried down to the periosteum, and the soft parts were then separated with Allis's dry dissector, which answered admirably. During this time anæsthesia was carried on by chloroform through the tube by means of a funnel and an India-rubber tube. When the larynx had been separated from the soft tissues and I could get my fingers around it, I removed the ordinary cannula and inserted a tampon cannula to prevent as much as possible any entrance of blood into the air passages. For this purpose I used the von Trendelenburg cannula, but not the Trendelenburg system. Trendelenburg uses a rubber bag inflated with air. Air or water bags are very often opened by puncture during these operations. An hour or two before the operation I had moistened a piece of ordinary surgical sponge and secured it around the cannula, and over this I tied a bulbous India-rubber tube. The patient's head was lowered as soon as this cannula was introduced, and anæsthesia was subsequently kept up through the tampon cannula, which leaked a little despite all efforts to prevent it. The epiglottis being healthy, I made an incision through the hyo-epiglottic membrane and cut the epiglottis square off. The larynx was then tilted forward.

Knowing that there had been difficulty in nourishing patients after operations, I had determined to save the entire œsophagus if possible, instead of severing it at the level of the cricoid cartilage; and by careful manipulation I was able to strip the mucous membrane and the œsophagus from the tips of the arytenoid cartilages down to the base of the first ring of the trachea without perforating the œsophagus. The larynx, with the first ring of the trachea attached to it, was then severed from the trachea, and the trachea was stitched to the skin in two flaps formed by the sides of the original tracheotomy incision which had embraced the second and third rings. The tampon cannula was then stitched to the integument to insure its resistance to expulsion in coughing. The soft parts were brought loosely together with sutures without any gauze or other dressing in the pharynx, and a soft-rubber stomach tube was inserted into the stomach through an opening left in the right-hand corner of the transverse incision. This was so placed under the impression that there might be necessity to use it for introducing nourishment; but it was found unnecessary, and it did some harm. An hour had been occupied in the whole procedure—anæsthetization, operation, and dressing. The patient was then put to bed, with the head much lower than the thorax,

and this position was maintained for several days. He was carefully watched. I stayed with him for sixteen hours, and during this time I instructed a number of young men connected with the throat and surgical clinics of the hospital how to take charge of the case. Two members of these staffs were with him constantly for eighty hours. Twice during that time the man would have died had skilled hands not been present to remove mucus from the tracheal tube. The advantage of having the cannula stitched to the skin was well demonstrated upon these occasions. This patient had no trouble in coughing. It is to the close attention of these young men for the first eighty hours and to the admirable services of our chief surgical resident, Dr. Hager, that this man chiefly owes his life, for the attention after such an operation is far more important, from a clinical point of view, than the operation itself, all-important as that is.

There was a good deal of oozing alongside of the œsophageal tube. On the third night this tube became detached and we did not reintroduce it. On the fourth day the tampon cannula was removed and a simple one introduced. The tampon cannula was perfect, and for more than sixty days remained fit to use again, so far as flexibility and security are concerned. Nutritive enemata were used for four or five days, and then we gradually began to feed the patient by the mouth. At each attempt at swallowing, a piece of gauze was held tight above the tracheal wound and the parts pressed close together while the patient swallowed. There was a little trickling for a few days, but this ceased. It was interesting to watch the œsophagus during swallowing before the external wound contracted. It was easy to see that the œsophagus opened when the man took water. There has been some doubt whether there is a mechanical distention of the mouth of the œsophagus in glutition, or whether there is some dilatory action of the œsophagus itself. In this case the œsophagus certainly did open to receive water at least. The man has made an uninterrupted recovery. There has been no attempt made to use a voice tube, and for two reasons: In the first place, I know of no one in Philadelphia competent to make one; and, in the second place, I did not wish to put anything into the wound that would irritate it until there should remain no doubt in regard to the question of non-recurrence.*

From the history of this case, I took it for granted at first that it was a papilloma recurring upon the seat of a former growth; but when a portion of it was examined by a microscopist it was pronounced sarcoma.

After extirpation of the larynx the growth is pronounced to be a cylindrical epithelioma, or a destructive adenoma or adeno-carcinoma invading the arytaenoid and thyroid cartilages as well as the soft

* Five months after the operation there had been no recurrence.

parts. As seen in the specimen, it nearly fills the cavity of the larynx, projecting from the left side mainly, but extending slightly to the right side, and penetrating necrotic portions of both wings of the thyroid cartilage so as to present externally and involve the cutaneous surface likewise.

A point of interest in this case is the development of a malignant growth upon the site whence a papilloma had been extirpated many years previously. Certainly there was no immediate transformation in this instance, more than ten years having elapsed without recurrence of symptoms of morbid growth, and five or six years more having elapsed before the recognition of malignancy. It may be that the cicatricial tissue at the site of the initial growth was more prone to undergo malignant degeneration than the healthy mucous membrane, and thus led to development of the malignant neoplasm at that point in preference to another.

Paper.

THE VALUE OF SPRAYS IN THE TREATMENT OF CATARRHAL AFFECTIONS OF THE UPPER AIR PASSAGES.

By CLARENCE C. RICE, M.D.

A TOPIC so general in character as this would more properly appear on the programme as a subject for discussion rather than as the title of a paper. This subject is submitted, however, chiefly for the purpose of obtaining the views of the members of this association. A consensus of opinion gathered from a society of physicians like this, who have for years made use of and carefully noted the effects of all the many applications of atomized remedies upon mucous membranes, would be especially valuable if not infallible. It is perhaps the tendency, as one increases the years of his practice, to diminish the number of drugs employed, and this is true both in prescription writing and in the selection of remedies for local application to mucous surfaces. While something may be said in favor of such a habit, in that only those remedies are used which have been tried and found useful, there is danger, on the other hand, that attachment to a few pet drugs will prevent the trial of newer and perhaps more useful medicines. The very busy practitioners of our association are hardly in the position to experiment with new remedies locally applied unless they continue their dispen-

sary practice, so that the young men must be depended upon to keep the materia medica up to date. However it may be in other towns, in New York it may be stated truthfully that one great obstacle in the way of studying the effects of atomized medicines upon mucous membranes is the difficulty, both in our colleges and dispensaries, of keeping the spray apparatus in working order. In teaching-institutions the instruments are at the mercy of the many working students, and in the dispensaries the authorities rarely have money enough or take sufficient interest to supply the necessary outfit. It is well-nigh impossible to keep apparatus which is used in common by many physicians in proper condition, consequently the treatment of catarrhal diseases by nebulized fluids has, in some of the dispensaries, given way to treatment by other methods, such as the insufflation of powders, local applications by means of brush or cotton applicator, and even surgical measures have been adopted, in some instances, where the spray tube would have been used if it had been conveniently near and in working order. The wretched condition of the spraying apparatus in dispensaries and teaching-institutions is to be deplored, for such a state of affairs prevents not only the needful washing of mucous surfaces, but it also seriously hinders the trial by atomization of many drugs which, if not employed in dispensary practice, will never be used. The lack of means of treating catarrhal diseases by simple measures encourages unnecessary surgical methods. Occasionally we find a physician who deprecates the value of medication by spraying, who apparently arrives at this conclusion because he is unwilling to supply himself with air apparatus and spray tubes.

It is to be regretted also that the prescription formulary employed in hospital and dispensary practice is so abbreviated and out of date that we lose the benefit of the use of many valuable medications which should be employed in varying strengths of solution. If it is conceded that the treatment of catarrhal diseases by the application of atomized drugs is at all efficacious, we should not allow such practice to fall into disrepute because of faulty apparatus.

It is not intended in this paper to speak of the merits of any particular line of remedies, or to call attention to any new drugs, or to compare the efficiency of medicines applied by atomization with that of the various other methods of making topical applications, but rather to consider some of the general principles upon which sprays should be employed in order to make them valuable medicinal agents.

It will be of no special interest to this association or of value to this short paper to relate the history of the development of the principle of atomization or nebulization of medicated fluids. The very simple spray producers of the present day were obtained only after repeated failures and changes, and this history is all fully told by Dr. Cohen in his book on *Inhalation: its Therapeutics and Practice*; also by Sir Morell Mackenzie; and, in a brief way, by nearly every text-book relating to the treatment of the diseases of the nose and throat. When we remember how difficult it was to obtain the ordinary laryngeal mirror and to adapt it to its successful use, we need not be surprised that so simple an apparatus as the spray tube required the mechanical ingenuity of many minds before it was perfected. At one time the temptation to resort only to surgical methods was very strong, but treatment by sprays has maintained a prominent position through all the vicissitudes of practice.

There are a few practical clinical points bearing on the subject of treatment of catarrhal diseases by the atomization of drugs which may not have been recently considered, and it is of these I wish to speak. First, it may be said that the various petroleum products, starting with solid vaseline and followed by the semisolids and fluids, called by such names as "liquid vaseline," "albolene," "benzoinol," "glymol," lanolin, etc., have crowded out of use many of the old astringent drugs, and the change has been a beneficial one. Perhaps the most erroneous principle upon which atomized fluids have ever been used in the treatment of the nose was and is the prevalent practice of spraying vegetable and mineral astringents into the anterior nares for the purpose of curing hypertrophic rhinitis, attempting to astringe the nasal mucous membrane, which is an erectile structure, and thus endeavoring to diminish supersecretion. To the dismal failure of such practice, more than to anything else, are we indebted to the necessity which gave us nasal surgical instruments. I should like to ask this association if there is a single so-called astringent remedy, of any strength of dilution, which can be with benefit atomized into the anterior nares in cases of simple hypertrophic catarrhal disease. Are there any useful solutions of silver, or copper, or zinc, or tannic acid for such practice? Text-books have been at fault in printing such sprays for the treatment of anterior nasal disturbances. It required years to ascertain that such treatment was prejudicial. Solutions of the mineral astringents, of one half the strength of dilution usually printed, are capable, if

thrown into the anterior nares with much pressure, of producing acute coryza, purulent disease of the accessory cavities, and inflammation of the middle ear. For the treatment of simple and hypertrophic catarrh of the anterior nares it is probable that no drug should be employed by atomization whose use is based upon its astringency. Astringency means here only irritation and inflammation. The material advance made when the vaseline preparations came into use and supplanted the old astringents was, first of all, due to the fact that the oily products were at least harmless—a simply negative value. Latterly they have been used in such ways and combinations as to be of positive benefit. The physiological action of the simple oily preparations is indefinite. They are certainly protective agents, both in hypertrophic and atrophic disease, and in this way they may be called sedative. They furnish a perfectly non-irritating vehicle for many combinations of medicine—such as cocaine, iodoform, aristol, oil of pine needle, menthol, thymol, resorcin, etc. The oil decreases the action of all these drugs—that is, their action is less in the oily vehicle than in watery solutions, or it might be more properly stated that the blandness of the oil softens the irritation which nearly every drug produces momentarily as it is thrown in spray against the mucous membrane—the mechanical concussion. The effect of menthol and the volatile oils in these oily vehicles upon mucous membranes is readily studied. They are at first stimulating, in the sense of increasing capillary circulation, and later (and this is their principal physiological action) they are sedative or antiphlogistic, since their evaporation is only effected by and with the rapid abstraction of heat from the tissues, a chilling of the surface, a contraction of the peripheral circulation. The first or stimulating effect spoken of is produced by the impact of almost any spray thrown against sensitive mucous surfaces; it might be termed mechanical or traumatic stimulation. The amount of stimulation is regulated by the temperature of the fluid and the force with which it is projected. As has been said, the oily vehicle lessens the first shock, which has always been an objection to watery solutions when used with pressure, and especially in cold weather. The protective, sedative effect of plain oily sprays in the nasal chambers, in many cases of simple and also in those cases of hypertrophic rhinitis where the turbinated structures are only distended, is continued until what may be termed a “cure” is effected—that is, the turbinates become normally compressed and the secretions normal. I believe, however, that too long

continuation of the use of the oily sprays in the nose tends to produce dryness of the surfaces and a contraction of the erectile tissues, which looks much like atrophy. I have noted this tendency to increased dryness, especially when these oily remedies have been sprayed upon the middle and post-nasal pharynx. Iodoform, iodol, and aristol seem to lose much of their characteristic effects when sprayed in these oily vehicles; they may still possess integrity enough to act as disinfectants, but their stimulating action in the healing of ulcerations can not be thoroughly relied upon when they are placed in oil. These remedies are much more effectively used when in ethereal solution, applied by applicators, or insufflated in powder.

One more point about oily sprays. It is, I believe, wise to employ them in those cases of nasal obstruction where there is a question as to the necessity of operative procedure—cases in which the obstruction is not great and congestion is a considerable factor. After the congestion has been controlled by means of the oily spray, there may be no demand for operation.

I spoke earlier in this paper of the harmful effect of throwing *watery astringent* medicaments into the anterior nares when the nasal chambers were not far advanced in disease. This objection does not hold good in atrophic rhinitis; here there is little sensitive tissue to irritate; but even here there is never occasion to atomize fluids of too strong solution, or impel them with pressure exceeding twenty-five or thirty pounds. I have noticed that these cases of atrophic rhinitis may be fired up into subacute inflammatory conditions by sprays where the middle turbinated bones are large and wedged down upon the septum. Disinfecting medications, applied by spraying, are invaluable in atrophic conditions, in ozæna, in syphilitic rhinitis, in nasal polypi, and in purulent disease originating in the accessory cavities. Solutions of peroxide of hydrogen (from ten per cent. to twenty per cent.), of mercuric bichloride (1 to 4,000), of boric acid, of potassium permanganate, and of carbolic acid—these are all valuable agents when applied by atomization, and do more oftentimes than disinfect; they stop purulent discharges. The most commonly useful method of employing the spray is, in my opinion, with the up-tip spray tube directed toward the back wall of the pharynx and the post-nasal space. In the majority of cases of nasal disease the patient is not accomplishing all he can for his cure unless he has been taught to use the up-tipped atomizer behind the soft palate, a task which is correctly performed only when he

has learned to breathe properly and to relax the palatal muscles. If anterior nasal spraying is useful in five cases, post-nasal is more useful in a hundred. The vault of the pharynx and the posterior wall can not be washed by anterior nasal sprays; but the nasal chambers, except in cases of atrophic disease, can be cleansed by atomized fluids thrown in from behind the soft palate. In spite of the intelligent work which has been done by this association in the treatment of atrophic diseases, a mild alkaline, stimulating, disinfecting solution, sprayed up behind the nose three times daily by the patient, is perhaps as effective treatment as we can to-day command. The up spray, intelligently used, is a much better instrument than the douche, for, while it can be made to cleanse equally well, it does not present the same dangers of provoking inflammations of the ear. Besides, I believe that large quantities of fluid passed for a long time over mucous membranes, as is done in douching, wears away the healthy surface of a tissue and leaves it callous, compressed, and hardened. In the posterior nares mild solutions (two or three grains to the ounce) of the astringents—such as silver, copper, zinc, tannic acid, or the salts of iron—may be used with much more safety and benefit than in the anterior nares, for the irritation necessarily arising from the first effect of these sprays is expended upon the post-nasal pharynx, which does not suffer, and enough of the astringent medication reaches the nasal chambers proper to produce a beneficial effect.

The treatment of catarrhal diseases of the upper air passages has practically become limited to such *operative* measures as each case demands, followed by the application of drugs in powder or solution. Ninety per cent. of all topical remedies are applied in the form of sprays. Sprays are beneficial or harmful according to the manner in which they are used. Nice judgment is required in selecting not only the drug, but the exact strength of the solution suitable for the particular portion of the upper respiratory tract. A solution which might improve the middle pharynx or larynx would, if directed into the nose, cause an intense coryza, and possibly an acute inflammation of the middle ear. The pressure used should be regulated to suit the temperament of the patient, the local condition to be treated, and the situation to be reached. Who can believe that a cold solution of some harsh astringent sprayed upon the mucous membrane of a nervous patient will be of benefit? And we may sometimes add to these unfavorable conditions a chilly patient and an underheated operating office. The oils, under such circumstances,

are much better than the watery solutions. It is easy to have a water bath to heat the solutions which are to be used. Cocaine has been of great service; for a very weak percentage of this—one half of one per cent.—added to our astringent sprays will to a great extent nullify the first irritating effect of the topical application. Very mild solutions of cocaine—less than one per cent.—are, perhaps, as useful astringents as we can employ, and none of the uncomfortable reactions which sometimes follow the stronger solutions are seen. Mild cocaine solutions seem to clinch the beneficial effects of astringents when they are used in combination. Cocaine seems to have justly supplanted solutions of opium, morphine, and bromide of potassium, and I know of no beneficial effect to be obtained from aconite preparations which cocaine does not more surely afford. The strength of the cocaine solutions can be more easily regulated than those of opium and aconite. I need not speak of the great value of mild cocaine sprays in the nose, post-nasal space, and larynx, in aiding first examinations and in making diagnoses. Cocaine sprays have rendered laryngeal manipulation and operation easy, and have saved life in relieving laryngeal dyspnoea until obstruction could be removed. The group of stimulating disinfectants represented by listerine, thymol, menthol, eucalyptol, oil of wintergreen, etc., cleanse and make comfortable the dry, congested air passages from the post-nasal space down as far as they penetrate. The evaporation of their volatile elements diminishes congestion for a time at least. I have already said that solutions for spraying should not be cold, and should be propelled with reasonable pressure; fifteen pounds is sufficient for the anterior nares, twenty-five for the posterior nares, and twenty-five or thirty for the lower pharynx and larynx. The treatment of catarrhal affections of the upper air passages by the application of atomized fluids will not lapse into disuse in our day, neither will such treatment render nasal surgery unnecessary. It is quite possible, however, that our new combinations of cocaine, menthol, etc., applied in oily vehicles, will diminish the number of nasal operations which to-day seem indicated.

Discussion.

DR. H. L. SWAIN: One very important point raised by Dr. Rice is the fact that patients should be taught to do something for themselves after the operator has had his say, and that which is required of them should, if possible, be easy to carry out. The spray behind the palate is of service in fifty cases to every five in which it is of value employed

in the anterior nares. Yet it is very hard for some persons to become proficient in spraying posteriorly. I have put myself on record in one place, at least, as favoring a method of gargling. While not comparing it with sprays and the like, I wish to call attention again to the fact that it is possible for children and adults to learn to gargle in such a way as to project the fluid against the posterior nares and into the nasal passages themselves. It requires no apparatus, and is comfortable to the patient when he acquires the practice. It is a most useful method for home treatment.

Dr. F. H. BOSWORTH: I can not let Dr. Rice's paper pass without saying that I do not think it represents the sentiment of the members of this association. I had supposed we were done with sprays. I do not believe they accomplish any practical good. I have recently removed the air-pump and spray apparatus from my office, and I believe that I have done better work since then than when I placed much dependence upon them. I am not a believer in the value of vegetable or mineral astringents as correcting morbid processes in the nasal passages. Furthermore, I do not believe we have to do with a disease in this region where an astringent is indicated. There is no such disease as catarrh, and supersecretion is a condition which we seldom have to meet. I am disposed to say that in a vast majority of cases deficient secretion exists. I except from this statement naso-pharyngitis, and really know but little about naso-pharyngitis. Mackenzie said in his address three or four years ago that there was a region which afforded our most interesting field for study. We do not know even the sources of naso-pharyngeal secretion. We only carry out cleansing indications. We have to cleanse the pharynx; but the best method of doing that is not by the spray. Directed behind the palate, it will not reach the parts, and the great proportion of patients will not tolerate it.

Notwithstanding the assertion that the post-nasal douche is injurious, I unhesitatingly place it in the hands of my patients and teach them to use it. In the so-called post-nasal catarrh, which is a most obstinate affection and which occurs between thirty and fifty years of age, we can accomplish the best results by training our patients to use the post-nasal syringe two or three times a day for the purpose of cleanliness.

I have risen simply to enter a mild protest against placing much dependence upon the use of sprays. Astringents are not often indicated. Stimulants are indicated in hypertrophic rhinitis, but we do not cure these cases; the patients cure them for us. Oily solutions we use as adjuvants, but I do not believe they correct any morbid condition which we meet with in the post-nasal cavities. The petroleum oils are undoubtedly soothing and grateful applications if more active treatment is carried out for the diseased condition, and they may act as excellent vehicles under some circumstances. As to cocaine, it is not an astringent; it does not constrict the secreting apparatus. Its effect is upon the

blood-vessels. As a therapeutic agent I doubt its efficacy. I was very enthusiastic about it at one time, but I have abandoned it. It simply produces a temporary effect of which we avail ourselves, and it is of immense value to us as a local anæsthetic. Without it we could not practice our specialty with any great degree of success. It also is of great value in hay-fever, but aside from that disease I doubt whether it possesses any therapeutic value upon the mucous membrane.

Dr. J. WRIGHT: Having written a paper upon the same subject a few months ago, naturally I was very much interested in Dr. Rice's. I agree with Dr. Bosworth that the dirtiest place in the naso-pharyngeal tract is in the vault of the pharynx, and that there is the place for carrying out the cleansing process, whatever it may be. But it has not been my experience that in the majority of cases, nor even in more than a small proportion of cases, one can educate the patient up to the point of spraying a watery solution into his own naso-pharynx. It has been my custom to use the post-nasal syringe almost altogether. In operations upon the nose the spray may be used for antiseptic purposes and for cleanliness. There is, I think, a mistaken idea with regard to oily solutions in any form being suitable antiseptic vehicles. I do not believe they have the slightest antibacterial effect. The moisture of each bacterium protects it from the oil. Oily solutions have been shown time and again to have very little antiseptic effect *per se*.

I was also interested in Dr. Swain's remarks upon the nasal gargle. Having read his paper describing the method, I tried it long and patiently, but never succeeded in getting a drop of the fluid into my nose, nor have I known any of my patients to succeed without choking and much discomfort.

Dr. MORRIS J. ASCH: It seems to me a medium course is the one to be taken. We should neither depend upon sprays altogether nor abolish them, as Dr. Bosworth seems to have done. I have long since given up sprays as a curative agent, whether in watery or oily solution, but I think they are immensely valuable as palliative and cleansing means. I could scarcely get along without them for these purposes. While one may be able to cleanse the nose with absorbent cotton, yet I have found nothing so valuable in the naso-pharynx as the spray. I never fail to cleanse the vault of the pharynx and get rid of the crusty secretion which may be there by means of the alkaline spray. In catarrhal cases I think astringents in spray are very valuable. In the beginning of a catarrhal laryngitis a spray of about half a drachm of neutral solution of perchloride of iron to the ounce of water will relieve the dryness and discomfort at once and the voice will be restored; the patient will come back next day of his own accord to have it repeated, and in a few days the trouble will have passed away. I would, then, protest against abolishing the spray entirely, and equally against depending upon it solely as a curative. I agree with Dr. Bosworth that the douche is a very valuable cleansing

agent, but I think there can be no question that there is danger connected with it. If one depends upon it he will in time meet with some accident. Accidents do occur and patients never forgive.

Dr. MACKENZIE: While it must be confessed that there is a rivulet of common sense in what Dr. Bosworth has said, still it meanders through a pretty big meadow of incautious observation. I should be sorry to see views such as he entertains go unchallenged by members of this body. Doubtless the curative value of the spray has been grossly overrated, but this is not sufficient reason to banish this useful method of topical application from our armamentarium.

I would caution against the use of too much oily material, especially in the nasal passages, and Dr. Rice made a center shot when he said that the temperament of the patient should determine to a great extent the character of the spray to be employed. There are a great many patients, especially ladies, who object to the oily medicaments on the ground that they are disagreeable. This is, of course, of minor importance. The chief objection to their prolonged use is that they tend to beget a condition of dryness difficult to eradicate.

The injudicious use of cocaine in the nose and larynx is greatly to be deprecated. I have seen quite alarming cases of poisoning from this drug, even when used in very weak solution. Regarding the method of gargling referred to by Dr. Swain, I am at one with Dr. Wright. It is an unphysiological act and is a roundabout way of accomplishing a great deal of possible harm at considerable personal inconvenience.

I very rarely recommend the post-nasal syringe, and know of cases in which acute otitis media has resulted from its use.

Dr. SWAIN: It is possible to breathe through the nose with the mouth open, and, that being so, it is also possible to cause a gargle to enter the nose. I am prepared at any time to give a personal demonstration of the practicability of the method. The majority of my patients who try it succeed.

Dr. D. B. DELAVAN: Dr. Rice, I think, has done well to bring up this subject, and I am very glad that there are at least a few here who are ready to champion most of the ideas he has presented. I think it would be a misrepresentation of facts if the belief were to go abroad that this society had entirely done away with the use of the spray apparatus; that the nasal saw had swept it from the field, and that nasal surgery had totally taken the place of all therapeutic treatment of the nose. Practically the statement made by Dr. Bosworth, that he had recently caused his spray apparatus to be entirely removed from his office, amounts to that. For one I am happy to say that I still have faith in the treatment of certain morbid conditions of the nose and throat by therapeutic means, and that I still find use for the spray; and I believe there are few here who, while fully prepared to resort to surgical means where necessary, have not a spray apparatus in their offices which is called into more or less constant requisition.

With regard to the vaseline products, I think we sometimes forget their limitations. Vaseline and its products stand at one end of a list of which lanolin stands at the other. Lanolin is the most readily absorbed of the available fatty substances, and for that reason apothecaries use it with preparations to be rubbed into the surface of the body and do not use vaseline. Vaseline therapeutically, therefore, is merely a mechanical agent. It prevents drying of the mucous membrane, but beyond that it has comparatively little function. I believe the majority of the advantages arising from its use are due to this mechanical action. It is a notably bad solvent with most substances, excepting the oils, and particularly in the case of iodoform.

Regarding the heating of sprays, if the temperature of the solution in the spray tube be raised up to a certain point and then the atomized spray driven against the bulb of a thermometer, it will be found that the actual temperature of the spray is considerably below that of the solution. In other words, the process of atomization lowers the temperature.

I am very glad there are at least some in this association who still have some use for the spray, and believe that if a vote could be taken ninety-five per cent. of our members would refuse to cast it aside.

Dr. J. WRIGHT: I wish to supplement my remarks by adding that, like Dr. Bosworth, I have seen no bad results from the use of the post-nasal syringe. I have never seen water enter the Eustachian tube and so set up trouble. But one precaution should be observed—namely, tell the patient not to blow the nose while compressing the alæ, for in doing so one can produce a certain amount of pressure in the naso-pharynx and drive an excess of fluid into the Eustachian tube. At the same time, although using it at my clinic for three or four years, I have never been able to trace any middle-ear trouble to it. I do not mean by that statement that it never does occur.

Dr. BOSWORTH: I hope that I may not be misunderstood. I tell my patients to clean out their noses, and the best way for them to do it is by means of the spray. But what I do say is that the spray does not reduce hyperæmia; it does not relieve hypertrophy; it does not cure catarrh, whatever that may be. I say there is no such disease as catarrh. It does not mean anything to us. I go further and say that most so-called catarrhal processes in the nose are attended by deficient secretion. The nose secretes in twenty-four hours sixteen to eighteen ounces of serum and mucus. Take away half of the water by a hypertrophic rhinitis and the thicker part will remain, give rise to trouble, and lead to *apparent* excess of secretion.

Dr. ASCH inquired of Dr. Bosworth whether in the condition in which the patient wet five or six handkerchiefs a day there was supersecretion or deficient secretion.

Dr. BOSWORTH: If hay fever is meant, there may be supersecretion, but this consists largely of a serous exosmosis, the source of which is

in the venous sinuses, and not of a mucous secretion. I do not believe the Schneiderian membrane is often met with in a condition in which there is supersecretion.

Dr. MACKENZIE inquired of Dr. Bosworth whether there were not glands in the Schneiderian membrane.

Dr. BOSWORTH replied: Comparatively few, if muciparous glands are referred to.

Dr. RICE: What more can be said? My paper was intended to advocate both the use of sprays and the necessity of consecutive operations in the treatment of nasal and naso-pharyngeal diseases. It will be an unfortunate day when all sprays are laid aside as useless. The objections of Dr. Bosworth have been, in my opinion, most admirably answered by Dr. Mackenzie, Dr. Delavan, and others, and I am quite willing to leave the verdict as to the value of the spray to this association.

Paper.

NASAL HYDRORRHŒA. WITH ILLUSTRATIVE CASES.

By C. E. BEAN, M. D.

NASAL hydrorrhœa has been so seldom reported in literature and so seldom mentioned in any of the authorities that any light we may throw upon the course and treatment of the disease should be of interest. Those cases which have been reported have in a large proportion been due to injury to the base of the brain by traumatism. The cause in these cases is very easily traced and appropriate treatment rendered; but in another class of cases no appreciable local cause for this peculiar disease can be discovered. It is only found in catarrhal subjects; but this is not a sufficient cause, for the proportion of cases of nasal hydrorrhœa to the cases of nasal catarrh we encounter is too small to make it a factor in its production. The onset of the disease is usually sudden, without any premonitory symptoms, or preceded by attacks of sneezing similar to what we see in hay fever, or resembling an attack of acute coryza, with the exception that there is no dry stage, but from the very beginning a profuse watery discharge occurring either at intervals marked by periodicity or continuing day and night without interruption. The discharge is a thin, serous fluid, producing, if long continued, excoriation of the upper lip. Accompanying these symptoms there is in a certain percentage of cases conjunctivitis with frontal headache. During an attack examination of the nose shows the lining membrane

to be pale and sodden, the tissues underneath being full to saturation of a serous fluid that exudes constantly upon the mucous surface and which no amount of wiping will keep dry. The membrane is pushed outward until it presses against the septum, almost if not entirely filling the nasal cavity. This condition extends to the posterior nares and in some instances affects the palate. The duration of the attacks varies even in the same subject, lasting in some instances only a few days and again extending over weeks. Not infrequently the attack merges into acute bronchitis or asthma, when the nasal symptoms disappear. The attack may terminate as suddenly as it began, and for a considerable length of time, even for a year, the patient may have no manifestation of the disease. During the interval between attacks the nasal cavity and mucous membrane may present an almost normal appearance; in other cases nasal polypi may be discovered or enlargement of the turbinated bones with hypertrophy of the tissue covering them may result. It is usually unilateral though not infrequently bilateral, though in these cases one side is more affected than the other, and this continues the same during the entire course of the attack. It occurs at all seasons of the year, thus differing materially from hay fever. Outside of those cases produced by traumatism or due to the presence of polypi, the ætiology is masked and by no means uniform. It has been referred to paralysis of the trifacial nerve, to myxomatous degeneration in the antrum, or to the presence of polypi in the nose itself. In all cases, though outside of the exciting cause, it is found only in those with a marked neurotic temperament.

I have notes of only three cases of this disease.

CASE I.—In the summer of 1888 I was consulted by a married woman, aged thirty years, for the relief of a nasal hydrorrhœa that had existed for several weeks with more or less persistency. She had been subject to asthma for several years, but at the time of consultation was free from this, having had relief since the nasal hydrorrhœa had supervened. Examination of the nose revealed the presence of polypi in both sides. These having been removed by means of the snare and the stumps cauterized with a galvano-cautery point, the hydrorrhœa ceased and did not recur for a year, when it returned and she again consulted me. During the interval there was very little if any asthma. Inspection of the nose revealed the fact that the polypi had returned; they were again removed, and this time with the outer edge of the turbinated bones to which they were attached. Again the hydrorrhœa ceased and until March of this year did not reappear, although the asthma has been growing steadily worse. Since March there have been several attacks of the hydrorrhœa,

lasting from a day to a week, though there has been no recurrence of the polypi. The severity of these attacks has abated under the internal administration of strychnine, belladonna, and camphor. With the exception of a four-per-cent. solution of cocaine, which was of no benefit, no local application was made.

CASE II.—Female, married, aged thirty-two, mother of three children, consulted me in September, 1890, for the relief of a watery discharge from the nose that had lasted for several days. There was intense headache and slight conjunctivitis. This patient had consulted me five years before this for the relief of a naso-pharyngeal catarrh of several years' duration, and the hypertrophied tissue covering the inferior and middle turbinated bones anteriorly had been thoroughly cauterized by means of the galvano-cautery. The attack was sudden and without any premonitory symptoms. The discharge was constant, preventing the patient's lying down or obtaining any prolonged sleep; both sides were affected, and the discharge was most profuse, running in streams from both nostrils, saturating in a few moments large towels and producing excoriation of the upper lip. This attack lasted three weeks, and terminated in an attack of asthma. Upon the termination of the attack of asthma in about two weeks, she was free from any appearance of this disease until the beginning of January, 1891, when another attack began very suddenly; this attack lasted until the middle of February, when asthma developed and the nasal symptoms disappeared. The asthma continued for nearly three weeks, and was finally controlled by large doses of lobelia and belladonna.

Both of these attacks came on at the menstrual period, and were at their height during the menstrual flow, extending over a period of a week. This patient had a uterine misplacement, and the proper application of a pessary which she had been in the habit of wearing, but which had been removed, seemed to be of undoubted benefit so far as the neurotic element was concerned, and thus served to check the nasal hydrorrhœa.

No local application—such as powdered belladonna, morphine, bismuth, etc.—to the nasal mucous membrane was of any avail, and the use of cocaine aggravated the irritation and increased the discharge. Internally she was given McMunn's elixir and bromide of sodium in large doses, and these remedies, more than anything else, served to give relief both generally and locally. Since this time there has been no return of the attacks.

CASE III.—Male, aged forty-five, a subject of hay fever and nasal catarrh, consulted me in January, 1890, for the relief of a nasal hydrorrhœa that had existed for two weeks. Only the left side of the nose was affected, the discharge occurring chiefly during the day in large quantities. There was such severe conjunctivitis that the patient was kept in a dark room for a week. The usual application of powders and cocaine was employed in this case as in the other case, but without any benefit. Inter-

nally he was given sulphate of atropine and camphor, alternated with bromide of sodium, but nothing that was done made any impression upon the discharge either as to quantity or character. The galvano-cautery was then employed, cutting down with a thin knife until the bone was reached. After the first effects of the cauterization had passed, the discharge was checked for a time, only to return with renewed violence. He was then advised to try a change of climate, and went to California, where the discharge soon ceased. Since that time he has had two light attacks, both occurring during cold weather, which have soon ceased without any special medication.

The results of treatment in this affection emphasize the fact that for this disease no line of treatment can be laid down.

Cocaine, that we would naturally expect to give relief, is in most cases of no benefit, and in some instances is positively injurious, for it produces in these cases the very effect we are trying to combat, while its effect on the general nervous condition is pernicious.

Outside of the cases produced by traumatism and polypi, no good result is to be hoped for from local medication.

The internal administration of antispasmodics to relieve and control the neurotic condition holds out the most encouragement for the best results. After the acute attack has passed, a general tonic treatment with iron, strychnine, and quinine, together with cold baths and massage, is to be recommended.

Paper.

AN ELIGIBLE METHOD OF REPAIRING A BROKEN NOSE.

By W. H. DALY, M. D.

OUR prevailing national custom of athletic sports, such as football and other games quite as rough in possibilities, has brought with it also concomitant evils, and among them frequently are fractures of the nose, and it is upon the subject of repairing satisfactorily and readily the serious deformity that may result that I would speak to you, and through you to the general practitioner, to whom a large proportion of these cases come primarily.

This is all the more necessary as the surgical text-books are singularly at fault in teaching any method of dressing fractures of the ossa nasi that will insure good results and freedom from nasal stenosis.

With scarcely an exception, the text-books recommend the ap-

plication of adhesive plaster directly across the surface of the nose and cheeks, and general practitioners, so far as I have observed their dressings, follow these obsolete teachings, with the consequence of not only external deformity, but obstruction to breathing through the nose and consequent discomfort and disadvantage to the patient.

Since the foot-ball craze has seized the student youth of the land and slugging qualifications have become so important a part of the unwritten curriculum of our colleges and universities, I have had more frequently than formerly cases of recently broken nose to put in repair, and, although nearly all of these cases had been dressed by practitioners of justly acknowledged skill, yet not a single case was without serious deformity, such as depression of the nasal bones and flattening of the nose by the compression from the adhesive plaster.

There are no cases of fracture that require more constant vigilance than fractures of the ossa nasi in order to secure good results, and there is no facial organ where a slight deformity disfigures the expression of the face so much.

The nose, besides giving character, beauty, and expression to the face, has its most important function in supplying a free and suitable passage for air to pass to and from the lungs, thereby facilitating the important function of olfaction and oxygenation.

If we close the nasal passages we compel the individual to use the mouth entirely in respiration, and by so doing allow him to inspire irritants which, if the air was received through the nose, would be removed from it by the appliances which a kind Nature has placed there expressly for that purpose. This much goes without saying.

Besides the irritants we should breathe into our lungs, if compelled to use the mouth for ingress of air, we should also be compelled to inspire air, especially during winter and autumn, of a temperature entirely unsuited for the delicate lining of the air-cells. Not the least important objection to mouth-breathing is the inability to detect noxious gases which would be fatal to health and even life.

Now, a fractured nose, using the term generally, unless properly restored to its normal position, we know almost always causes some obstruction to normal nasal respiration. Hence it should be our chief object to establish a free inlet for air, not forgetting the cosmetic effects of such a restoration upon the human face.

Nasal obstruction of any kind, as is too well known to make it worth mentioning, always causes catarrh of some of the respiratory passages, and secondarily catarrh of the digestive tract.

What more miserable and uncomfortable looking and feeling object than the individual who suffers from chronic catarrh of all the mucous membranes? Granting this, should it not be one of the most important and charitable acts of the surgeon to restore the nose to its proper anatomical and consequently physiological condition after a fracture of the nasal bones?

Besides the base-ball and foot-ball craze, the average American's hurry and bustle to get ahead of every one else causes him to sometimes put his nose in such a position as to make it liable to come to grief. The prominence of the nose upon the face also causes it to be far more liable to accident than any other feature; and if it were not for the elasticity of the nasal cartilages the nose would suffer far oftener than it does. These cartilages, by projecting out beyond the osseous part of the nose, act as buffers, as it were, to blows, which would otherwise do great damage to rigid resisting substance.

We must admit that the prevailing treatment of broken noses is lax. The methods employed are neither careful, rational, nor attended with surgeon-like results.

As I have said, the usual way of dressing a broken nose, according to the books, is by taking a broad piece of adhesive plaster and pasting it tightly over the nasal bridge from one cheek to the other. Of course, the surgeon has previously replaced all displaced fragments before applying the plaster. But without intranasal support is it not plain that the plaster, by its constant pressure, tends to again displace and depress the fragments, causing serious nasal obstruction and deformity? This dressing and its results I have observed more than once.

Since many of the standard authors of to-day teach that this is the best method of assisting Nature in repairing a broken nose, and since they also say that intranasal splints are intolerable to the patient, and that they are utterly useless, I feel called upon to answer that with aseptic precautions I have not found this to be the case, but quite the contrary; they are both tolerable and useful.

Does not the bridge-builder, in repairing a broken-down arch, put supports under it when he wants to restore the arch? If we grant this, then the average surgeon, who thinks he is not to follow mechanical laws but looks for something different from plain common-sense rules in his attempts to do anything in surgery, will make

a mistake. We must not forget that we are to be mechanics besides being physicians, surgeons, anatomists, physiologists, etc. I say physicians advisedly, for a large proportion of the patients I have seen had their first dressings put on by physicians in general practice.

The teachings of the text-books are therefore, to my mind, so obviously wrong that I may be pardoned for quoting them at some length.

Professor Gross, in his work on Surgery, mentions a case four months after the septum was broken in which there was such encroachment upon the left nostril as to cause almost complete occlusion to respiration on that side, and he was compelled to cut away the whole of the offending part to afford relief, yet in the same volume we find the following:

"The best remedy is a stout adhesive strip carried across the bridge of the nose from one cheek to the other. The older surgeons were in the habit of counteracting this occurrence (displacement) by stuffing the nostrils with dossils of lint smeared with ointment, and frequently changed for the sake of cleanliness. Subsequently metallic tubes were recommended, and in modern times tubes of gum-elastic have been used. All such contrivances are now very properly dispensed with, or, if they are ever employed, it is in cases where it is impossible, in consequence of the manner in which the bones have been crushed, to remedy the displacement in any other way."

Now let me ask, Is it possible to keep the bones in apposition without internal support? This is a question that the modern rhinologist ought to answer negatively.

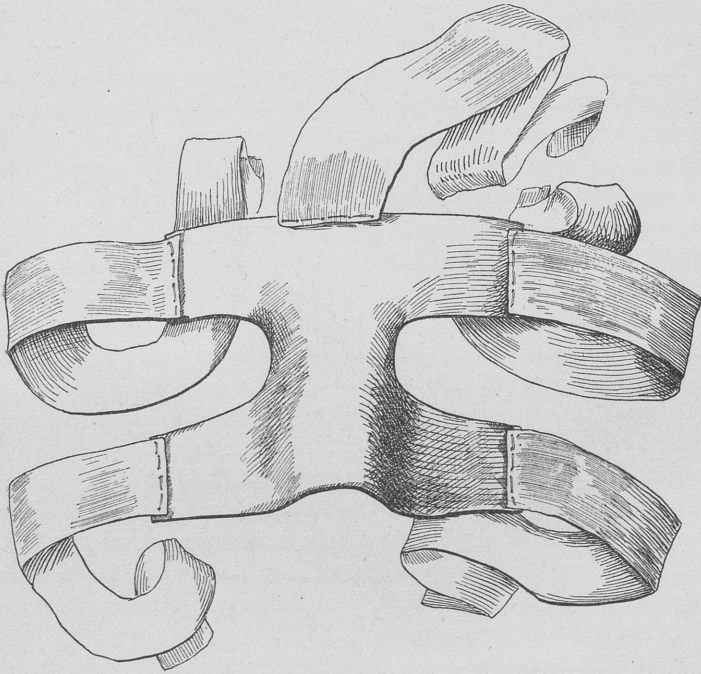
Morell Mackenzie, whom I regret to have it possible to quote in this manner, also says: "There is seldom, therefore, any necessity for splints or other supporting apparatus, which are, moreover, as a rule, intolerably irksome to the patient."

Bryant says: "Plugging of the nostrils is a useless practice."

Allow me to report a case from my note-books which will better illustrate my views on this subject, and is, clinically speaking, in the line of treatment followed which has proved entirely satisfactory to me in all of the cases of fracture of the ossa nasi that have fallen under my professional care.

CASE.—Mr. B., aged about thirty-four years, a fine specimen of manhood, was engaged in boxing with a companion and received a blow upon the nose which fractured both nasal bones and the vomer. The nose previous to the present accident was much flattened and considerably

turned to the left from a badly adjusted previous fracture from a blow with a base-ball club. His present fracture was dressed by a physician, who, in accordance with the standard text-book teachings, pasted a broad piece of adhesive plaster over the nose extending to either cheek. He was sent to me two days after, when I removed the plaster and adjusted the fragments as well as I could to their normal position, considerable

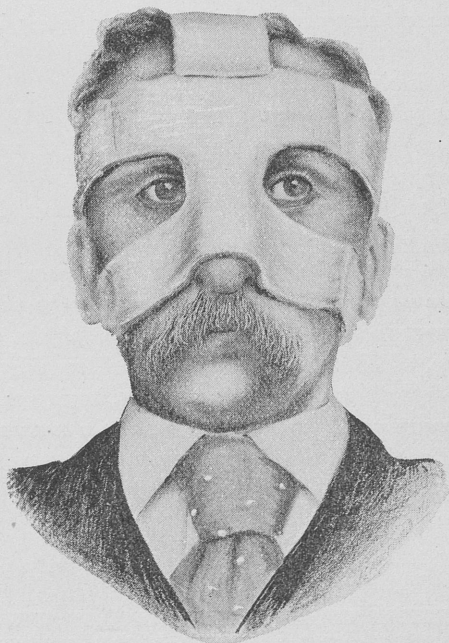


tumefaction interfering somewhat. On the fourth day I had him lie down in my office, and taking a piece of felt from a white felt hat, I cut it into the shape of an X, making the arms of the letter long.

This I moistened and molded to the nose, forehead, and lower parts of cheeks, having the fragments properly adjusted. Then taking a piece of heavy sheet zinc, I cut it with strong scissors into the same shape, but smaller, and bent it to fit the curves of the forehead and nose. This I punctured around its border and sewed to the felt. I then took another piece of felt of the same shape as the first and applied it over the zinc. This I soaked in "soluble glass" (sodium silicate) and molded all snugly to nose, forehead, and face, holding it carefully in position until hardened.

To correct the deflection of the organ to the left, I made a small pad of felt and pasted it with liquid glass on the inner side of the splint, so as to bring pressure on the left nasal bone. The splint was now tem-

porarily removed and the nose again examined, and, after washing out the nares with an antiseptic solution, I inserted into each naris a zinc plate, neatly covered with iodoform gauze, just large enough to fill the naris and hold the broken fragments up into place. These internal splints extended from the anterior openings back into the naso-pharynx, after the manner of my friend, Dr. John O. Roe, of Rochester, N. Y., in his operation for restoring a deflected septum narium.



The external splint was held in position by adhesive straps extending around forehead and back over occiput and to cheeks from lower part of the nose, and brought together and secured at occiput. Another, carried vertically from a point between the eyes up over vertex and secured at the occiput, together with the other straps, completed the dressing. The patient was carefully watched and the nose examined and dressed every day for five weeks, when the patient was discharged. The intranasal splints were removed every third to fifth day and fresh ones inserted, insufflations of iodoform being made around splints every day.

Result.—The patient's nose recovered almost perfectly straight—an unusual condition even in so-called normal noses. The organ, it will be remembered, had been a year previously fractured by a blow from a base-ball club, and had resulted in a serious deflection

to the left, with complete stenosis of left naris and partial stenosis of right naris. There is now no flattening or broadening of the nasal bridge, and the breathing capacity in both nares is all that can be desired.

The foregoing is so simple that every practitioner can have everything ready that is needed if he wishes, viz. :

1. A piece of a cast-off soft white felt hat.
2. A piece of heavy zinc or, better, light sheet iron to fortify the felt.
3. Some adhesive plaster.
4. A stout pair of scissors.
5. Iodoform gauze and cotton, with which to neatly cover and sew the former on the intranasal zinc splints.

The last item on the foregoing list is the most delicate as well as the most important.

In order to adjust the gauze-covered intranasal splints so as to give the minimum amount of inconvenience to the patient, a strong light is necessary to reveal the shape and size of the turbinates and their structure, which must be taken into full consideration and the intranasal splints cut and fitted accordingly, having the neatly made seam in the gauze on the splints soft and, to a certain extent, yielding or elastic, as the nasal mucous membrane does not so well tolerate inelastic pressure.

Paper.

THE CORRECTION OF DEFORMITIES OF THE NOSE RESULTING FROM ABSCESS OF THE NASAL SEPTUM.

BY JOHN O. ROE, M. D.

FIVE years ago I submitted to the profession an operation for the correction of the deformity termed "pug nose" by an intranasal operation without wounding the skin,* and again, in 1891, an operation equally new for the correction of angular deformities of the nose, also by a subcutaneous operation.†

At the present time I desire to present for your consideration a simple method by which the deformity frequently arising from ab-

* The Deformity termed "Pug Nose" and its Correction by a Simple Operation. *Medical Record*, New York, 1887, vol. xxxi, p. 621.

† The Correction of Angular Deformities of the Nose by a Subcutaneous Operation. *Medical Record*, New York, 1891, vol. xl, p. 57.

cess of the nasal septum may also be corrected by a subcutaneous and intranasal operation.

Deformities of the nose resulting from abscesses of the nasal septum are of comparatively frequent occurrence. In nearly all cases they can be prevented if the abscess is early recognized and properly treated. It sometimes happens that the abscess is unrecognized, and for this reason a deformity of the nose is caused which might have been prevented. In some cases, however, in spite of the most active and efficient treatment, abscesses of the nasal septum produce sufficient deformity to give the nose a very unsightly appearance.

Abscesses of the septum may originate from a variety of causes: from simple inflammation resulting from colds; from the purulent affections of the nostrils often found in children; from syphilis; and from traumatism. A scrofulous, strumous, or rhachitic diathesis frequently predisposes to this affection. Abscess of the nasal septum also frequently results from disease of the teeth, particularly in children, for it is during the first dentition that abscess of the nasal septum, as well as of the ear, is most frequently found. The following case very clearly illustrates the influence of irritation caused by diseased teeth in the production of such an abscess:

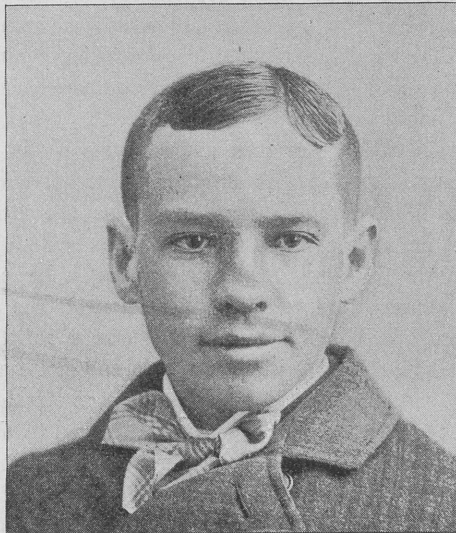


FIG. 1.

A young man seventeen years of age was referred to me by his family physician on account of an obscure acute affection of the nose causing

much swelling and obstruction of the nostrils. One week previous to the time when I saw him he had the two upper incisor teeth filled with amalgam. For two or three days afterward his teeth were very sensitive and painful if he attempted to bite with them. The third day after the teeth were filled he began to have a soreness in his nose, followed by a swelling which completely occluded both nostrils. The day before I saw him a slight purulent discharge from the left side was noticed, with a corresponding lessening of the swelling in that side. On examining his nose, I found the septum bulging very much on both sides of the cartilaginous portion. On exploring it with a probe, this swelling exhibited the characteristic doughy condition of an abscess. I incised the swelling freely on both sides at the lower portion of the septum, and about a teaspoonful of pus escaped. The cavity was thoroughly evacuated, the cavity of the abscess was cleansed with a twenty-per-cent. solution of peroxide of hydrogen, and the nostrils were lightly packed with an antiseptic wool dressing. It was cleansed and dressed daily, and every effort made to prevent any extension of the disease and destruction of the cartilage. The discharge of pus speedily disappeared, but the triangular cartilage had become so much involved as to cause a breaking down of the upper portion and the destruction of the small cartilages on the dorsum of the nose that serve as a connecting link between the shield cartilage and the nasal bones. Fig. 1 represents the nose after this had taken place.

In adults, abscess of the nasal septum causing deformity of the nose usually results from syphilis, as it is rarely that sufficient destruction of the cartilages results from abscess of simple inflammatory origin to allow of a sinking in of the nose. Deformity of the nose resulting from simple abscess of the septum can ordinarily be distinguished from that caused by syphilis by the fact that in the former case there is simply a destruction of the whole or a portion of the triangular cartilage, while the soft tissues remain intact; whereas in syphilis the soft parts are also frequently destroyed with the cartilaginous parts, leaving a large perforation in the septum, and a corresponding depression of the central portion of the nose. In some instances, however, syphilitic perichondritis may result in abscesses of the septum and cause a destruction of the cartilaginous portion without destruction of the soft parts. In those instances in which the abscess is confined to the cartilaginous portion of the septum and produces sufficient destruction of the small connecting cartilages to permit the dorsum of the nose to drop in, it gives the central portion of the nose a depressed appearance as if the person had been struck upon the top of the nose with a small, round body, like a poker.

In some instances the destruction goes on until the cartilage is

almost or entirely destroyed and the nose becomes flattened upon the face. A most pronounced case of this kind came under my care about four years ago.

A girl, sixteen years old, had had from infancy an extremely flattened condition of the nose that was undoubtedly the result of an unrecognized abscess, there being no history of inherited specific disease, or evidence of scrofulous taint. Examination showed the nasal bones to be normal, but the triangular cartilage of the septum to be entirely absent. The soft parts were intact in their normal proportions, but so flattened upon the face from lack of central support as to give the girl a very unsightly appearance. The difficulty in this case was to find enough material to render the septum sufficiently firm and rigid to hold up the end of the



FIG. 2.

nose. There was, as is usual in these cases, a marked widening and thickening of the dorsum of the nose proportionate to the amount of flattening. This thickened ridge of tissue was incised through to the under side of the skin on both sides a short distance from the septum at a point where it thinned into the alæ of the nose. The skin was then

raised from the dorsum of the nose, and the flaps were turned upward and held in place by small ivory splints, having holes through which sutures were passed from one to the other through the flaps, and tied so as to hold them firmly in place without strangulating the parts. This relieved the flattened condition of the nose and also gave the dorsum a sharper appearance. The nose was, however, altogether too flat. Owing to the entire absence of the triangular cartilage, there was not sufficient central support to hold the nose upright. In order to increase the solidity of the septum, I first scarified each side of the lower portion of the septum and



FIG. 3.

the floor of the nose, and divided the anterior portion of the septum, leaving the front portion of the skin intact. I then cut wide, thick flaps from the floor of the nostril opposite the portion of the septum which I wished to render more rigid. These were turned upward and held together with clamps in a manner similar to the upper flaps, and their upper borders were also connected to the cut portion of the septum with fine sutures. The result was most excellent, as will be seen by the

illustrations; for the flaps, when united to the septum, were found sufficient to support it, and give the nose a very presentable appearance—so much so that it would not be suspected that the previous very flattened condition had ever existed. In order to maintain the nose in position until the parts had become thoroughly healed, I placed in the nose small, spiral springs, as shown in Fig. 4, the upper arm being bent to the proper contour, so as to lie along under the dorsum, the other arm lying along the floor of the nose. The tension was regulated by bending the spring to the desired tonicity before introducing it. These springs were worn until the nose became firmly fixed and their further use was not required. Fig. 2 represents the condition of the nose before the operation. Fig. 3 represents the nose about three months after the operation.

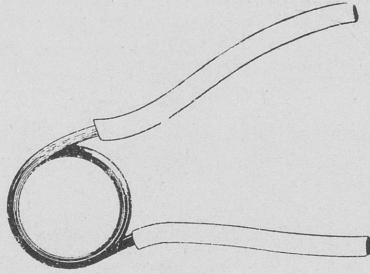


FIG. 4.

I have also found these springs exceedingly serviceable for holding in place fractured noses, as illustrated in an exceedingly interesting case which I reported in a previous article.*

Figs. 5 and 6 represent the nose of a man thirty-five years of

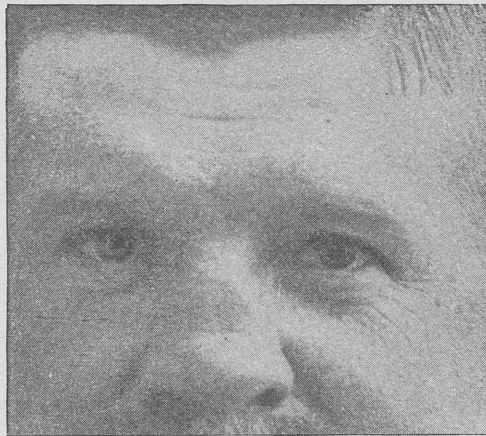


FIG. 5.

age, where the central portion had been flattened from destruction of the septum by an abscess so as to cause a very pronounced de-

* *Med. Record*, 1891; *op. cit.*, p. 59.

formity. The soft parts, however, were not destroyed, but greatly distorted. In this case the skin was first raised from the depressed portion of the nose. Flaps composed of the distorted tissue were



FIG. 6.

cut from the inside of the outer wall of each nostril and turned up so as to fill the depressed portion of the center of the nose, and held there by pins, and the proper shape maintained by a mold

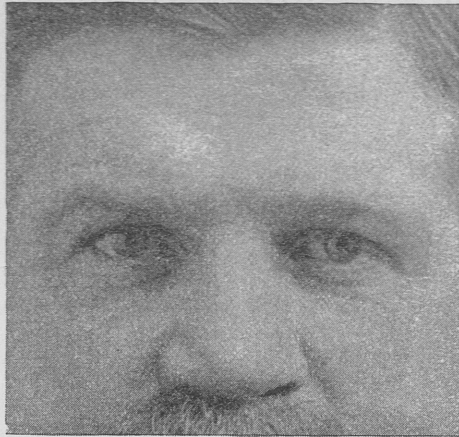


FIG. 7.

conformed to the outside of the nose. The result was excellent, as shown in Figs. 7 and 8, which represent the condition of the nose after the parts were firmly healed.

In a similar manner an operation was performed on the nose of the young man whose case has already been described, and it is illustrated in Fig. 1. The depressed portion of the nose was completely restored.



FIG. 8.

This method of restoring sunken noses also obviates the necessity of resorting to the plan devised by Martin,* or other orthopædic appliances. Martin supports the depressed portion of the nose by a mechanical device made of platinum, placed under the skin so as to raise it sufficiently to give the nose a symmetrical shape.

As I pointed out in a previous paper,† the nose is not unsightly on account of its size, but by reason of its shape. Therefore, when the central portion of the nose is depressed, if we either raise the depressed portion so as to bring it on a line with the end of the nose, or so lower the end of the nose as to bring it on a line with the depressed portion, we restore the nose to a symmetrical shape. The nose will also appear much larger than before the operation, although in the latter instance it will necessarily be somewhat smaller.

* Claude Martin. *De la prothèse immédiate, etc.* Paris, 1889.

† *Med. Record*, 1887, vol. xxxi; *op. cit.*, p. 622

Paper.

THE AFTER-RESULTS OF NASAL CAUTERIZATION.

BY THOMAS AMORY DE BLOIS, M. D.

IT seems as if in the majority of cases, if we come to tabulate our results, we are struck at once by the fact of the small number of patients in whom we are able to follow the results of treatment—that is, even immediately after operation. How much more is this true if we seek to know the result of operation, say, one or two years afterward! Of course it is very flattering to our vanity to believe that we have so thoroughly cured our patients that they do not require any more advice. But, like the child of the proverb who, once having been burned, in future dreads the fire, so it is probably true that many of them, rather than again undergo the fiery ordeal, seek some other physician, whom they fondly believe will not be so harsh in his treatment.

We have all seen the cocainized membrane sizzle and fry under the hot platinum; we have in ten days to two weeks thereafter seen the patient return with atrophied tissue and more or less relieved of his troubles; but in how many of these cases have we been able to say in two years in what condition is the nose or throat? Will the condition in which we leave it continue, will atrophy progress, or will the former hypertrophies return? You will agree that much depends on the individual's condition and some on the operation itself.

With regard to the operation, I do not think it makes much difference whether the erosion is produced by the action of acids or of the hot wire, heated either by a lamp or by the electric current. The acid is a little more painful and for a longer period, and its action is more difficult to limit, but the results are about the same. If the destructive action is carried on long enough it will produce effects as far down as the bone and there will be a buttoning down of the tissues in one spot—of course the most sensitive and probably the most salient that the operator is able to reach; this eschar will be prolonged front or back according to his fancy, or according to the results of his experience. Perhaps the wound will be broadened so as to involve a wider band of mucous membrane. This may result in the first instance in greater inflammation and the period of healing may be extended to three weeks.

Or again a series of repeated operations may be carried on and the mucous surfaces may thus be extensively cicatrized. Allowing that perfect cicatrization takes place in about ten days, the operation will probably be repeated, perhaps more than once, and after this the patient is lost sight of. Having come upon a number of these cases one or two years after operation, it seemed as if it might be interesting to observe the subsequent changes which took place.

CASE I.—Miss M. N., a patient whom I had, as I believed, thoroughly burned with chromic acid at the Boston Dispensary for hypertrophy of both lower turbinated bones three years previous, stated that she had had little trouble for about two years, but that then the difficulty of breathing appeared to return. Both turbinates showed a broad band of cicatricial tissue, but above and below the membrane was red and swollen.

CASE II.—Mr. J. O. H.; burned at dispensary by a colleague (galvano-cautery). In this case the original operation was deeper and narrower and the original eschar was not crowded to the front as in the first case, but appeared to be in a certain sense adherent to the bone. So far as the part burned went, the operation remained perfect, but there was still the proliferation of tissue on each side of the point of operation. The operation with the cautery on these new hypertrophies was of course repeated.

CASE III.—T. O'K. This patient I remembered well as having showed signs of inflammatory trouble after perhaps a too free use of the cautery knife. The liberal scars produced at the time of operation remained and he had developed a condition of atrophy of the membrane and the consequent accompanying symptom of fœtid breath. I have not the slightest doubt but this condition was in some sense helped along by too great zeal in the line of mucous destruction.

CASES IV and V were both similar to Case I—*i. e.*, where the galvano-cautery, which was the instrument used, had not been carried deep enough, the white eschar was there, but it was, so to speak, buoyed up by the tissues beneath until it formed almost as great a plug as before.

CASE VI.—Moses T. This was a most peculiar case. This man had been constantly under treatment for between three and four years, during which time he had vibrated between the different hospitals and dispensaries and had developed the reputation of a "hospital rounder." He had a nose of huge proportions in the first place, and this was filled with the most wonderful development of mucous membrane in corrugated folds. All this had been cut and snipped and burned, but without any apparent effect; the passageway through was never sufficiently clear for use, and yet he had been under operative treatment for years.

But it is needless to cite more cases. I have merely endeavored to draw attention to the different forms of sequelæ of nasal cauteri-

zation. First, that in which you do not burn enough and the parts nearly regain their former condition; second, in which you do too much and produce a nose lined with old scars, and between this "Scylla" and "Charybdis" of course there is smooth sailing, but we can not always find it; and, fourth, there are some cases that the cautery appears never to reach.

Discussion.

Dr. J. WRIGHT, of Brooklyn: I quite agree with the author that one can tell better two years after the cauterizing operation than he can two weeks or months afterward what will be the result. There is frequently something which underlies the ætiology of hypertrophic rhinitis which is more than local. A great many cases, without doubt, are due to systemic disturbance, and it seems to me that we should try milder measures before proceeding to burning, cutting, or similar heroic treatment. I always place these patients under antiscarrin treatment (if Dr. Bosworth will allow me to use the term) for a few weeks before resorting to operative procedures. By correcting disturbance of the stomach, etc., one gets better results in vascular engorgements of the turbinated bodies. I do not know that dyspepsia produces actual hypertrophic rhinitis, but it certainly is an underlying factor in vaso-motor disturbance of the turbinated bodies. What is true of dyspepsia, I believe, is true also of rheumatism and possibly of gout. Many of these people, too, are of irritable temperament, and if their nose is in such a condition that they do not respire quite as well as usual, they notice it more than other people, and complain.

Dr. J. C. MULHALL, of St. Louis: I presume that I use the galvanocautery as much as any other member of the association. I think I have used it certainly not fewer than four thousand times. I have used it persistently for twelve years, and, although I did not have the pleasure of hearing Dr. De Blois read his paper, yet, in view of these facts, I wish to say a few words. I have yet to see any evil results from the cautery, although patients still come under my observation who were operated upon ten years ago. Leaving out experiments with hay fever, I have never attempted to use the cautery unless actual hypertrophy was present—not merely apparent hypertrophy. Then the method of its use has a great deal to do with avoidance of bad after-effects. I read a paper by Lennox Browne several years ago in which he deplored certain accidents which had followed the use of the galvanocautery, but when I came to his method of using it I knew that such accidents must sometimes occur. The whole secret of the correct method is to keep the electrode at almost a white heat from before contact until after its withdrawal from the tissue cauterized. That, of course, requires some dexterity. I also take the precaution to use aseptic methods before and after operating. The patient

keeps cotton in the nostril until he gets home, so as to filter the air. While temporary reaction may sometimes take place, simulating a coryza, yet I have never seen any permanent ill result.

Dr. MORRIS J. ASCH, of New York: I have used the galvano-cautery ever since it has been brought into practical use and have seen no bad effect from it. The only slight trouble which I have seen has been occasional adhesion between the mucous membranes covering the turbinated body and septum. In Germany they use the cautery a great deal. One author touches the cauterized surface with methyl blue, and advises absolutely dry treatment; but I find patients object to the methyl blue, for it stains handkerchiefs long afterward, and I have not found any advantage in its use after cauterization. Like Dr. Mulhall, I give strict attention to antisepsis.

Dr. D. B. DELAVAN, of New York: Hypertrophic rhinitis presents three states—the acute, subacute, and chronic. One should never cauterize in the acute stage; in the subacute stage there are better means. Only recently I refused to cauterize a patient with the acute form; he went to another gentleman, was cauterized, and came back to me about a month afterward with a thoroughly deformed nose. The method suggested by Dr. Glasgow for the relief of congestive headache, consisting in bloodletting by fine submucous incisions on the turbinated bodies, I have found very valuable in subacute or mild chronic cases of hypertrophic rhinitis. After making the incisions, which I do with an ophthalmologist's knife, I pack the nares with cotton to prevent returgescence, and in twenty-four hours the turbinated is found notably reduced. This method avoids that great objection to the galvano-cautery—namely, destruction of the mucous membrane. Where the cautery is called for, I think the pure trichloroacetic acid, applied as recommended by Professor Gleitsmann, has the effect of preventing the formation of a large eschar, the healing is more prompt, and the irritation less.

The paper is a timely one in calling attention to the possible dangers of the cautery, especially in the hands of the unskilled practitioner and in improper cases. One of the chief dangers is the formation of a cicatrix which will bridge the nostril and leave the patient in a worse condition than ever. Nine tenths of the damage results from neglect of after-treatment. The patient should be seen the next day after operating, or within forty-eight hours at least. The healing process should be encouraged to take place as fast as possible, granulations should be kept down, and the case should not be dismissed until it is certain that cicatrization is well advanced and that adhesion of opposing surfaces is impossible.

Dr. JOHN O. ROE, of Rochester: I have had some experience in the use of trichloroacetic acid after the employment of the galvano-cautery as proposed by Dr. Gleitsmann, and the results have been excellent; it lessens the inflammatory reaction and promotes healing of the parts. The trichloroacetic acid coagulates the albumin in the wound so that it

seems to be hermetically sealed, and renders it antiseptic by excluding germs. By following it up with an antiseptic dressing afterward, the wound readily heals.

The galvano-cautery, like all other good things, is a good thing when properly used, but a very bad thing when improperly used. We meet with pseudo-specialists, amateur rhinologists, and general practitioners, who also do a little throat and nose work, who think all that is required in treating the nose is to burn it out; and in consequence of such treatment I have often seen the whole interior of the nose rendered a mass of scar tissue.

A case illustrating the evil consequences of the improper use of the galvano-cautery came under my observation recently. The patient was a man who had been treated by a number of different physicians and in a variety of ways—he had been a kind of “rounder.” The one who had cauterized him most extensively was his family physician, who did some nose work, and I found that instead of lessening the hypertrophy, it had greatly increased it, until both nostrils had become completely obstructed by a mass of scar tissue. Each time he had been cauterized this scar tissue had increased. I simply removed this mass of thickened tissue which had resulted from the inflammatory reaction, freeing the nostrils, and the man was enabled to breathe through his nose for the first time in a long while. In such cases of extreme hypertrophy I always remove the tissue instead of using the cautery, for when removed by surgical means it heals kindly, and the patient has a serviceable nostril.

In order to bring about the best result in this case it became necessary to remove this mass of scar tissue entirely. After this was done and the cut surface healed, free nasal respiration was established. The use of the galvano-cautery is only clearly indicated in cases in which there is a condition of vascular turgescence. In these cases a deep linear cauterization with a fine cautery point gives most happy results, as it not only obliterates the injured blood-vessels, but so binds the tissues down to the deeper structures that turgescence of the tissue is prevented. In those cases where there is a firm hypertrophy of the turbinated bodies the use of the galvano-cautery is contraindicated, and in such cases I never employ it. Not only does it often aggravate the hypertrophy (as illustrated in the case I have alluded to), but extensive scar tissue is the result, particularly if the burning is sufficient to destroy the hypertrophied tissue. In these cases the removal of the hypertrophied tissue by other surgical means should in every instance be performed.

The PRESIDENT: I have been gratified by the many remarks and also by the criticisms upon this paper, and I was very glad particularly to find Dr. Wright so in accord with what I myself expressed in a communication before this society some years ago, entitled *The Constitutional Causes of Throat Disease*. Some cases—one in particular—were given in which the nose alone was concerned, in which the condition was directly referable to the constitutional state. My ordinary course before using the cautery has

been to study the constitutional condition of the patient, to find out why the turbinates swell, and then determine what action is to be taken. If cocaine reduced the swelling, it showed that sufficient contractile power was left, or rather that there was not so much hypertrophy but what Nature, if assisted, could prevent or limit the tendency to recurrent turgescence. In such cases I have been accustomed to use the cautery both to destroy the sensitiveness of the mucous membrane so that it might not be so easily irritated by external causes, and to create sometimes by puncture an adhesive inflammation within the tumor. If, as Dr. Roe has so well said, there is so much hyperplastic deposit that Nature, when assisted, can not get rid of it, surgical interference is called for, and, like Dr. Roe, I frequently use some cutting instrument instead of the cautery. I can not conceive that any ill would follow the cautery used by any member of this association; but those who have preceded me have given instances where the ignorant application—the routine application—of it has caused great injury. That, I think, all will concede. Of course, in order to avoid adhesion, the greatest precaution is required to limit the application to one side of the nasal fossa, and great care must be taken afterward to prevent contact of the wound with the opposite healthy surface.

I wish, with Dr. Delavan, to indorse the principle involved in the method of Dr. Glasgow. I have often used it in getting rid of swollen turbinated tissue.

Regarding accidents, like the occurrence of erysipelas, these are liable to take place after any other surgical procedure as well as after treatment of the nose, especially when the usual surgical precautions are not observed.

Dr. FARLOW, of Boston: Some years ago I saw a case of iritis follow the application of glacial acetic acid within the nose. I can not say whether there was any causal relation.

The PRESIDENT remarked that he thought it probably a mere coincidence; the iritis might have been of rheumatic origin.

Dr. DE BLOIS: I have been much interested in the discussion which has taken place on my paper, although it has diverged somewhat from the original subject. It was intended merely to portray some of the conditions found years after the operation and not immediately afterward.

Paper.

DISEASES OF THE FRONTAL SINUS.

BY D. N. RANKIN, A. M., M. D.

BY a perusal of the various works on rhinology, you will observe that the diseases of the frontal sinus do not receive the attention they deserve. In my opinion, they are frequently the prime cause of serious, and oftentimes incurable, diseases of the nares; and, *vice versa*, very troublesome and painful affections of this locality often result from neglecting slight and curable diseases of the nose. Indeed, the diseases of this accessory sinus of the nose require more prompt treatment in their early stages than those of the antrum Highmorianum, owing to the fact of its close proximity to the brain, there being only a thin bony plate between the sinus and brain proper. In the infant at birth there is no trace of the frontal sinuses. They begin to make their appearance between the second and third year, when they are merely enlarged cells in the diploë. They are not fully developed until puberty, when they consist of two cavities often of a different size, the left being commonly the larger, and varying in size in different persons, being larger in men than in women, which sometimes communicate with one another, though not always, but always with the nasal cavities by a separate foramen in each, which opens into the middle meatus of the nose through the anterior ethmoidal cells.

As stated by Sir W. Hamilton, the sinuses are rarely, if ever, wanting in any healthy adult head of either sex. Out of three hundred crania which he examined, he could not find one in which the sinus was completely absent.

The development of these sinuses is usually the result of the receding of the outer and inner tables of the bone from each other. The absence of the bumps, even in middle age, does not necessarily imply the absence of the sinuses, since they may be formed by a retrocession of the inner wall of the skull. In old persons, as a rule, when the sinuses enlarge, it is by encroachment of the inner table on the brain case. Therefore an elderly person may have a large frontal sinus without any external indication of it. On the other hand, a prominent bump does not necessarily imply the existence of a large sinus, or indeed of a small one. The bump may be a mere thickening of the bone. Anatomists inform us that these

cavities are lined throughout by mucous membrane, which is continuous with the pituitary membrane lining the nasal cavities, but it differs from the latter in being denser in its texture and paler in color, as well as being smoother and more highly polished. As there is no trace of these sinuses at birth, the membrane which lines the frontal sinuses, although it is considered to be a continuation of the pituitary membrane, would appear to be developed subsequently to it, as it differs from it, not only in appearance, but in its liability to disease, as diseases of the sinuses are rather more rare than those of the mucous membrane of the nasal cavities. The most important affections of this locality are inflammation, simple and specific, foreign bodies, including insects and worms, polyps, earthy concretions, hydatids, and encephaloid. Simple inflammation of the frontal sinuses may be caused by an external injury, as a blow on the forehead and gunshot wounds immediately over the sinuses. One case from the latter cause I have had under my care, which, with your permission, I will fully report :

C. H. P., white, aged thirty-four years, came under my care in the fall of 1864 for the relief of a severe pain in the frontal sinus, with great tenderness and puffiness over the part. The only thing to be seen was a cicatrix from a gunshot wound. Wishing to get a history of the case, he related the following :

Was regularly enlisted in the United States Army during the late war. While in the rear of Petersburg, Va., was struck upon the forehead immediately over the frontal sinus by a spent Minié ball and lay for some hours upon the ground in an insensible condition before reaction supervened; was then carried to the Cavalry Corps Hospital, City Point, Va., where the proper attention was received and was detained until the wound healed, there being no injury to the bone perceptible, but still continued to suffer from a deep-seated pain—deep in the bone, as he described it. In this condition he deserted from the hospital, as he was expecting at any moment to be sent to the front. After his desertion he came to Pittsburgh, when he came under my care for the relief of this terrible pain in his forehead. I questioned him carefully as to ever having any specific disease; he most positively denied it. In order to satisfy my own mind, I examined him very carefully, and came to the conclusion he was telling me the truth. The usual remedies were given him without any beneficial effect whatever. Acting under the impression that the injury he had received from the gunshot wound produced inflammation of the membranes lining the frontal sinuses resulting in suppuration of that cavity, and there being no hope for an exit through the natural outlet, I deemed it most prudent to open the sinus by trephining, which I did, and was delighted to see more than a tablespoonful of healthy pus

exude therefrom, which immediately gave him relief. The cavity was washed out with an antiseptic solution, the crucial flesh wound healed kindly, and he was discharged a happy man. He has written to me several times since, and stated that he has had no return of the trouble.

A few instances are given in some of the older works on surgery of the lodgment of balls in the frontal sinuses caused by gunshot wounds, and also where the end of a knife blade or scissors and the sharp end of a metal fence paling, broken off in its passage through the skull, have been found in this locality. Some cases, and they are not a few, are also upon record of inflammation ending in abscess in the frontal sinuses, independent of injury, in which the pus either made its way into the nose and so escaped, or was retained and gave rise to a train of severe and distressing symptoms.

Tertiary syphilis often attacks these cavities; the symptoms are a sense of weight and fullness, an erysipelatous blush, a heavy aching pain extending along the eyebrows, and the other usual symptoms attending a severe form of coryza.

How often are we called upon to visit a patient who has taken a severe cold and is suffering from a most violent pain in this locality, with chill and high temperature! Any one of us who has seen many cases of *la grippe*, so recently and prominently brought to our notice, could not help but notice the involvement of this locality, the great pain and tenderness in the frontal sinuses, and as soon as we were able, by our remedies, to get a free discharge from the sinuses *via* the nostrils, the patient would immediately get relief, especially from this one violent symptom. But in one instance it was not my good fortune to secure the desired discharge; this case I deem of sufficient interest to report to this Association.

On March 30, 1889, J. L., white, aged thirty-two years, hurriedly summoned me to his residence, where I found him suffering most agonizing pain, especially over the frontal sinuses. I was informed that two days before he had taken a severe cold, came to his home, took a severe chill, followed by high fever and excruciating pain in the forehead. I at once surmised the trouble. To relieve his severe pain, a hypodermic injection of morphine was given him, which had the effect of moderating the pain somewhat; but his relief was only temporary, for as soon as the effects of the anodyne had worn off the pain was as excruciating as before the injection was given, if not more so. He was then prescribed phenacetine and salol, followed by a thoroughly antiphlogistic treatment, as salines, aconite, leeching, blistering, etc., but all to no decided good effects. I then commenced poulticing in the hope that whatever pus might be collected in the sinuses would become thinner and pass down

through the nostrils. This had no better effect than the preceding treatment. The case becoming worse, with the other symptoms becoming aggravated, some delirium appeared. As every other means had been used to no good effect, I decided to open the outer table by trephining, which I did, giving the man immediate relief; about half an ounce of healthy pus escaped, and, upon examination, was pleased to find the inner table in a healthy condition, no necrosis having occurred, which I feared greatly, owing to the thinness of the bone.

Professor V. Cozzolino gives, in the *Annales des mal. de l'oreille, du larynx*, etc., December, 1891, a description of the instruments and methods which he uses in treating suppuration of these sinuses: "In probing the frontal sinus, the point of a curved probe is passed between the external wall and the anterior end of the middle turbinated upward and forward. The probe will be known to be in the sinus by its direction and by the fact that its end is more than five centimetres from the floor of the nostrils. Great care must be used in treating the ethmoidal sinuses, because of their proximity to the brain. An instrument with a pen-shaped end is used in opening these sinuses. The treatment in all cases consists of giving a free opening and antiseptic washing." Bartholin reports having met with earthy concretions in the frontal sinuses similar to those which are sometimes found in the nose. Polyps of a gelatinoid or fibrous structure are sometimes developed in the frontal sinuses, or extend to them from the nose.

Viallet and Rouger report having met with a case in which a polyp of the frontal sinus was associated with an exostosis of this cavity. Langenbeck and Brume report a case of hydatids in the frontal sinus as follows: "The tumor, during the progress of its development, encroached upon the forehead and roof of the orbit, pushing the eye forward and downward."

Robert Keate, in 1819, published in the tenth volume of the *London Medico-Chirurgical Transactions* the particulars of a case of hydatids of the frontal bone in a girl eighteen years old, but the tumor seems to have been developed in the areolar tissue and not in the sinus, which, however, became accidentally involved during the progress of the disease.

Professor Samuel D. Gross states that encephaloid of the frontal sinus is probably more common than is generally imagined, but in his extensive surgical experience he has seen only one case of it. "The patient was a gentleman upward of sixty years of age who, twelve months previously, had been seized, without assignable cause,

with what he supposed to be an attack of erysipelas of the forehead and face. On recovering from this, he noticed an unusual fullness over the left eyebrow attended with great hardness and excessive pain. The lids continued to swell and the left nostril by degrees became obstructed and the seat of a thin sanious discharge, more or less profuse, and at times quite foetid. At length several openings formed upon the most prominent part of the tumor, giving vent to thick yellowish pus, and readily admitting of the passage of a probe into the nose. Upon enlarging these openings the sinus was found to be occupied by a soft fungous mass, the overlying bone being softened and disintegrated. The morbid growth presented all the characteristics, physically and microscopically, of encephaloid. The patient died in a few weeks completely exhausted."

Fraenkel, in von Ziemssen's *Cyclopædia*, states that "we have trustworthy observations confirming the existence within the frontal sinuses of centipedes, where they may remain for years, the secretions of the cavities furnishing them with sufficient nourishment." It is reliably reported (*Medical Times*, 1876) that larvæ have been found in the sinuses, and maggots that have developed within the nose have managed to make their way to the frontal sinuses. A case is reported where epistaxis, extending over many years, was due to an insect—the *Pentastoma tenioides*—that had settled in these sinuses. One day it was sneezed out, and no further bleeding occurred.

My object in this paper is accomplished if I have succeeded in interesting the fellows of this Association to the extent that the importance of the subject I have been endeavoring to bring before them demands, and if I have adduced anything that will aid in relieving the painful, trying, and persistent diseases of this region I shall be exceedingly gratified.

Paper.

A CASE OF SUPPURATING ETHMOIDITIS.

By J. H. BRYAN, M.D.

THE following is a report of an interesting case of suppuration of the ethmoid cells, terminating in caries, and it illustrates a condition which has been described as *rhinitis caseosa*:

In October, 1891, Mrs. —, aged twenty-eight, an anæmic and hysterical woman, consulted me. She gave a good family history, and stated

that up to the time she contracted influenza in the spring of 1891 she had enjoyed fairly good health, and that she had been particularly free from catarrhal inflammations affecting the upper respiratory tract. Since the attack of influenza, from which she made a very slow recovery, she has had what she regarded as a severe cold in the head.

In March of the same year she suffered from caries of the upper left second molar tooth. Her dentist destroyed the nerve and cut the tooth down in order to apply a gold crown. She was evidently handled roughly, for a severe alveolar abscess developed after the gold crown had been fitted. The left side of the face was intensely swollen and sensitive, and she thought her nasal symptoms were greatly aggravated.

In the early part of July the left side of the nose became closed, and she has not been able to breathe through it since. The secretions, at first watery in character, have become thick, fœtid, and very profuse, discharging freely both from the front of the nose and into the post-nasal space. She complains also of an intense pain over the bridge of the nose, extending along the infra-orbital ridge to the temporal region of the left side. Her headaches have been so severe that she has been unable to sleep without the aid of anodynes. The impression made upon her general health has been very severe. She has no appetite, and is nervous and hysterical. There is no exophthalmia, no disturbance of the field of vision, or any swelling at the inner angle of the orbit. There is severe pain on pressure on the eyeball, and at the inner angle of the orbit a crepitating sensation, perceptible to the patient, is produced by slight pressure. She complains of pain and a sense of pressure back of the eyeball.

A rhinoscopic examination showed the right side of the nose to be in a fair state of health, there being only a slight turgescence of the inferior turbinated body. On the left side two medium-sized mucous polypi were found attached to the anterior extremity of the middle turbinated bone. The inferior turbinal was very much swollen and partially blocked up the vestibule of the nose, which was filled with a thick caseous and foul-smelling secretion. The polypi were removed with the snare, and the inferior turbinated body, contracted by means of cocaine, allowed the middle turbinated body, which was greatly swollen and projected over against the septum, to be brought into view. A posterior rhinoscopic examination showed the middle and inferior turbinated bodies swollen, and the same thick caseous secretion passing over the posterior extremity of the middle turbinal into the post-nasal space. After snaring off the polypi, the nose was cleared of all secretion so that a more careful examination could be made. The secretion was observed to come both from the middle meatus and from above between the middle turbinated body and the septum.

Examination with electric light showed the left antrum to be opaque while its fellow of the opposite side remained translucent as high as the infra-orbital ridge, thus revealing the fact that the left antrum was af-

fected and complicated the inflammation of the ethmoid cells. The nose was thoroughly cleansed of all secretion, the second molar tooth extracted, and the antrum perforated at that point. Upon washing out the cavity it was found to contain about a teaspoonful or more of a thick, mucopurulent secretion, differing in character from that observed in the nose. There was some evidence of necrosis around the buccal root, and upon breaking open the tooth the pulp cavity and the roots were found to contain decomposing nerve tissue which had not been removed, and which, in all probability, was the cause of the inflammation having extended into the maxillary sinus. The inflammation in the antrum subsided in the course of a week under the local applications employed, while, on the other hand, the caseous secretion showed no tendency to diminish after the nose had been treated daily with the peroxide of hydrogen and other antiseptic lotions for several weeks. The headache and orbital pains increased in intensity, and the general health of the patient continued to grow worse.

In the mean time the polypi redeveloped and were removed as before by means of the snare. In doing so a small spiculum of bone was removed from the anterior extremity of the middle turbinated body, but the opening made was not sufficiently large to admit of the abscess discharging its entire contents. There was a slight increase in the amount, but not enough to give the patient much relief, for she suffered intensely after the operation and passed a sleepless night. The following morning, however, as she was on her way to my office, the abscess discharged spontaneously a great quantity of thick caseous secretion both from the front of the nose and into the post-nasal space. While she was made quite ill by the foetid mass passing into the mouth, and came near fainting in the street, she experienced almost immediate relief from the headache and pain in the eye.

When she reached the office I found, upon examination, the nose was entirely free from secretion; and while the contour of the middle turbinated body was maintained, it had apparently been drawn outward toward the orbit, thus obliterating the middle meatus. The opening caused by the detachment of the polypi could not be found, and no rough bone was detected with the probe.

The patient was kept under observation for ten days, and during that time the nose was free from secretion; the pain in her head and eye ceased, and her general health improved. Within the past week I have had an opportunity of examining the patient again, and I found the parts in much the same condition as when last examined, except that the anterior extremity of the middle turbinated body seems to have been drawn nearer to the orbit than the rest of the body.

In 1874 Duplay (1) described an affection of the nose as rhinitis caseosa, a disease that had been previously alluded to by Nélaton (2). He states that the affection is very rare, and is characterized

by an accumulation in the interior of the nasal cavities of a caseous material analogous to the contents of certain sebaceous cysts, and that the disease frequently goes unrecognized.

It is evident that Duplay was mistaken and misinterpreted the symptoms of the cases he had under observation, judging from the silence with which the subject is treated by most of the German, English, and American authorities. Potiquet (3) denies the existence of such a disease, and states that Duplay's conclusions were based on errors in diagnosis. Cozzolino (4), on the other hand, says that it is a very rare disease, and considers it a desquamative rhinitis observed principally in scrofulous subjects. He considers it also analogous to a condition of the middle ear where cholesteatomatous masses are found in the tympanum and mastoid cells, and suggests the name of cholesteatomatous rhinitis. Schleicher (5) believes the caseous secretion is accounted for by the degeneration of mucous polypi. Lennox Browne (6) says that no satisfactory account of the disease has been given; but it seems to be due to long-retained secretions originating in the superior meatus, or in one or more of the accessory cavities of the nose, and that it is usually associated with caries of the ethmoid bone. He states that Hall has seen the sphenoidal sinus filled with this caseous material in five instances, in dissecting-room subjects of advanced age, in which there was no disease of the bone present. In my case I believe the affection commenced as a simple rhinitis in the course of an attack of *la grippe*, and extended to the ethmoid bone, terminating in suppuration and in caries of the bony trabeculae of the ethmoid cells. I have met with this caseous secretion in two other instances, but in neither of them was the secretion so profuse as in the above case. It occurred once in a case of caries of the middle turbinated body, and in the other in a case of abscess of the antrum of long standing in which there was caries of the alveolar process.

In well-marked cases the diagnosis of abscess of the ethmoid cells is not a difficult matter, but in the majority of instances the symptoms are obscure, and there is frequently an implication of one or more of the neighboring sinuses so that it is almost impossible at times to state positively which is the source of the pus. The diagnosis must then be made from the following symptoms, some of which may be occasionally absent: A swollen condition of the middle turbinated body, the presence of pus in the middle meatus, and, if the posterior cells are involved, the presence of pus flowing over the posterior extremity of the middle turbinated body into the post-

nasal space; the absence of the pulsating light reflex, which is observed in abscess of the antrum; swelling at the inner angle of the orbit; exophthalmus; narrowing of the field of vision; crepitation on pressure over the inner angle of the orbit; pain in the orbit and along the infra-orbital ridge. The presence of pus in the middle meatus is common to inflammations of the frontal and maxillary sinuses as well as to that of the ethmoid sinus, and it is very difficult at times to trace it to its source; but, according to Max Schaeffer (7), in pain we have a much more reliable symptom in differentiating between abscesses of the various sinuses. In case of the frontal sinus pain is felt at the root of the nose, and extends along the supra-orbital ridge, while in ethmoidal affections it extends along the infra-orbital ridge; and in my experience it is noticeably absent in chronic abscesses of the antrum.

The complications of suppurating ethmoiditis most frequently met with are abscess of the antrum, abscess of the orbit, and meningitis.

While in the above-cited case the antral complication was purely accidental and was dependent upon a carious tooth, it is a very frequent complication, as is evidenced by the fact that Bosworth, in his valuable paper on the various forms of disease of the ethmoid cells, read before this association at its last meeting, mentioned thirteen cases of suppurating ethmoiditis, seven of which were complicated with abscess of the antrum. The frequency of this complication may be accounted for in several ways: 1. The opening of the anterior ethmoid cells and that of the antrum lie very close together in the hiatus semilunaris, and inflammations of the nose affecting one cavity would be most likely to extend to the other. 2. Mechanical obstruction, either from polypi or hypertrophic rhinitis, causing the mucus to be confined in both sinuses, and a consequent purulent inflammation resulting. 3. Pus accumulating in the middle meatus and working its way into the antrum. 4. Owing to an anomalous condition of the ethmoid bone in which the anterior and posterior ethmoid cells communicate with the antrum. We do not know how often this anomaly occurs, and in some instances where the neighboring sinuses communicate with each other, the openings may be pathological; but in others they are natural, as is well illustrated in a specimen in the Army Medical Museum, in which the frontal sinus opens directly into the summit of the antrum.

While the indications for treatment in the above case were perfectly plain, and the patient could have been saved much suffering

had she accepted surgical aid, we must remember, before resorting to severe measures, that these abscesses sometimes discharge spontaneously, and others are relieved in the course of the removal of polypi. In the great majority of cases, however, it will be found necessary to open the cells so that free drainage can take place, and any necrosed or carious bone removed. For this purpose I have found the snare and a sharp curette preferable to the drill.

1. *Traité de pathologie externe*, t. iii, 1874.
2. *Éléments de pathologie chirurgicale de Nélaton*, iii, second ed., 1874, p. 715.
3. *Gazette des hôpitaux*, February 2, 1889.
4. *Annales des maladies de l'oreille*, etc., October, 1889.
5. *Annales des maladies de l'oreille*, etc., July, 1890.
6. *Diseases of the Throat and Nose*, third edition, London, p. 580.
7. *Deutsche med. Wochenschrift*, October 9, 1890.

Discussion.

Dr. J. WRIGHT, of Brooklyn: I was much interested in that part of the paper relating to rhinitis caseosa. Several years before I ever heard of this condition I had a case which I suppose some would designate by that term. It occurred in a young Swedish girl who was in the best of health, but had an obstruction of the nostril, and on examination I found a white mass above the middle turbinated; on washing it out I was astounded at the amount of caseous matter which came away. It did not seem possible that a single nasal cavity could contain so much. I examined it under the microscope, but found little of interest; there were a few crystals such as one frequently sees in sebaceous cysts. The mucous membrane was not much atrophied. On examining the material which came away more carefully, I found something which looked like the paring of a finger nail or sliver of a pearl button. I believe it is not a disease in itself, but a result of inflammation of the ethmoid, or of irritation from retained secretions in a case of mucous polypi. Why in some cases the secretion undergoes this peculiar degeneration I am unable to say.

Regarding ethmoidal disease, it seems to me we are much behind those abroad in the investigation and treatment of this disease. It seems to me very difficult to treat when of long standing. I have had several cases which I have really not known what to do with. In order to treat them I think it is always necessary to remove the anterior end of the middle turbinated body. We should remember that when treating the ethmoidal sinuses we are very near the base of the brain, and should advance with very great caution. I have curetted out the sinuses and then syringed with warm carbolized solution through a syringe to which

was attached a long slender needle. The cases which I have had have improved, but I have seen none cured which had existed two or three years.

Dr. C. E. DENNISON, of Colorado (by invitation): With the permission of the association I would like to relate a case that I may have the benefit of the opinion of the members as to the diagnosis. The case was that of a man of about twenty-two who had pulmonary tuberculosis. He began to be troubled when asleep, whether lying or sitting, by having to clear his throat, the amount of secretion thrown out at once amounting, after a time, to an ounce or an ounce and a half, being thin, yellowish, and containing a multitude of tubercle bacilli. During the day he would spit up from the lungs perhaps two ounces of muco-fibrinous and purulent material, but this on several examinations was found to contain no tubercle bacilli. The question which I would like answered is, Where did the secretion come from which awoke him from sleep? I do not think it came from a lung cavity. Could it have come from the mastoid cells which were believed to be diseased? Rhinoscopic examination was negative.

Dr. J. WRIGHT, of Brooklyn: Of course I do not know how thoroughly the nasal cavity was examined in this case, but I have seen a case somewhat similar, the quantity of secretion thrown out coming on at night, in which the sphenoidal sinus was full of pus. I can not conceive how, in Dr. Dennison's case, the secretion could come down from the mastoid cells.

Dr. DELAVAN: The following was a rather peculiar case of disease of the ethmoid cells. The patient, an elderly gentleman suffering from nasal polypus, had on the left side of the nose a very putrid discharge, with considerable pain and sense of oppression and weight. I diagnosed ethmoidal disease, removed the polypus, removed the anterior end of the middle turbinated, found an abscess cavity there, and supposed the patient would be cured. Yet, although very much relieved, the discharge continued, and I found there was an immense amount of thickened tissue in the vicinity of the opening leading to the antrum of Highmore. Various means were discussed for effecting free drainage of the antrum, and finally it was drained through the nose by enlarging the natural opening. By washing out twice a week there has been such improvement that further interference has not been considered necessary. The case is interesting as showing that we may have here a complication of conditions; the value of free drainage; and that, in some cases at least, we can get along without the ordinary surgical interference.

Dr. ALEXANDER W. MACCOY, of Philadelphia: My experience with cases of chronic ethmoidal discharge, usually associated with necrosis sooner or later, is that they are of long duration and extremely difficult to cure. I have a physician friend who has had necrosis of the ethmoidal cells from twenty to twenty-five years. It is a source of annoyance, but

he refuses to have further operative interference. While the cases are much relieved by curetting, yet the permanent results are not completely satisfactory. In my experience, it has been extremely difficult to get rid of all the necrosed tissue.

Dr. MULHALL inquired of Dr. MacCoy whether he used general anæsthesia in curetting, and Dr. MacCoy replied in the negative.

Dr. BRYAN replied to an interrogatory that he had used general anæsthesia in curetting the ethmoid cells in but one case, and that he would never use it again. He agreed with the speakers that the disease was a tedious one to both patient and physician.

Paper.

A CASE OF PARTIAL LARYNGECTOMY.

By J. W. FARLOW, M. D.

Dr. J. W. FARLOW, of Boston, presented a man, thirty-nine years of age, whose right vocal cord and half of the thyroid had recently been removed by Dr. G. H. Monks for carcinoma. He had been hoarse since July, 1891, and was first seen at the Carney Hospital, January 18, 1892, by Dr. W. F. Knowles, who found the right cord reddened and thickened, particularly its anterior portion; its movements very restricted. There was no particular swelling of the arytenoids and there were no enlarged glands. Local and internal treatment had no influence, and on May 17, 1892, he was operated on by Dr. Monks. Ether was given and an incision was made in the median line from the hyoid bone to about the fourth ring of the trachea; also an additional incision transversely to the right, on a line just below the hyoid bone. The soft tissues covering the right half of the thyroid were dissected up, together with the perichondrium, and the cartilage exposed. Low tracheotomy was now done and etherization continued through the tube, the trachea around the tube being packed with iodoform gauze.

The thyroid was now rotated and the posterior wall divided in the median line. Then the anterior wall was divided in the median line, thus removing the right half of the thyroid. The epiglottis was left *in situ*.

An œsophageal tube was passed through the wound into the stomach. The tracheotomy tube was secured and the wound packed with iodoform gauze. He was fed through the tube for four or five days.

He made a good recovery and was at work in three weeks. On June 23d he was still wearing the tube. Phonation was slight.

Paper.

A NEW METHOD OF ADMINISTERING IODIDE OF POTASSIUM.

BY D. BRYSON DELAVAN, M. D.

A NEW method of administering iodide of potassium in tertiary syphilis, of which I have already published a brief description, consists in mixing the iodide with essence of pepsin and adding this to the necessary quantity of milk, which is allowed to coagulate before it is swallowed. In this form the iodide is easily swallowed, is less likely to cause digestive disturbance, and the patient gets the benefit of the nutritive properties of a considerable allowance of partly digested milk. The proportions from which the best results are obtained are: Iodide of potassium gr. v; Fairchild's essence of pepsin, 3 j; this to be added to $\frac{3}{4}$ ij of milk.

Presentation of Instruments.

NASAL TAMPON MADE OF RUBBER TUBING.

BY MORRIS J. ASCH, M. D.

FORMERLY, after operating for deviation of the nasal septum, I tamponed the nostril with cotton and got good results, but the patients were rendered uncomfortable. I therefore devised a form of hard-rubber hollow splints to be introduced into the cavity operated upon, which are retained in place by the presence of side fenestra. The tubes are made of different sizes, are smooth and unirritating.

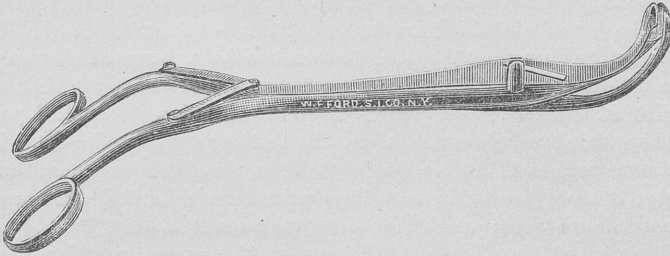
A POST-NASAL FORCEPS.

BY JONATHAN WRIGHT, M. D.

THE woodcut represents an instrument for the removal of lymphoid tissue from the nasopharynx. While, of course, not applicable to every case of nasopharyngeal "adenoids," it will be found, I think, to have the following advantages:

1. It cuts or scrapes in an antero-posterior direction as well as in a lateral.

2. The anterior blade acts: *a*, as a curette; *b*, as a palate retractor, so that by opening the instrument a rhinoscopic view may be obtained with the mirror; *c*, it prevents the palate from becoming engaged between the



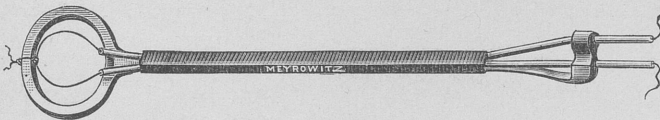
lateral cutting blades in removal of tissue low down on the posterior wall; *d*, it prevents the possibility of engaging the septum between the lateral blades in cases of growth well forward in the vault.

Its greatest value will be found in operations in adults or in children old enough to operate on without general anæsthesia. The W. F. Ford Surgical Instrument Company have carried out the design for me.

AN ELECTRIC TONSIL SNARE.

By CHARLES H. KNIGHT, M. D.

THE electric tonsil snare here shown was suggested by a similar device proposed by Toison for use with the cold wire. The double cannula carrying the wire (No. 30 platinum) is attached to a solid steel shaft from which it is thoroughly insulated. The shaft ends in a ring whose vertical diameter is longer, to correspond with that of most tonsils. The ring may be of different sizes. The wire loop is shaped to adapt itself to the ring, to which it is fastened by a single fine thread at its distal extremity. The tonsil having been surrounded with the ring, traction is made upon the wire, bringing the loop in contact with the



tonsil above and below. At this instant the current is turned on, the thread holding the wire is burned through, thus releasing the loop, the wire buries itself, and the further steps of the operation are simple. It is well to avoid excessive heat and violent traction on the wire, which is apt to break if drawn upon while very hot. A firmer, deeper eschar seems to follow the plan of making traction and burning alternately. It

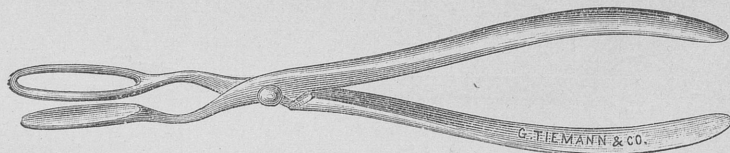
should always be remembered that the heat should be allowed to do the work, the loop being drawn down each time only sufficiently to cut through the portion of tissue that has been burned. The total result of this operation is not measured by the amount of tissue actually removed, since the parts left behind are cauterized to a considerable depth. Galvano-cautery operations in general are not to be recommended as substitutes for cutting. They are to be employed under one of the following conditions: namely, hæmophilia, vascular anomalies, anatomical peculiarities which preclude excision, or refusal of the patient to be cut. This particular method is not feasible in children, except under general anæsthesia; it is only available in adults of considerable fortitude, and in protruberant tonsils from which the palatal folds are free.

The use of this electric tonsil snare, in those very exceptional cases in which bloodless operations are indicated, is recommended for two reasons: First, with it there is no difficulty in placing the wire loop around the tonsil; and, second, the velum and dorsum of the tongue are perfectly guarded by the steel ring, which remains quite cool. It is hardly necessary to add that the ring should be adjusted over the tonsil first, to the outer side of the loop of wire, and should be pressed firmly outward with the forefinger applied to the shaft of the instrument exactly as in the case of the guillotine. The cannula may be used with any handle desired. My own preference is for the Schech or the Kuttner handle.

A NEW FORCEPS FOR STRAIGHTENING THE NASAL SEPTUM.

BY JOHN O. ROE, M. D.

I TAKE pleasure in presenting a new form of forceps for straightening the nasal septum, which possesses the advantage of so placing the septum in position, by breaking the hard parts without lacerating the soft parts, that it will not bend back when the retaining instrument or appliance is withdrawn.



This forceps is made with one blade much wider than the other and fenestrated, so that the second blade fits in the fenestra of the first, similar to a punch, except that the edges of the two blades are rounded and smooth, and there is sufficient space, when closed, to admit the septum without cutting it. The fenestrated portion of the blade is

made in different lengths, shapes, and sizes, according to the nature and size of the deformity that is to be corrected. The forceps is made with the modern lock, so that the blades can be readily taken apart and introduced separately.

This instrument is made in a most excellent manner by Messrs. Tiemann & Co., 107 Park Row, New York.

BUSINESS MEETINGS.

THE Fourteenth Annual Congress of the American Laryngological Association was held in the city of Boston, June 20, 21, and 22, 1892, under the presidency of Dr. S. W. Langmaid. The following Fellows were present:

S. W. LANGMAID, Boston, President.
M. J. ASCH, New York, First Vice-President.
S. JOHNSTON, Baltimore, Second Vice-President.
CHARLES H. KNIGHT, New York, Secretary and Treasurer.
D. BRYSON DELAVAN, New York, Member of Council.
F. I. KNIGHT, Boston, Member of Council.
F. H. BOSWORTH, New York.
J. H. BRYAN, Washington.
S. H. CHAPMAN, New Haven.
T. A. DE BLOIS, Boston.
R. P. LINCOLN, New York.
A. W. MACCOY, Philadelphia.
J. N. MACKENZIE, Baltimore.
J. C. MULHALL, St. Louis.
C. C. RICE, New York.
BEVERLEY ROBINSON, New York.
JOHN O. ROE, Rochester.
H. L. SWAIN, New Haven.
J. WRIGHT, Brooklyn.

On recommendation of the Council, the following were elected Corresponding Fellows of the Association: Lennox Browne, London, England; H. Krause, Berlin, Germany; and F. Massei, Naples, Italy. And the following were elected active Fellows:

M. R. Brown, Chicago, Ill. Thesis: Empyema of the Maxillary Sinus and its Relation to Diseases of the Antrum of Highmore.

J. W. Farlow, Boston, Mass. Thesis: Is not too much Importance attached to the Condition of the Tonsil?

T. Morris Murray, Washington, D. C. Thesis: The Treatment of Tubercular Ulceration of the Larynx.

W. Peyre Porcher, Charleston, S. C. Thesis: A Contribution to the Study of Laryngeal Chorea.

W. K. Simpson, New York. Thesis: Intubation for Chronic Stenosis of the Larynx, with Report of Five Cases.

A. B. Thrasher, Cincinnati, Ohio. Thesis: The Effect of Intranasal Obstructions on the Singing Voice.

Henry L. Wagner, San Francisco, Cal. Thesis: A Case of Lobular Hyperplasia of the Nasal Mucous Membrane associated with Fibroma Molluscum of the Skin.

A. W. Watson, Philadelphia, Pa. Thesis: Palliative Operative Procedures in Malignant Disease of the Larynx, based on a Report of Two Cases.

The President appointed Drs. A. W. MacCoy and J. H. Bryan an Auditing Committee to go over the accounts of the Treasurer.

Secretary's Report.

It becomes my painful duty to formally announce the death since our last meeting of Sir Morell Mackenzie, who was elected an Honorary Fellow at the meeting held in Philadelphia in 1881, and of Dr. Frank Donaldson, Sr., who was one of the founders of the Association. The resignation of Dr. H. Clinton McSherry, of Baltimore, elected a Fellow in 1887, has been accepted by the Council.

It is expected that the thirteenth volume of *Transactions* will be ready for distribution in the course of the coming month. It has been delayed, as usual, by the tardiness of some who read papers at the last Congress.

Two meetings of the Council have been held during the year, the minutes of which are herewith presented.

Treasurer's Report.

THE AMERICAN LARYNGOLOGICAL ASSOCIATION, JUNE 20, 1892.

In Account with Charles H. Knight, Treasurer.

Receipts.

Balance 1891 account	\$168 65
Cash, annual dinner	115 00
Dr. W. C. Glasgow	35 00
Sale of <i>Transactions</i>	41 00
Annual dues, 1892	210 00
	<hr/> \$569 65

Expenses.

Annual dinner, 1891	\$156 50
Stenographer, 1891	100 00
Programmes, 1891	24 50
Programmes, 1892	20 75
Printing, postage, and stationary	20 95
	<hr/> \$322 70

Balance to credit	\$246 95
-----------------------------	----------

ALEX. W. MACCOY,	{ Auditing Committee.
J. H. BRYAN,	

Librarian's Report.

In accordance with the motion passed at the last meeting of the Association, our entire collection of volumes and pamphlets was shipped to the Library of the Surgeon-General's Office, November 28, 1891, and its receipt was acknowledged by Dr. Billings. In offering it to the Surgeon-General's Office, I stated that the understanding on the part of the Association was "that it should be kept intact, provision being made for the reception of additions; that its title should be preserved, and that it should be accessible to the Fellows of the Association under the ordinary rules of the Department."

In reply Dr. Billings wrote: "My idea will be to keep this collection separate, specially by itself, as a laryngological section, the books of which can be loaned to members of the Laryngological Society upon their paying the expenses of the transportation to and fro."

The library was catalogued in the Surgeon-General's Office. I have secured a copy, comprising about eighteen hundred titles, authors and subjects, which I take pleasure in presenting to the Association with my compliments.

THOMAS R. FRENCH.

In accordance with the recommendation of the Council, it was unanimously voted that the Secretary be instructed to convey the thanks of the Association to Dr. French for his valuable services as Librarian.

It was moved and carried that the Secretary be instructed to express the regrets and sympathy of the Fellows of the Association to the families of Sir Morell Mackenzie and Dr. Frank Donaldson, deceased.

Dr. F. I. Knight gave notice of his intention to propose an amendment to Section 3, Article V of the Constitution as follows:

At the first session of each annual meeting a nominating committee of five shall be elected. Such committee shall report at the business meeting on the second day, and the election of officers shall take place on the last day of the meeting.

Dr. F. H. Bosworth, of New York, and Dr. J. H. Bryan, of Washington, as alternate, were nominated and elected to represent the Association on the Executive Committee of the Congress of American Physicians and Surgeons to prepare for the meeting to be held in Washington in 1894.

At a business meeting, held after the scientific proceedings on the last day of the meeting, the following officers, who had been formally nominated on the first day, were elected:

President.—M. J. ASCH, New York.

First Vice-President.—S. JOHNSTON, Baltimore.

Second Vice-President.—J. C. MULHALL, St. Louis.

Secretary and Treasurer.—CHARLES H. KNIGHT, New York.

Librarian.—THOMAS R. FRENCH, Brooklyn.

Member of Council.—S. W. LANGMAID, Boston.

It was then voted to hold the next meeting of the Association in New York the latter part of May, 1893.

After a unanimous vote of thanks to the Boston Fellows of the Association for their generous hospitality, the Congress adjourned.

OBITUARY.

FRANCIS DONALDSON, M. D.

DR. DONALDSON died at his home in Baltimore, December 9, 1891, at the age of sixty-eight years. Although he had been ill many months, his friends did not anticipate so sudden a termination of his career. He studied medicine at the University of Maryland, and took his degree in 1846. For two years he was a resident student in the old almshouse hospital, Baltimore, and subsequent to his graduation studied in the hospitals of Paris, returning to Baltimore in 1851. He was attending physician to the Baltimore almshouse hospital and to the general dispensary, and was also at one time resident physician at the Marine Hospital. From 1863 to 1866 he was professor of materia medica in the Maryland College of Pharmacy, and in 1866 became professor of physiology and hygiene and clinical professor of diseases of the throat and chest in the University of Maryland. In 1880 he resigned and was made emeritus clinical professor. He had served as president of the Medical and Surgical Faculty of the State and of the American Climatological Association, was a member of the American Association of Physicians and Surgeons, was a consulting physician at the Johns Hopkins Hospital, and was one of the founders of the American Laryngological Association. He contributed to four of our volumes of *Transactions*, his last paper, an interesting historical review, entitled *The Laryngology of Trousseau and Horace Green*, appearing in the twelfth volume. The paper was read by title at the Baltimore meeting in 1890, owing to the disability of the author at that time. He was present for a short time at the opening session of that congress, which was his last appearance at our meetings. His strong and genial face will be greatly missed. It falls to the lot of but few practitioners of medicine to gain so large a circle of patients who give their friendship as well as their confidence. At the same time it was Dr. Donaldson's well-merited fortune to secure the universal respect and esteem of his professional brethren.

1892.

ACTIVE FELLOWS.

ALLEN, HARRISON, 1933 Chestnut Street, Philadelphia, Pa.
ASCH, MORRIS J., 5 West Thirtieth Street, New York.
BEAN, C. E., Germania Life Building, St. Paul, Minn.
BOSWORTH, FRANCKE H., 26 West Forty-sixth Street, New York.
BROWN, M. R., 34 Washington Street, Chicago, Ill.
BRYAN, J. H., 806 Seventeenth Street, Washington, D. C.
CASSELBERRY, WILLIAM E., 34 Washington Street, Chicago, Ill.
CHAPMAN, S. H., 193 Church Street, New Haven, Conn.
COHEN, J. SOLIS-, 1431 Walnut Street, Philadelphia, Pa.
COHEN, S. SOLIS-, 219 South Seventeenth Street, Philadelphia, Pa.
DALY, WILLIAM H., 135 Fifth Avenue, Pittsburg, Pa.
DEBLOIS, T. AMORY, 372 Marlborough Street, Boston, Mass.
DELAVAN, D. BRYSON, 1 East Thirty-third Street, New York.
FARLOW, J. W., 234 Clarendon Street, Boston, Mass.
FRENCH, THOMAS R., 150 Joralemon Street, Brooklyn, N. Y.
GLASGOW, WILLIAM C., 2847 Washington Avenue, St. Louis, Mo.
GLEITSMANN, J. W., 46 East Twenty-fifth Street, New York.
HARTMAN, J. H., 5 West Franklin Street, Baltimore, Md.
HINKEL, F. WHITEHILL, 305 Delaware Avenue, Buffalo, N. Y.
HITCHCOCK, URBAN G., 51 West Twenty-ninth Street, New York.
HOLDEN, EDGAR, 13 Central Avenue, Newark, N. J.
HOOPER, FRANKLIN H., 85 Beacon Street, Boston, Mass.
INGALS, E. FLETCHER, 36 Washington Street, Chicago, Ill.
IVES, FRANK L., 117 East Thirtieth Street, New York.
JARVIS, WILLIAM C., 142 Madison Avenue, New York.
JOHNSTON, SAMUEL, 204 West Monument Street, Baltimore, Md.
KNIGHT, CHARLES H., 20 West Thirty-first Street, New York.
KNIGHT, FREDERICK I., 377 Boylston Street, Boston, Mass.
LANGMAID, SAMUEL W., 373 Boylston Street, Boston, Mass.
LEFFERTS, GEORGE MOREWOOD, 6 West Thirty-third Street, New York.

LINCOLN, RUFUS P., 22 West Thirty-first Street, New York.
LOWMAN, JOHN H., 441 Prospect Street, Cleveland, O.
MACCOY, ALEXANDER W., 1417 Walnut Street, Philadelphia, Pa.
MACKENZIE, JOHN N., 605 North Charles Street, Baltimore, Md.
MAJOR, GEORGE W., 82 Union Avenue, Montreal.
MULHALL, J. C., 3609 Lindell Avenue, St. Louis, Mo.
MURRAY, T. MORRIS, Seventeenth and H Streets, Washington, D. C.
PORCHER, W. PEYRE, 4 George Street, Charleston, S. C.
PORTER, WILLIAM, 2830 Locust Street, St. Louis, Mo.
RANKIN, D. N., 85 Lincoln Avenue, Allegheny, Pa.
RICE, CLARENCE C., 123 East Nineteenth Street, New York.
ROBINSON, BEVERLEY, 37 West Thirty-fifth Street, New York.
ROE, JOHN O., 28 North Clinton Street, Rochester, N. Y.
SAJOUS, CHARLES E., 1630 Chestnut Street, Philadelphia, Pa.
SEILER, CARL, 1204 Walnut Street, Philadelphia, Pa.
SHURLY, E. L., 25 Washington Avenue, Detroit, Mich.
SIMPSON, W. K., 952 Lexington Avenue, New York.
SWAIN, H. L., 238 York Street, New Haven, Conn.
THRASHER, A. B., 159 West Ninth Street, Cincinnati, O.
VAN DER POEL, S. OAKLEY, 47 East Twenty-fifth Street, New York.
WAGNER, CLINTON, 65 West Thirty-eighth Street, New York.
WAGNER, HENRY L., 506 Sutter Street, San Francisco, Cal.
WATSON, A. W., 162 North Twentieth Street, Philadelphia, Pa.
WESTBROOK, BENJAMIN F., 174 Clinton Street, Brooklyn, N. Y.
WRIGHT, JONATHAN, 73 Remsen Street, Brooklyn, N. Y.

HONORARY FELLOWS.

GARCIA, MANUEL, 1 Bentinck Street, Manchester Square, London, England.
* MACKENZIE, SIR MORELL, 19 Harley Street, W., London, England,

CORRESPONDING FELLOWS.

BROWNE, LENNOX, 36 Weymouth Street, London, England.
BRUNS, PAUL, Tübingen, Würtemberg, Germany.
DE LA SOTA Y LASTRA, R., 7 Calle de Torqueros, Seville, Spain.
GOUGUENHEIM, A., 73 Boul. Hausmann, Paris, France.
KRAUSE, H., Neustädt. Kirch-Strasse 13, Berlin, Germany.
LABUS, CARLO, Via St. Andrea 8, Milan, Italy.

* Deceased.

MASSEI, F., 4 Piazza Municipio, Naples, Italy.

MEYER, WILHELM, Nørrefarimagsgade 19, Copenhagen, Denmark.

MOURE, E. J., 25 Cour du Jardin-Public, Bordeaux, France.

STOERK, CARL, Wallfischgasse 13, Vienna, Austria.

SCHROETTER, LEOPOLD v., Schwartzenberg-Strasse 8, Vienna, Austria.

SEMON, FELIX, 39 Wimpole Street, Cavendish Square, London, England.

WHISTLER, W. McNEIL, 28 Wimpole Street, Cavendish Square, London, England.

