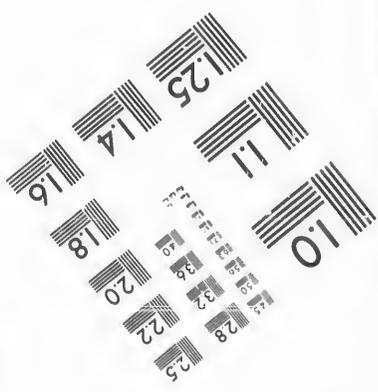
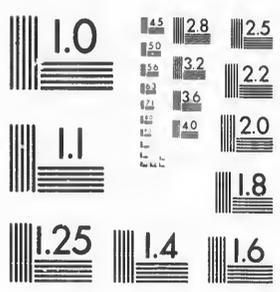


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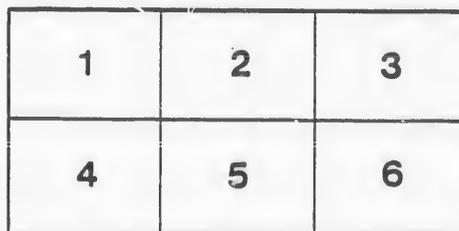
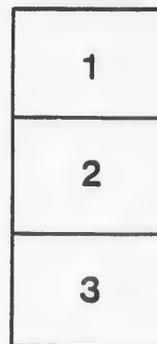
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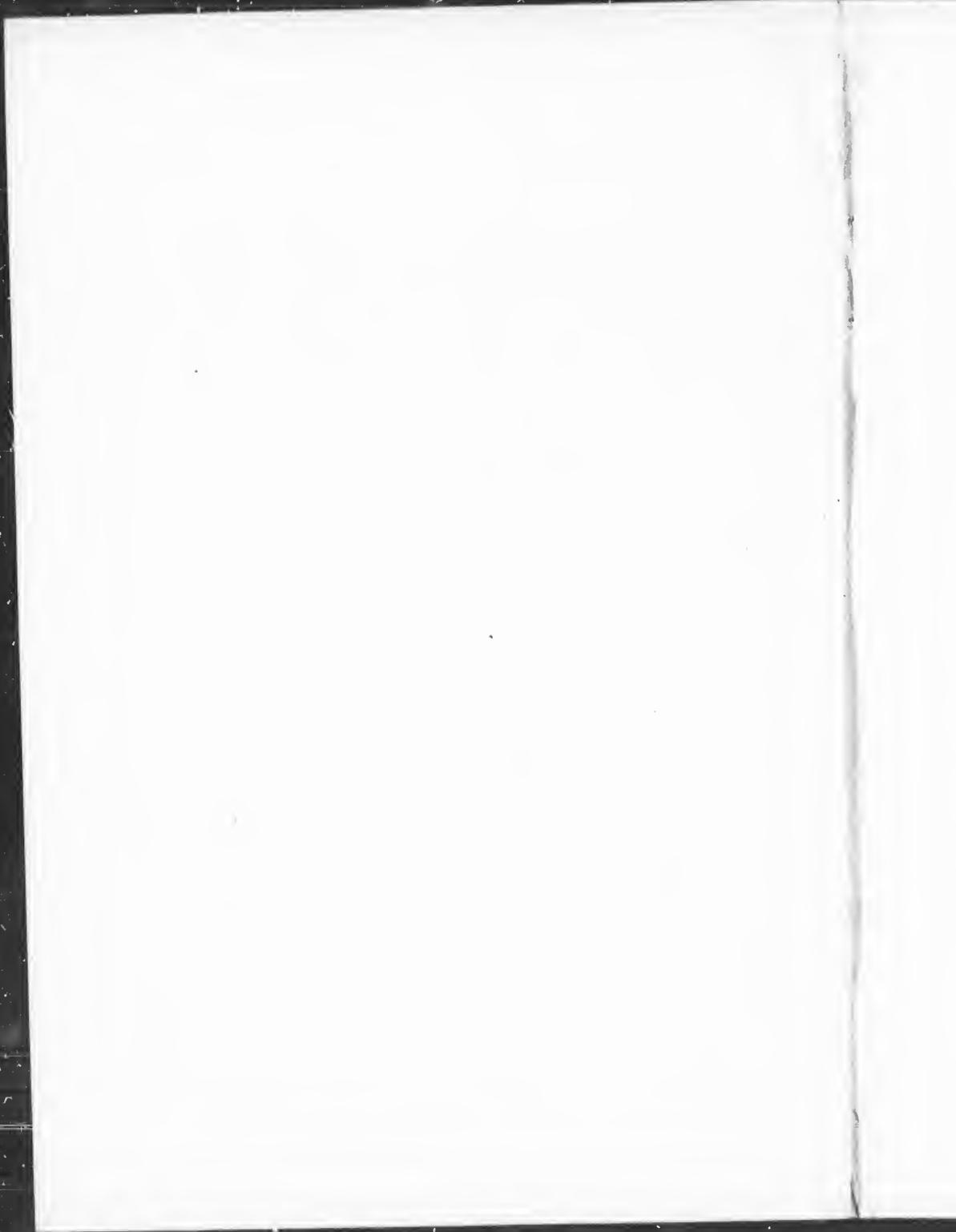
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BY

Dr. Charles A. WILSON-PREVOST.

Graduate of the University of Paris; Late Extern of the Hospitals of
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Paris; Member of the Physicians' Mutual Aid Asso-
ciation of New York; Surgeon to the French
Hospital.

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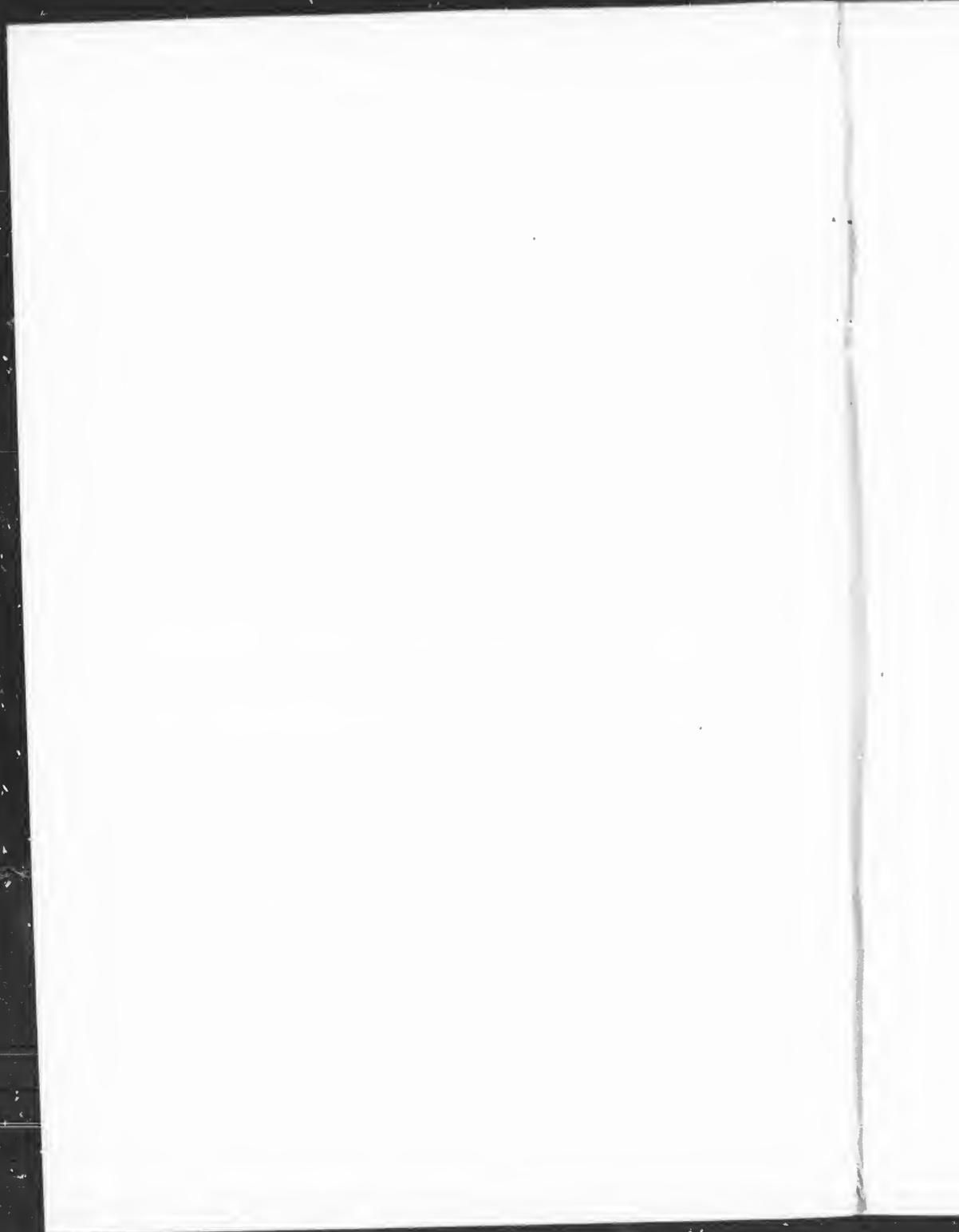
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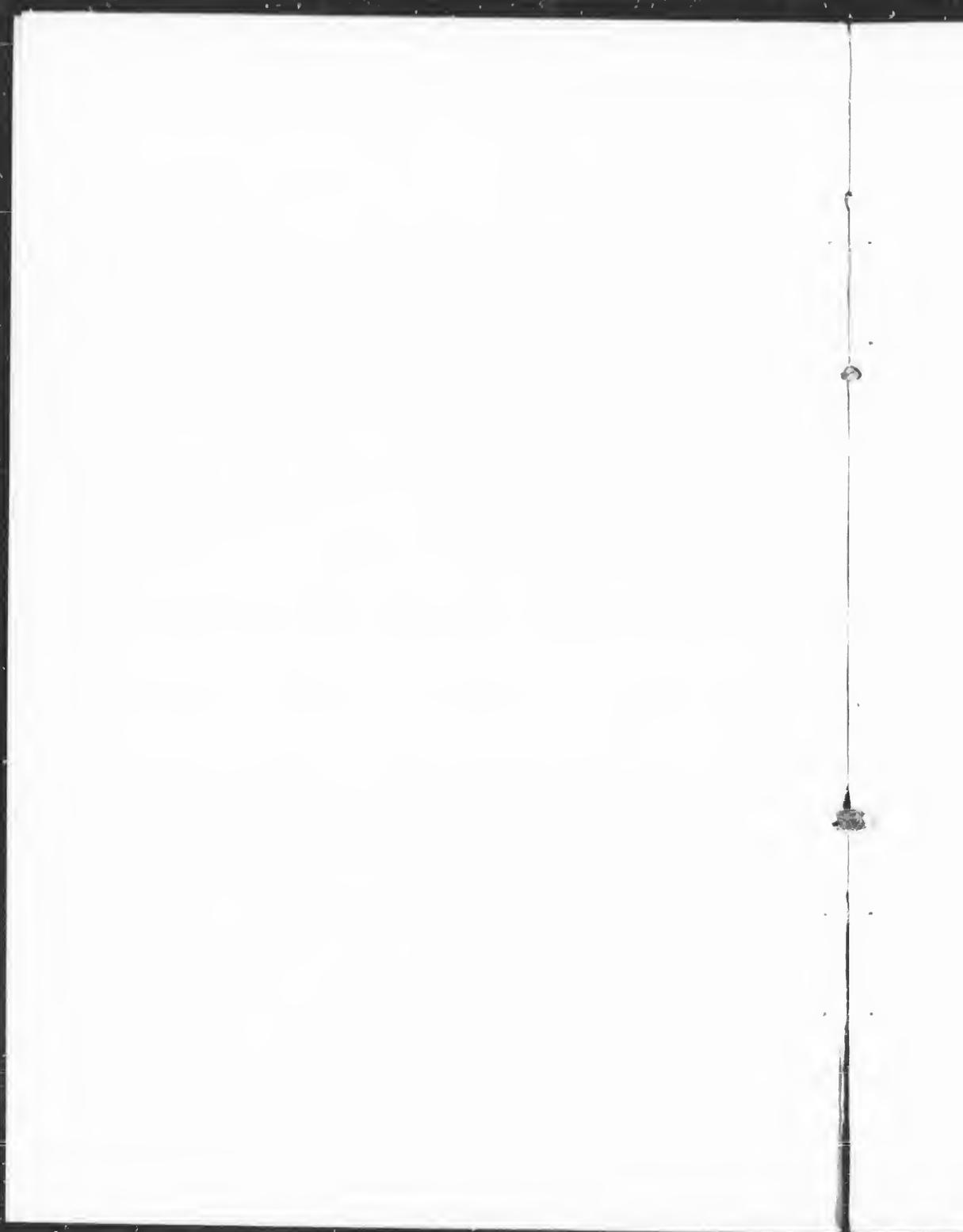
D. B. St. John-Roosa.

PROFESSOR OF DISEASES OF THE EYE AND EAR IN THE NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL; SURGEON TO THE MANHATTAN EYE AND EAR HOSPITAL; FORMERLY PROFESSOR OF DISEASES OF THE EYE IN THE UNIVERSITY OF THE CITY OF NEW YORK AND IN THE UNIVERSITY OF VERMONT; CONSULTING SURGEON TO THE BROOKLYN EYE AND EAR HOSPITAL; EX-PRESIDENT OF THE NEW YORK ACADEMY OF MEDICINE; HONORARY MEMBER OF THE MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH; HONORARY FELLOW OF THE ACADEMY OF MEDICINE OF HAVANA, CUBA, ETC.,
ETC.

Mon cher Maître:

Je vous dédie ce petit livre en témoignage de la reconnaissance, du dévouement que je vous dois, et de l'amitié que vous avez fait naître entre nous.

C. A. W. P.



INTRODUCTION.

On June, 1897, I had the honor to submit to the appreciation of the Professors of the Faculty of Medicine of Paris, a work on the "mycosis of the pharynx," suggested to me by my eminent and amiable master, Mr. A. Castex.

The "pharyngo-mycosis" was discovered in 1873, by Frænkel, of Berlin, and since then, a great number of cases were published, the authors all concluding that the mycosis was an accumulation of *leptothrix buccalis*, and that this microbe was the cause of all the trouble.

Two years ago (1896), M. A. Brown-Keily, of Glasgow, said that the mycosis, already described, was nothing but hyperkeratosis, this disease being characterized by an accumulation of corneous tissue, without any microbe. After I published my paper, I made long researches, consulting very carefully the bibliography, I arrive at the conclusion that in the said "mycosis of the pharynx" we always find all the different microbes of the pharynx and of the mouth, infiltrated in a *corneous tissue*. The

description given by A. Kelly is not very clear, and I do not agree with him when he says that hyperkeratosis is seen without mycosis. So instead of having two different diseases, as proposed by Brown-Kelly, I would suggest that these two diseases be known under the name of "hyperkerato-mycosis of the pharynx." I justify plainly my proposal in the course of this book.

I think it will be useful to give an entire and complete description of the hyperkerato-mycosis, its history, and a short recapitulation of what was said by all the other authors.

HISTORIC NOTES.

In 1873, B. Fränkel published for the first time in "*Medical Gazette of Berlin*," an article on the "Benignant mycosis of the pharynx," and immediately, in a microscopic examination, he has stated that the "leptothrix buccalis," found in the mycosic spots, was the cause of that disease.

This disease had never before been described.

In 1876, Baginski and Klebs published another case. Klebs found the "leptothrix buccalis," and confirms the distribution of the filaments in form of fascies, which, according to M. Charles Robin, is characteristic of that leptothrix.

In 1880, B. Fränkel published his second observation.

In 1882, E. Fränkel, of Hamburg, published in his turn, a case of tonsillary mycosis." The professor Sadebeck, who made an histological study of the subject, speaks of the filaments seen before by B. Fränkel, Baginski and Klebs, but he thinks that these are the products of a new organism, which he named according to its shape "bacillus fasciculatus."

Sadebeck considers as spores the numerous grains which are between the filaments, while E. Fränkel considers that spores and tipcats

represent the different phases of development of the same micro-organism.

In the same year, 1882, Bayer (of Brussels) published two observations in the "*Revue mensuelle de Laryngologie*, etc."

Also in 1882, Gumbiner (of Berlin) published a case.

But these interesting observations forestalled somewhat the attention of the laryngologists, for in the same epoch, 1882, came out the great book on the diseases of the larynx, the pharynx and the windpipe, by Morell-McKenzie. In that work, where the diseases of the pharynx are minutely treated, the word "pharyngomycosis" is not once used.

M. Hering, of Varsovia, published six observations in 1884. He speaks, under the name of "pharyngo-mycosis," of a disease of the tonsils and of the basis of the tongue, characterized by the presence of small whitish and grayish spots, sometimes globular, more often pediculated; or of excrescences having the form of thorns.

In 1886, Guinier published an observation. From that time a few specialists studied carefully this disease, and the cases became more numerous.

The year 1887 was very fruitful in publications on this disease.

Chiari and Creswell-Baber each, brought in a new case.

Mendes-Bonito, of Bordeaux, published his thesis upon this subject, with twelve observations taken in the service of Dr. E. J. Moure.

M. Ferré made histological researches and found the "leptothria buccalis." Dr. Moure relates that there were only twenty cases published, but we must attribute this rareness to the fact, that the disease was unknown, and was very often unobserved.

At the congress of Oran, in 1888, Dr. Moure says that he considers the mycosis of the pharynx as very frequent.

In the same year Lober, Oltuszewski, Jacobson, Decker and Seifert, published various communications of mycosis.

The following year, 1889, Vanderpool described two forms to the mycosis; the circumscribed and the diffuse forms. At the same time Goris found muscular fibres with the microscopic examination, but, as M. Collin, in his thesis, had observed it advisedly, the wrenching of the white spots was made too deeply, and the muscular fibres had nothing to do with the disease.

In 1889, Gautier published an article on the mycosis in *Journal of Laryngology*. In 1891,

Spaaus, Puternam, Dubler, Newcomb and Jurasz, published different articles.

The same year Lennox Brown published his "Treatise of the Diseases of the Larynx," in which he devoted twenty lines to the description of the "pharyngo-mycosis." It is naturally an insufficient review of what had been said of that disease.

Henry Bixby Hemenway, (in *Journal of Laryngology*, February, 1892) wrote an article of eleven pages on the history of "pharyngo-mycosis" and its microscopical study. He found above all the "leptothrix buccalis" and the "bacillus fasciculatus." Then he recommends as treatment, the thermo and galvano-cautery.

Garel, in a microscopical study of the disease found the "leptothrix buccalis" and the "cocci bacillus fasciculatus."

Higguet, of Brussels, found in the white patches, small lamina of corneous epidermis origin.

In *Traité de Médecine* M. Ruault writes a few lines on the different diagnosis with the chronic caseous lacunary tonsillitis.

Bosworth also, in 1892, in his "Treatise of the diseases of the nose and throat," gives a few pages to the description of that disease.

M. Albert Colin, in 1893, published his thesis on the mycosis and seven unpublished observations of which a few are personals and the others belong to the service of M. Ruault.

M. Colin states that "always," the *leptothrix buccalis* is the cause of the pharyngo-mycosis. M. Colin advised the use of smoking tobacco, as one of the ways of treatment.

M. Wagnier published three cases of recovery, by touch of chromic acid.

M. Eugene Krauss (in *Bulletin Medical*, 15 of March, 1893) considers the catarrhal state as a condition "sine qua non" of the development of the mycosis. And so, the different causes, which can irritate the pharyngeal mucous membrane, can indirectly be the cause of the mycosis.

M. Labit (in *Revue de Laryngologie*, 1st March, 1893) published a case of pharyngo-mycosis, which is rather curious, because the white patches reached the aryteno-epiglottis recess.

In 1894, Homer M. Thomas, A. M., M. D., (in *Medical Record*, 6 January, 1894) gave a very good description of the disease, but without saying anything new. He advises the treatment with cauterization.

In 1896, Royet (in *Echo Médical de Lyon*, 15 August) gave a very good description of the

"pharyngo-mycosis" and affirms that the "leptothrix buccalis" exists in the mouth of eight persons out of ten taken at random.

In the same year, A. Brown-Kelly (in *Glasgow Medical Journal*), considers that the disease called "pharyngo-mycosis" is in reality hyperkeratosis and in support of his thesis he gives ten personal observations. This work is long and conscientious, but is not convincing.

The small lamina of corneus epidermis nature exist always in the pharyngo-mycosis, and, in the meantime, as M. Brown-Kelly says, simple gargarisms are not sufficient to destroy the "pharyngo mycosis." Beside the cases of spontaneous recovery, we do not know any case which was so docile under that treatment that we can call "facetious."

PATHOLOGICAL ANATOMY.

Ever since 1873 when B. Frænkel gave the first description of the "hyperkerato-mycosis," the specialists have been on the "qui vive," and every year the observations became more numerous.

Although Krauss believed that the microscopical examination was unnecessary in making the diagnosis, most of the observers have made a bacteriological study of all their cases. As a rule, they agree to acknowledge the "leptothrix buccalis" in the white patches, and few of them deduct from the constant presence of the leptothrix that it is always the cause of the disease.

Our opinion is different. The leptothrix buccalis is almost constant in the saliva and the different parts of the mouth; it would be astonishing if we could not see it in the diseases of the mouth, and according to the bibliography that we have to consult conscientiously, and also from our own personal researches, we can say that we meet not only the "leptothrix buccalis, but also the oïdium albicans, the nigrities linguæ, the mycosis sarcine, the aspergillus fumigatus, etc."

And for the present time, we can not affirm that the leptothrix is the bacillus that engenders the hyperkerato-mycosis of the pharynx. Sometimes, on examination, not one microbe is seen; nothing can be seen but small lamina of corneous-epidermis nature. Our amiable master, M. A. Castex, was kind enough to make us a gift of a tuft of mycosis taken from a tonsil of one of his patients. (Observation No. V.)

That small tuft, or in preference that small point, has a filiform aspect, having a length of about 4 millimetres, of whitish color, having a ravel extremity, sharply, in connection with the depth of the crypts; the other extremity being swollen, having a millimetre and a half of thickness, is connected with the surface of the mucous membranes of the tonsil. I had put first that small nail in a vial, containing a solution of alcohol, $\frac{1}{3}$. Then, two days after, I could, thanks to the extreme obligingness of my master and friend, M. G. Durante, chief of the laboratory of pathological anatomy in the "Charité's" Hospital, make a microscopical examination of the small mycosic tuft.

The disorganization of the ravel point, corresponding to the depth of the crypt, was very easy. I could even crush it easily on the glass

plate. Regarding the swallowing extremity, it was differently, and besides a work strengthened with patience, the microscopical examination was impossible. I could take off only a few particles. The other part was hard, corneous and shining. Then I submit all to different proceedings of coloration.

1st. With a solution:

{ Anilina water, 90 grammes.
{ Alcoolic concentrated solution of thionin, 10 grammes.

2nd. With the liquid of Lœffler.

3rd. With the solution of fuchsin (Gram).

Naturally I took care to fix over a gas Bunsen, before the coloration; then I had it washed with alcohol, and I covered the whole thing with Canada's balsam.

Accumulations of filaments are seen with a sometimes considerable length, so that one filament can occupy all the field of the microscope. They are rectilineal or a little curved one way, sometimes having the form of a parabola, rarely sinuous.

They nearly all seemed to be formed of filaments more or less long, with their length 3 or 4 times greater than their thickness.

Their diameter is sensibly analogous, 1 millimeter to 1.5 m.

These micro-organisms are nothing but leptothrix in tufts.

These leptothrix and these tufts are often found growing on a cell of flattened epithelium, which is generally granulosus and transparent. In these cells are recognized a series of other micro-organisms which are the common microbes of the mouth; these microbes are either round, or in mass, or have the form of small sticks.

Quite a number of cells form a mass filled with these round microbes. A few cells contained several of these varieties, while others contain only one variety.

All the granulosus cells which seemed to be modified with a small magnifying are more or less filled with organisms.

On the surface of the mucous membrane, where the leptothrix is planted, we see sometimes a depression in which the corneous epithelium continues itself with the mucous body of the mucous membrane.

Filaments of leptothrix are planted perpendicularly or obliquely on the first corneous coat.

Goris had found fascies of leptothrix isolated, cocci associated in different ways, epithelial cells. He had also found striated muscular

fibres, but as I said before, the extirpation was probably made too deeply, beyond the sick region, in the muscular plan.

Garel says that the lymphoid tissue has disappeared, and that a fibro-conjunctivitis stroma, in which the vessels are atrophied, has taken its place; in this stroma, the crypts are represented like cavities, real cysts by retention, covered by an accumulation of corneous lamella. Between these lamellas exist spores and leptothrix. It seemed as if the crypt was first injured, and then the parasite found a favorable ground for its culture.

Garel adds that a number of particles of mycosis, taken off with the forceps, offer a yellowish extremity, ravel, like a hard cone, corresponding with the depth of the crypt. This consistence of the point must, according to Garel, proceed from incrustated calcareous salt; it explains beyond the difficulty shown often in the extraction of some islets of mycosis.

Krauss pretends that when the parasite has succeeded in its development it keeps and exaggerates the irritation of the mucous membrane, because it penetrates in the depth of the conjunctive tissue, in the interior of the glands, and in the follicles.

Krauss, after a microscopical examination, has found the leptothrix, that took a blue color, with a solution of iodine and of iodide of potassium. Krauss could take off the mycosis mass with a very great difficulty, and each time he was obliged to use violent and sudden manœuvres which had produced hemorrhage. This difficulty is the fact that the parasite had penetrated and ramified itself in the depth of the tissues. The author adds that it is hard to disorganize the extirpated mass for the microscopical examination.

Moire (of Bordeaux) says that the white tufts are composed of the elements of the leptothrix buccalis.

Hemenway also believes that the pharyngomycosis is due to a parasite. As the tonsils are the most frequent seat of the parasites, he advises to call it "tonsillo-mycosis."

Higuet (of Brussels) after a microscopical examination of the white spots states that the filaments were small lamella of corneous epidermis nature, without any other element. This seems much like Observation V.

Vanderpool says that the *oïdium albicans* is the most frequent vegetal parasite in the pharynx. The others, as *nigrities linguæ*, *mycosis sarcine*, *aspergillus*, are more rare.

The nigrities linguæ is seen in the pharynx only by extension in the neighborhood of the basis of the tongue, and it develops itself mostly on that organ. The aspergillus is more frequent in the ear than in the pharynx.

Gautier says that the caseous masses, seen in the crypts, are especially *composed* with "leptothrix buccalis." The disease, according to him, attacks in preference the *isthmus* of the throat, the palatine tonsils, rarely does it attack the pharynx and the trachea.

According to Royet, the leptothrix develops itself mostly on the part of the tongue situated before the lingual V. From this it extends in the neighborhood. He adds that the tufts of leptothrix are placed on the lingual tonsil, between the lobules of the gland; we can see them also on the tonsils of the palate, on the mucous membrane of the pharynx, and on the pharyngeal tonsil.

ETIOLOGY.

Many things have been said about the etiology of the hyperkerato-mycosis, but nearly every one agrees that this is obscure. Our researches were not more fruitful than those of our predecessors.

And naturally, knowing nothing exact, many causes, more or less plausible, were incriminated.

However, it seems that in the majority of the cases, the patients seized with hyperkerato-mycosis were in bad health and presented an alteration of the pharyngeal mucous membrane. Upon that question Krauss is very energetic; he considers that a catarrhal state of the pharynx is a condition "sine qua non" of the development of the mycosis, and in the *Bulletin Medical*, 15 March, 1899, he expressed himself to that effect. "There is only one fact certain, according to other observers and to myself, which is, that the mycosis never grow upon an undamaged mucous membrane, but that it must be modified in a certain way, before the appearance of the mycosis.

The characteristic of that modification is not known yet, but it is very probable that the least

alteration of the mucous membrane, or a slight catarrh is sufficient to make it the seat of the colonies of parasites."

It is at that point of distance that all the causes which can irritate the mucous membrane of the pharynx, can indirectly cause the hyperkerato-mycosis.

Garel, in 1893, after a study of twenty-nine cases, says that the disease seems to develop itself on patients seized with naso-pharyngeal catarrh.

Brown Kelly, in 1896, affirmed that the mycosis develops itself by means of a bad general or local state, that has modified the vitality of the mucous membrane.

The dyspepsia would also be a cause of that disease.

The dental caries, the acidity of the saliva, the inflammation, are favorable conditions; also the chronic tonsillitis, the pharyngeal catarrh.

Hemenway also has seen the disease upon persons having a catarrhal inflammation or large tonsils.

M. Johnson, of Baltimore, has observed these cases especially on weakened scholars or older people.

In the thesis of Dr. Colin, 1893, it is reported that a pregnant woman, attacked with hyper-

kerato-mycosis, was absolutely cured after her confinement.

We think it will be useful to reproduce that observation.

OBSERVATION I.

(Thesis of Dr. A. Colin, 1893.)

Mrs. X., 21 years old, door-keeper. One day, her daughter was seized with angina; then she thought to look in her own throat, although she did not feel any trouble, and saw several white spots on each of her tonsils. She came, a month after, the 11th of March, 1891, to the clinic of laryngology, at the "Institution des Sourds-Muets," and then, the tonsils were covered in numerous places with small excrescences of a white yellowish.

Analogous excrescences were seen also on the back wall of the pharynx and on the basis of the tongue.

These productions were of a hard consistence and were taken away with difficulty, with the dull forceps.

Diagnosis.—Leptothrix-mycosis, recognized with the microscope.

Treatment.—Ablation of the tufts of mycosis and washing with a solution of iodine with I K.

We met that door-keeper again on the 15th of March, 1892; she declared that one month

after her first visit she saw new white spots on the right tonsil, which were treated for a little time with lemon juice.

She was confined on April last. At that moment, she still had mycotic productions that had come back in greater number, since she had stopped the treatment.

The first time she got up, two weeks after her confinement, she looked at her throat and saw that there were no more white spots there.

We examined her, and saw in fact that all the parts that have been touched formerly, were cured, and that there was nowhere any productions of mycosis.

According to C. Robin, the acidity of the saliva is a condition of life for the "leptothrix-buccalis."

Mendes-Bonito thinks that the irritations of the pharynx, favoring this acidity of the saliva, would be the cause of the mycosis.

But Decker and Seifert have inoculated some leptothrix upon sound and sick tonsils, and in each case, have reproduced the disease.

Our master, M. A. Castex, has seen that disease upon a young English girl of thirteen years, who used to have tonsillitis frequently. (Observation VI.)

Thomas says that the women and the children who are seized with hypertrophy of the tonsils or of chronical pharyngitis are more predisposed to that disease.

W. C. Glasgow says that the hyperkeratomycosis develops itself only when the mucous membrane of the pharynx offers a favorable ground.

But very often, the cause is unknown, so that persons have the disease for a long time before it is discovered by chance; there are cases of singers who feel nothing at all when their voice is at rest, but after they sing for a while, they are forced to discontinue. (Observation V.)

The development of the disease is by no means influenced by the age, the sex, or the profession of the individuals. However, according to several authors, it would be more frequent with women attacked then between ten and forty years of age.

In 132 cases, Brown-Kelty has calculated 52 men and 78 women; being between 15 and 35 years of age.

It was seen by Garel more frequently during childhood; upon young girls between 10 and 20 years of age.

In 29 cases, 14 men, 15 women. Vanderpool says that the disease is more frequent in women than in men, and especially at about 30 years of age.

In the thesis of M. A. Colin, there are six women and only one man, their age being from 11 to 30 years.

Colin gives the following proportion: Three women for two men.

Hering saw it in an old man.

Dubler saw it in a child of 8 months.

M. A. Castex, on a total of 6 persons, numbers 2 women, 3 young girls and one man.

Hemenway believes that the disease is more frequent in women than men, because the women live in an impure air and he adds that the hypertrophy of the tonsils is a favorable ground for the parasite.

The hygienic conditions, (food, temperature, dampness, ventilation, etc.), to which Goris had given an etiological value, have nothing but an indirect importance in favoring a catarrhal condition of the mucous membrane.

It is not proved yet that a predisposition to the syphilis, tuberculosis, etc., might be a cause.

Most of the patients observed, were free of previous diseases.

There is no hereditary predisposition, although the disease may be seen on different members of the same family.

Nevertheless, Guinier thinks that the lymphatism is an excellent ground to the development of the leptothrix.

On the contrary, it was stated that the majority of the patients were healthy.

M. A. Castex has seen it six times in his private office: never at his clinic. (Observations V and VI.)

Garel has seen it twice at the hospital and 27 times at his office.

Goris says that a cold is cause of the disease.

Without exact proofs, the damp climate, the quality of swamp water, because it contains bacillus that resembles the "leptothrix-bacillus," were incriminated. (Thomas and Hemenway.)

The disease is not directly transmissible and is not contagious. Hemenway had experimented on himself the transplantation of excrescences, but without success.

After all, the etiology of the "hyperkeratomycosis" is uncertain; but if we make the microscopic examination of the white spots found on the tonsils and on the basis of the tongue, we see different microbes, which could, alone, explain the disease.

Of all those microbes, which one is to be incriminated especially as the etiology of the mycosis? Or, in preference, are these different microbes associated, the cause of the disease? Our opinion upon that question is not quite firm. After a light examination, nearly all the observers had seen the "leptothrix-buccalis." But this microbe is always in the mouth normally and a "fortiori," when the mouth is sick.

The following microbes have been seen also: oïdium albicans, nigrities linguæ, sarcinica, actinomyces, aspergillus fumigatus and bacillus fasciculatus. So these different microbes seem to be the cause of the mycosis, but some other unknown special conditions are necessary.

DESCRIPTION.

Definition.—The “hyperkerato-mycosis of the pharynx” is a benignant and chronic disease, characterized by the presence on the different tonsils, on the basis of the tongue and sometimes on the whole pharynx, of small white spots having a diameter of 1 to 2 millimeters, containing the different microbes which are found in the mouth, and a certain quantity of corneous tissue.

For its description, we must study first the subjective symptoms and afterwards the objective signs.

SUBJECTIVE SYMPTOMS.

We must first say that these are sometimes null and that often, the disease is discovered by a mere chance, as in the case of a lady who came to consult M. Krauss, because she had seen for many months some white spots on her tonsils, which were not at all annoying, but did not disappear.

Royet says that it is hard to suspect the presence of the parasite, if there is no pharyngitis.

The singers can have the disease without apparent symptoms, only after having sung for a little while, they have a feeling of dryness and of irritation in the isthmus of the throat.

The voice is diminished in regard to the tone, and becomes hoarse.

Nykamp cites the case of a patient who "complained of nothing," although there were grayish spots of hyperkerato-mycosis between the papilla of the back of the tongue and upon the epiglottis. The pharynx and the tonsils were indemnified.

Garel says that the symptomology is entirely objective; and that rarely, there is uneasiness and pain with deglutition. We believe that it will be interesting to publish the observation of a young woman who was seized with hyper-

kerato-mycosis without any subjective symptoms.

OBSERVATION II.

(Dr. Eugène Krauss.)

Chambermaid, 28 years old, living in the best hygienic conditions. When I saw her for the first time, she had seen for eight months some white stains on the tonsils. No acute phenomena (fever, dysphagia, etc). On examining the pharyngeal cavity, the mucous membrane of the palate, of the pillars, was seen to be slightly congested.

On each of the hypertrophied tonsils having the length of a hazel-nut, covered with a thick mucous membrane, of red grayish color, we see a dozen white spots, regularly disseminated, and seeming to be very distinct of the mucous membrane. All these points have about the dimensions of a millet-grass; of a white nacreous color; some of them are covered with a yellowish coat of mucus.

When examined more closely we see that they are small pointed elevations, of which the surface seemed villous, having then the appearance of small tufts.

Nowhere are these stains confluent, and they are very isolated by the mucous membrane that surrounds them.

With the laryngoscope, we discover twenty other spots on the basis of the tongue, which are grouped around the large follicles.

There is nothing abnormal in the other regions of the pharynx or of the nose.

But it is not always so, and the subjective symptoms exist often.

The disease, in six patients of my master, M. A. Castex, was always characterized by an uneasiness or sensation of stitching in the pharynx, which symptoms are the most frequent.

In an observation in the thesis of M. A. Colin, the patient complains of an uneasiness, a tickling, a sensation of foreign body that made her cough and scrape constantly. Sometimes there is also a sensation of dryness; there is the sensation of a band around the neck, which would suffocate the patient, if pressed slightly. Also it is painful for the deglutition.

Thomas has seen all those symptoms, greatly exaggerated, with weakness, fever and loss of appetite.

The breathing was rarely offensive, but was reported. (Gautier.)

Moure says that when the subjective symptoms exist, they are like granulosus pharyngitis.

Hemenway says that the symptoms vary from a sensation of pricking, until there is a

sensation of obstruction. The local inflammation, painful with fever, cough and vomiting, is seen sometimes. Also asthma.

As a rule, the whole system is in good condition.

OBJECTIVE SYMPTOMS.

As it is said of our definition of the "hyperkerato-mycosis of the pharynx," the objective symptoms of that disease are the presence of small whitish spots on the tonsils and on the basis of the tongue, but it is not always so.

Sometimes the hyperkerato-mycotic spots are seen on the epiglottis and not on the tonsils. The points have the form of tufts projecting a few millimeters over the mucous membrane.

They resemble sometimes a small nail's head.

Their surface is plain or irregular, fimbriate, of a yellowish white color; these spots are taken off with great difficulty, according to the penetration of the microbes in the thickness of the mucous membrane; the plucking sometimes gives an oozing of blood. These hyperkerato-mycotic points have often the form of millet-grass or tufts of mushrooms, resembling the appearance of capuchin's beard, or the yellowish stains like in diphtheria. The touch gives the sensation of protuberance.

Thomas gives two forms in the description of these points; the diffused form and the circumscribed form. In the diffused form, the

tongue is entirely covered with a brilliant mass like milk, that is frequently very dense.

The movements of the tongue, and the sensation of the taste are not lost, and the whole condition of the patient is good.

In the circumscribed form, some white spots appeared, and the mucous membrane has a pink color.

The following description belongs to Brown-Kelly.

"The patches are more or less numerous, small, isolated, slightly projecting, having their seat on a sound mucous membrane, are taken off easily, with a superficial erosion.

They are seen generally on the uvula, and on the veil of the palate."

The principal characteristic of these hyperkerato-mycotic nails is their adhesion; and after being taken off with the forceps, they reappear rapidly in the same place, sometimes after twenty-four hours.

Sometimes, these filaments gather together and form a membrane.

At other times, they are corneous and pointed, having the form of clusters, or having the form of muscular stains.

The lesion seats, by order of frequency, at the tonsils, the basis of the tongue, in the

glosso-epiglottical dimples, the posterior and lateral walls of the pharynx, in the middle of the pillars of the naso-pharyngeal vault of the nares.

Oltuszewski observes a case of a sick person of 16 years of age, on whom the disease was suddenly seen on the tonsils, the palatal arches and the tongue with intense fever.

Vanderpool says that the seat of predilection is the left tonsil.

The progress of the disease is slow; at times it disappears spontaneously. We reproduce here an observation of hyperkerato-mycosis, which is generalized, diffuse, rare, consequently interesting, the place of which is indicated in this book.

OBSERVATION III.

(Dr. Labit, in *Revue de Laryngo*, 1893.)

Mary G., 28 years old. This person, of a sickly aspect, thin and very nervous, says she is incommodated more by her general state than that of her throat, although she is persuaded that the throat is the cause of all her trouble.

In the examination of her throat, we perceive numerous white spots, covering the right tonsils, especially towards the center and forming there a nest of about one centimetre in width.

On the left tonsil the white spots are more disseminated.

A few white spots are seen on the left lateral wall of the local pharynx and on the most extreme part of the anterior pillars on both sides.

With the mirror, we see that tissue of the basis of the tongue is covered by small white spots, separated, and as large as pin heads, 10 to 12 in number.

At the right side of the basis of the tongue, near the epiglottis and on the anterior part of the ary-epiglottical fold of the same side, we see two white spots of about 3 millimetres long and 4 millimetres wide; nothing is seen on the pharynx.

We perceive spots, similar to the preceding ones on the lateral walls of the naso-pharynx, especially at the left, at the entrance of the Eustachian tube on both sides, lastly on the posterior wall.

All those white spots have the aspect of small projecting tufts of 2 to 5 millimetres long, with denticulated and fimbriate ends.

The mucous membrane surrounding these small points is sound.

The touching, also, gives the sensation of projecture.

The extirpation of some of these tufts is attempted, and shows that they adhere strongly to the mucous membrane.

The microscopical examination shows the presence of the leptothrix buccalis.

DIAGNOSIS.

The diagnosis of the "hyperkerato-mycosis" is generally an easy matter, when the disease is characterized by small white points, about the size of a millet-grass disposed around the tonsils and the basis of the tongue, on a sound mucous membrane, of long duration and pulled out with difficulty with the forceps.

All doubts are taken away when in the microscopical examination the points contain the micro-organisms of the mouth, or epithelial cells, or lamina of epidermic corneous nature.

If the subjective symptoms are not very marked, it is in favor of the "hyperkerato-mycosis."

Generally, the diagnosis is easily made, but in some rare cases, the observer must have a thorough knowledge of the different diseases of the pharynx.

The follicularis angina evolutes in an acute manner; it is accompanied with fever and intense dysphagia. The white spots that it produces are irregular in form and size; they have a pronounced tendency to confluence and seat on the congested tonsils.

All the points in a lacunaris tonsillitis are soft and friable, half liquid and not adherent; they are easily pulled out with the stylet.

The fact that the authors, Labit, L. Brown-Kelly, Garel, Vanderpool, Hemenway, Krauss, gave to the diagnostical study of the follicularis pharyngitis with the hyperkerato-mycosis, a particular interest, would make us hesitate sometimes in our diagnosis.

Diphtheria hardly resembles the hyperkerato-mycosis. Here the disease is chronic, without fever and general symptoms, except in the case of concomitant tonsillitis, without diphtherical smell, or any pain; the objective examination of the throat is also entirely different.

If the white tufts have the form of a membrane, it is taken off only in fragments, it leaves bleeding stains, but the mucous membrane is much less denuded than in diphtheria.

Although Vanderpool considers that the hyperkerato-mycosis has often been confused with diphtheria.

The microscope can, however, always decide the question, the Klebs and Loeffler's bacillus being always easily distinguished.

I do not insist on the gravity of the fault that we would commit in making a mistake in the diagnosis.

The appearance of mucous stains in the throat is always accompanied by other symptoms of the syphilis (angina, glands, etc.); the stains themselves do not have the pointed form of the mycosic colonies and are larger.

Tuberculosis resembles in a very vague way the hyperkerato-mycosis and only, under the form of miliary phthisis of the pharynx, which is declared in the last stage of tuberculosis.

The general appearance of the patient, the anemia of the mucous membrane, the yellowish color and the transparence of the small nodules that are produced in the throat of the patient, makes the diagnosis easy.

Sometimes there are some wisps of mucosities and of epithelial cells in the chasms of the tonsils. They are of a yellowish color, above the size of a millet-grass and are found isolated and in small number and are characterized by the extreme facility with which they are taken off. A light pression, a fit of coughing are sufficient to take them out of their cells.

We also observe small cysts in the chasms of the tonsils; they form flat, transparent, yellowish elevations; they are always isolated and generally occupy the summit of the tonsils.

The "thrush," a pre-eminently children's disease, may sometimes attain adults. The thrush

forms white membranes, of various sizes, that may be seated on every part of the mucous membrane of the mouth and of the pharynx, but are principally seen on the sides of the tongue and on its basis. They have a tendency to confluence and are easily detached by rubbing. Underneath, the mucous membrane is not ulcerated, but only congested and of a dark red. The patient is generally in a cachectic state; there is also dysphagia.

In the case of "calcareous concretions" of the tonsils, they are larger than the white spots of the hyperkerato-mycosis and give, under the stylet a stony sound, which does not exist in the preceding disease.

They are isolated and do not reappear after their removal.

The "caseous" concretions of the granulosus-pharynx, may be similar to the hyperkerato-mycosis, but are still distinguished from it, by their being softer and much less adherent.

There cannot be any confusion with the herpes of the pharynx, because of the fever and general discomfort, that does not exist in the hyperkerato-mycosis.

Although certain light herpetic anginas can cause no general reaction, the distinction will be easy because the vesicles of herpes are

principally seated on the veil of the palate and never on the basis of the tongue, which is generally reverse in the hyperkerato-mycosis.

Krauss reports the case of an "infectious angina" (caused by stuffed birds) which was seen under the form of an intense follicularis angina, accompanied by fever and by grave prostration.

After a few days these symptoms ceased and reappeared only at intervals of two or three weeks.

The patient did not suffer during those intervals, but had small white spots on the tonsils, that resembled those produced by the leptothrix.

The acute characteristics distinguished also this affection from the hyperkerato-mycosis.

According to Brown-Kelly, there is a perfect clinical difference between the so-called diseases, mycosis and hyperkeratosis. He says that the only resemblance is the presence of the leptothrix in their productions.

The excrescences of the hyperkeratosis are rough, very adherent and of characteristic form.

The stains of the mycosis are smooth to the touch, easy to take off and slightly prominent

and the surrounding mucous membrane is swollen.

The hyperkeratosis, he says, is limited to a certain region, while the mycosis has been observed on every point, between the mouth and the stomach.

The diagnosis of the disease is easy, when it has developed; at the beginning, the difficulty consists in discovering the colonies which are not yet numerous and which occupy the secrete places of the mucous membrane, such as the posterior part of the tonsils, the folds of the tongue, etc., and besides, the precise diagnosis is always desirable, but it is not essential, to apply to a convenient treatment.

It is nevertheless important not to confound the hyperkerato-mycosis with the follicularis pharyngitis.

PROGNOSIS.

The prognosis is favorable, in spite of a despairing resistance of the parasite to the treatment.

The recovery is sometimes spontaneous, but more often, the disease is chronic and has several returns.

Hemenway thinks that the parasite can run away in the pituitary or in the lungs.

Being in the lungs, they can produce a very obstinate bronchitis.

TREATMENT.

It is very important to recognize the hyperkerato-mycosis at its beginning, for then the parasite has its seat on the superficial mucous membrane, and may be destroyed easily.

Later, the treatment is longer and more difficult.

The different antiseptic medicaments, astringent or caustic, the carbolic acid, chromic, boracic or salicylic acid, the bichloride of mercury, the nitrate of silver, the alcohol, etc., even in concentrated solutions, have no effect on the disease. (Observation IV.)

Our master, M. A. Castex, extols the hot gargles with a 1% solution of resorcin, accompanied with the extirpation several times of the mycotic spots, with the nasal forceps of Duplay. (Observation V.)

Sometimes the galvano-cautery is successful. (Observations VI and VII.)

The cautery, galvano or thermo is also in favor with Hemenway.

Moure affirms that the only treatment is the picking or the scraping off of the tufts, accompanied with cauterization of their points of im-

plantation with a solution of chloride of zinc ($\frac{1}{20}$ to $\frac{1}{30}$) of lactic acid ($\frac{1}{2}$ or pure).

He employs also the thermo-cautery for the tonsils and the galvano-cautery for the basis of the tongue.

Garel recommends the picking off with the forceps, and cauterizations with galvano-cautery.

M. Natier had cured a young girl with galvano-cautery and chloride of zinc.

M. Webster, in a case of hyperkerato-mycosis, had employed successfully the galvano-cautery and the hyposulphite of sodium.

M. Frederick Knight (of Boston), when using the galvano-caustic needle, has succeeded only when it penetrated deeply in each follicle.

The disappearance of all the spots came after gargles of a solution of chinolin (10%) and galvano-cautery, in the hands of Nykamp.

Goris prefers the touching of the points with bichloride of mercury and extirpation with the forceps. When the parasite has not penetrated deeply he prefers the galvano-caustic.

M. Hower-Thomas affirms that the using of galvano-cautery is the only good treatment.

M. Krauss has several times employed the galvano-cautery in a very energetic way, but he never could make a complete cure. To have

a good result he was obliged to extirpate first the mycosic points with the forceps.

He adds that it is important not to lose sight of the patient and have to begin again the treatment when the parasite reappeared, as is the rule at the beginning of the treatment. The parasite wastes after a certain time, and then the obstinate disease can be cured radically.

Most of the authors agree that the sole treatment of the hyperkerato-mycosis is "extirpation of the mycosic spots with a forceps, cauterizing with galvano-cautery and simultaneous anti-septic gargles."

Other treatments seemed to have given good results, however.

M. Wagner is said to have cured two patients by touching the white spots with chromic acid, having failed with the other treatment.

According to Moure, this treatment is not without danger, chromic acid being poison even in small quantity.

M. Delavan had the best results with borax and bichloride of mercury, and especially with the suppression of dyspepsia.

M. Kitchen recommends the hyposulphite of sodium.

The Hydrogen Dioxide ($H_2 O_2$) was also extolled, and for that purpose I recommend the

Marchand's Hydrozone as the best preparation of Hydrogen Dioxide.

M. Semon had cured a patient with chlorate of potassium gargles, and touches with tannic acid.

Alum and the nitrate of silver have not given good results.

M. Jacobson recommends the bichloride of mercury (2-1000).

M. Toeplitz had tried the iron salts without success.

M. M. deNabias and Sabrazes and M. Labit have obtained good results with the following treatment:

℞ Zinc chloride melted in plates, 45 gms.
Water, 25 gms.
Potassium iodide, 70 gms.
Iodine, 4.25 gms.

The chloride of zinc is dissolved in warm distilled water. Then IK is added by degrees. A yellow precipitation is formed, which is dissolved again by ebullition. We take the vessel away from the fire and then the iodine is added in agitating until complete dissolution. M. Moure has obtained good results with that solution.

M. A. Colin obtained last year a complete cure with ferric chloride.

In the *Archives de Laryngologie*, 1896, page 451, the author relates the case as follows:

"I had used the officinal solution that contains 26 parts of ferric chloride and 74 parts of water.

With a plug of cotton soaked with that solution I had colored the attacked part of the pharynx.

I saw almost instantaneously all the mycosic points, impregnated with the liquid, and take first its yellow tint, then become a dark-maroon, the mucous membrane keeping its normal tint.

Two days after, when I saw the patient, the tufts were of a pure black. With the stylet I found them of a hard consistence, and with the nasal forceps, I extirpated them, one by one, without any difficulty.

I state that the ferric chloride had deeply penetrated, in those vegetations, only the extremity of the root remaining yellow, was virgate, and seen through the wen. I could not see any breaking. It seemed that it had been entirely pulled out.

During three weeks I made the dressing every other day, and the mycosic points disappeared.

On the basis of the tongue, on the posterior wall of the pharynx, that is to say, everywhere where the leptothrix is on the smooth mucous membrane, the vegetations had disappeared after 3 or 4 dressings, without extirpation. It was more difficult to destroy the tufts that were in the crypts.

For a month and a half I saw the patient only once a week. She had lacunaris tonsillitis, but the crypts did not contain any more mycotic spots."

OBSERVATION IV.

(Hemenway.)

Miss K., 32 years old, came on the 13th of April, 1891, complaining of a white stain on the left tonsil. The two tonsils are swollen and lightly congested, especially the left tonsil, having a surrounding form. On this one there are two white spots, the larger having a diameter of two millimetres and a height of one millimetre over the thick surface of the mucous membrane. There were small stains on the right tonsil.

The author made a diagnosis of tonsillary pharyngitis, prescribed a purgation and gargles with potassium permanganate.

Few days after the spots were larger instead of having diminished.

The largest looked like a mass of fly's eggs, of a whitish color.

It was examined with the microscope by the author who found a few little epithelial cells and fascies of small sticks.

It was not the diphtheria, or a follicularis pharyngitis.

A local treatment was applied. Boracic acid, carbolic acid, thymol, eucalyptol, menthol, iodine, were successively tried without success.

Then the author proposed the electro-cautery. The patient refused and went away.

The author, being convinced that the disease was a case of hyperkerato-mycosis, had the patient back and took off a part of the white spots with a forceps.

In July, Miss K. had an acute tonsillitis, accompanied with augment of the hyperkerato-mycosis, for which she employed "listerin."

On the 30th of August inflammation and swelling had disappeared, everything but one white tuft.

M. Hemenway advises the glycerine and hydrochloric acid without success.

On the 17th of September the tonsils were much smaller, each one having a white stain, different in appearance to the others.

The 18th of September the patient consulted a specialist of Chicago, who treated her with electro-cautery.

OBSERVATION V.

(Unpublished, Dr. A. Castex.)

Miss X., young girl 25 years of age, born in America, singer, was always in good health; no antecedent diseases. For a few months she felt a sensation of stitching in the pharynx, but it is not painful. No trouble for the deglutition.

She states also that her voice is poor in singing and tires more quickly than usually.

With these subjective symptoms tonsillitis follow each other.

With an objective examination we saw white spots, surrounded, having the form of tufts, on the internal surface of the two tonsils, a little on the back wall of the pharynx and a good deal on the tonsil of Luschka.

I prescribed hot gargles, with aqueous solution of resorcin (1%), and with the nasal forceps of Duplay I extirpated each time 5 or 6 of

those small blocks which were hard and whitish and came of the crypts of the tonsils.

For the lingual tonsil I used a forceps with a particular curve, shorter than the forceps for the polypus of the larynx.

After ten operations the parasite disappeared.

A few of the white spots seemed to reproduce themselves, but only in the beginning of the treatment.

The way that I make the extirpation is easy and without pain.

When the young girl was cured the sensation of stitching had disappeared and the voice was as before.

OBSERVATION VI.

(Unpublished, Dr. A. Castex.)

Miss E. V., young English girl, 13 years old. No antecedent diseases, but is very often seized with tonsillitis.

The young girl feels also a sensation of stitching in the throat and some trouble for the deglutition, but there are no other subjective symptoms. On examining the mouth and the pharynx the tonsils are seen bristled up with small white mycosic points.

Nothing on the basis of the tongue nor on the back wall of the pharynx.

I prescribe hot antiseptic gargles with resorcin (1%), and with the forceps I extirpate at each time some mycosic points.

These small white tufts, being extirpated, have the form of tipcats, of nails.

After the extirpation with the forceps I had cauterized with the galvano-cautery all the points of implantation. The tufts had not completely disappeared at the eighth time.

M. A. Castex has seen lately four other cases, six in all (two children, a young man, a woman of 40 years old, and two young girls). The disease was always characterized by a trouble or a sensation of stitching in the pharynx. The recovery is difficult.

OBSERVATION VII.

(Homer M. Thomas, in *Med. Rec., N. Y.*, 6th Jan., 1894, and Dr. Frænkel, of Berlin.)

The history of the case as given by the patient, Mrs. C. B., is that during August, 1892, she suffered from a slight irritation of the pharynx.

There were white spots on the tonsils which disappeared after a few days but returned within a couple of weeks.

The physicians consulted called the trouble a mushroom growth, and said it would require two or three treatments a week for some three months to effect a cure.

The treatment consisted of a forcible removal of the exudate by means of forceps.

This method of treatment was attended with severe pain and proved unsatisfactory.

The patient, becoming discouraged, consulted Dr. Fränkel of the Berlin University in November.

At that time he found spots covering the tonsils and extending to the root of the tongue.

His treatment consisted of swabbing the throat two or three times a week with a five per cent. solution of carbolic acid, and he recommended that the throat be gargled two or three times a day with pure brandy.

Under this treatment the throat seemed to grow somewhat better, but still the disease was not wholly eradicated.

Having been called to this city (Chicago), Mrs. B. came under my care, January 4, 1893, at which time pharyngo-mycotic deposit was very extensive upon the posterior pillars of the fauces and invaded the root of the tongue, almost completely covering it, and there were

extensive deposits upon the tonsillar substance.

After having confirmed the diagnosis as made by Dr. Fränkel through microscopic examination of the deposit, I advised treatment, to consist of the rough application of the galvano-cautery.

The electrode selected was one made for me in Vienna, and consisted of a very fine elongated platinum point which enabled me to introduce it directly into each one of the crypts of the tonsil affected by the disease, and also to eradicate the punctated growths at the base of the tongue.

At first only three or four punctures were made at each treatment, the treatments occurring three times a week. As the patient grew more tolerant of the irritations following the use of the galvano-cautery, the number of punctures per treatment were increased until I frequently applied the cautery to eight or ten of the mycotic masses at each treatment.

The effect secured has been satisfactory to the extent that the disease has not reappeared in any of the foci cauterized.

CONCLUSIONS.

"*Hyperkerato-mycosis of the pharynx*" was observed and studied for the first time in 1873, by B. Fränkel, of Berlin.

Very few observations were made until 1888, when the disease being better known was noted more often.

This disease is *characterised* by the appearance of small white points, looking like mushrooms, or "Capuchin's beard," or the heads of nails, which come on the tonsils, the base of the tongue, and sometimes on the back wall of the pharynx, and the epiglottis, etc.

Generally these small white points contain various microbes, such as *leptothrix buccalis*, *nigrities linguæ*, *oïdium albicans*, *bacillus fasciculatus*, *aspergillus*, *fumigatus*, etc., in a corneous tissue.

These white hyperkerato-mycotic points are very difficult to remove; often reappearing after twenty-four hours.

The *subjective symptoms* are not always present; but when they are present, they are manifested by a tickling and sometimes a pricking

sensation, accompanied with uneasiness and a pain when swallowing.

The *etiology* is very obscure.

The disease is more prevalent to invalids, and particularly to those having already had inflammations of the throat.

This disease is most often found in women, between the ages of 15 and 30 years.

The *diagnosis* is simple; the symptoms being both chronic and benignant, in which this disease differs from the other diseases of the throat.

Prognosis is benignant.

The *treatment* consists of picking off the hyperkerato-mycotic points, followed by cauterization; at the same time, gargling with hot solution of resorcin (1%).

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