Rhino-sclerosis

When studying Laryngology in the Clinic of Prof. Schröter in Vienna in the Winter Semester 1859-60, I had the opportunity of examining two cases of this rare disease.

Rhino-sclerosis in peculiarly associated with Vienna, first because it is in some respects in Austria Austria itself, and also because one of the most outstanding men of the Vienna school, Dr. Hébra, was the first to draw attention to it. Thus in the sub.

I have prepared considering in this my graduation thesis.

Literature. There is no separate publication on Rhino-sclerosis although communications on the subject of articles in late nos. of Reviews de Philosophie which I was not able to obtain being now out of print. I have consulted the following:

Volkweckel "Das Rhino-sclerosis"
Langenbeck's Archiv Klinische Chirurgie, Bd. XXXIII. pp. 215,

Chierich-Bielle "Das Rhino-sclerosis"
Zetischrift für Heilkunde, Bd. VI. pp. 425 (1885)
Paprai Pathologied der Hautkrankheiten (1851)
It was left to the great dermatologist, Dr. Weber, to remove this disease from the mists of uncertainty. Without spreading it and given it a local habitation and a name amongst well established lesions. It was in 1890 that he described it under the name ‘Rhinoceros’. The name, although its description fairly earnestly
The disease as it was understood by Hebra at the time was a secession of the urine, yet with the light of subsequent enquirers it is now explained inadequate. Since Hebra's description, physicians found that the process had a much larger field of operation than the nostrils and immediate surroundings for its origin. According to Ramon, Egypt, the lungs of their country's inhabitants communicating with it, and looking on the internal nose of the flatus, which is the most outstanding feature of the complaint, as a continuation of the walls of the nasal cavity, they gave it the name "Seboronic Respiratorium," although this name may be a more logical term still Hebra's is one usually applied to the disease.

According to Hebra's description (entirely later in Kepler who along with Hebra observed the first case of this disease), the affected appears in a flat or pellucid, tubercular manner, sharply defined thickening of the skin or mucous membrane of the nasal mucosa, especially near or adjoining that of the upper lips. The skin over this thickening is unaffected and undestroyed; it is...
either normal in colour, or bright red, or burned red. It is often penetrated by dilated blood vessels, purplish, glancing, without glands or hair, without a dry cracked epidermis which in places is pumicised by scales or crusts. The parts of the skin adjoining the infiltration are always quite normal. The affected region is recognised by its unroused hardness which Hebra compared to an indurated Chancroid or Ulcer of Syph. The course of the disease is always a chronic one. The swelling may sometimes spread to the back of the nose and bring about difficulty in nasal breathing or constriction of the nasal channel. It occasionally reaches the root of the lower part of the upper jaw. Hebra was of opinion that the infiltration never undergoes a regressive metamorphosis and neither everts nor ulcerates (with the exception of superficial eruptions). Treatment of any kind was unsuccessful of good results. As the swelling whether it were cut away or burned out invariably recurred. The forementioned points, localisation in the neighbourhood of the nose, hardness of the mass—high chronic course without any regressive metamorphosis—predisposed Hebra to consider them evidences of a distinct disease. Anti-syphilitic remedies when applied by him always failed in bringing about a cure, thus negativing any relationship with Syphilis.
Of the 13 cases in which Sheba Hapsee based their description in 5 the disease ran a different course. In one of these they claimed besides the usual effect in a perforation of the Hard Palate which was covered with epithelium at the margin. In the 3rd there was a flat ulcer on the anterior surface of the Uvula which without treatment in the course of a few weeks spontaneously healed. In a 3rd case the patient suffered for about a year from aphonia and laryngeal spasm which occasionally led to fits of dysphonie; on laryngoscopic examination the vocal cords were found to be richly injected and thickened to double their normal size and the anterior part of the upper surface of the right true vocal cord appeared 2 stringy, irregular, glancing spots. Death in 2 other cases they observed a peculiar affection of the Manque; in Left Palate pillars of the Fauces 2 posterior wall of Manque. The mucous membrane in parts was thick and even, in other parts glancing with white cicatrical bands. The soft palate was thick, emaciated and retracted in account of the limited number of cases in which the Palate, Manque and Larynx were found affected Sheba Hapsee could not make an confident statement with regard to them. Still they were inclined to look on them as true manifestations of E. and not accidental complications. Detailed communication of.
Similar cases of other authors followed Heber's publication, all of which tended to confirm his discovery, but at the same time showed that the disease did not confine itself to the narrow limits laid down in the first paper.

Geographical Distribution
Rhino rhinovirus is a rare disease and known as an incident quarter of the globe. Still later, it was observed almost exclusively in Austria. The exceptions were yi. in 1842 a case of San

1

Vienna out of Italy - a case of Perugia in Russia in 1874 - in Moldavia a case in 1875

2

of Hanoi in 1880 Schneeberger had a case in Germany (Prz. Silesia) - all of them

3

then originating from regions bordering on Austria. In 1887 however, Coriil first com-

4

mented a case from Central America & then follow in the course of 2 years report of 25

5

cases, which had been observed of容易 in 1872 - 1874 (reported by Coriil) in Central America

6

chief in the republic of San Salvador. Then follow rapid communications from other regions

7

so that up to 1888 cases have been observed in Austria, Italy, Russia, Silesia, Moldavia,

8

Central America, Cairo, Brussels, Engeland & Sweden, but not in any other part of the world.
Indeed in 1885 Jayme Senn and almost con-
temporaneously with them Russell Mackenzie published
reports of a case from England but it turned out
not the same patient who appeared in Comili's
first reports of his E. America Cases.

Table of the number of observed cases in 1888 (from Hollowitke):

- Austria: 32
- Central America: 23
- Russia: 20
- Italy: 5
- Germany: 1
- Rumania: 1
- Egypt: 1
- Belgium: 1
- Switzerland: 1
- Sweden: 1

As yet we can say little of the true dis-
tribution of the disease in the different coun-
tries as it is in many places little known and others may often be overlooked. This
may be inferred from the fact that in 2
years 23 cases were reported out of C. Ame-
rica suggesting the strength that is neu-
v. an examination. Thus as in Austria where
in it is least known and where more pub-
licist is given to the cases. Hollowitke points
Is like experience in Russia when till for
least K. was either unknwon or mistaken for
Since the disease was found in Europe, it naturally
in Paris from 1885 caused 100 sufferers. Almost
all the examples from Russia were still temporarily
found in the east or S. West Province. On the
other hand, if we inspect the areas in and about
Austria from which the cases of R. have been
drawn we shall find that the eastern parts
have the preference including those occupied
places e.g. Hungary which quite adjacent Russia.
In the remaining parts of Europe as 9 cases has
been found authenticated. From these facts
we may fairly presume that R. is not regular-
ly distributed over Europe but has its sphere
preferably in a region which extends to all
the eastern provinces of Austria and S. W.
Province of Russia. Similarly in America
its distribution seems at present to be strictly
confined to the central region.

Starting point and Propagation
If we refer to Helric’s description we shall see
that the places the starting point of the disease
in the mucous membrane or skin of nose, nose
dermatitis or adjoining parts of the upper lip. But
it is now the general opinion of competent ob-
server that, although it occasionally takes its rise
in this manner, the most frequent seat of origin
in the deeper parts of the nasal cavity. It has never yet been observed as a primary manifestation, still more as the outer and than the interior. The patient's account does not usually give us much help in finding the true place where this malady takes its start. This is accounted for by the fact that it is such a chronic trouble and as a rule causes no little distress that it may have made slow but inconspicuous progress before the sufferer's attention has been drawn to it. But other places than the nostrils the nasal cavity may be first afflicted with this disease. Thus in one of my own cases (afterwards fully to be described) the disturbance first appeared without much remedy, was quite unaccustomed although the complaint had been in evidence for 6 years. The mercurial process appeared to have been confined at first only to the tissue surrounding the posterior nas and when it extended beyond this sphere it was in the direction of the maxillary sinus and not towards the nasal cavity at all. Further, it is only a limited area of the nasal cavity itself that is included in the mercurial process. It restricts itself to its inner segment, not overstripping the borders of the lower turbinate bones. This is demonstrated in cases when the cavity has had to be opened for operative purposes. Besides the physiological function of the upper-segment has not been interfered with. The sense of smell is even in advanced cases, in no way affected. Beginning in the nasal cavity it
may spread along the nasal channel (keeping to its lower wall) anterior towards nostrils" upper lip, or it may spread posterior as we have just seen. Then is a wonderful symmetry in the development of this process. If it does not begin simultaneously on both sides of the organ affected, then in has a short interval between the periods of starting on the one side and on the other although the extension of the disease to the outer nose and upper lip is always a continuous propagation of the infiltration from the cavity of the nose. The same can not be said of its spread posterior. After it has long been settled in the nasal cavity, without reaching the soft palate or pharynx, it may suddenly take root in the larynx, as if it were arising from a independent center — or in a similar fashion the hard palate may, as it has done in one or two reported cases, be attacked. The soft palate entirely escaping. Chiari finds that the posterior surface of the velum palatini is mucous membrane of the posterior has offer a very ready surface for the R. march and mentions the opinion of Minkler who suggested that possibly this paronyphial or nasal mucous membrane of the postor has offer a very ready surface for the R. march and mentions the opinion of Minkler who suggested that possibly the nose, pharynx, and the starting point of the whole process as there was then a large quantity of lymph, all elements with a peculiarly prone to chronic inflammation. In one of my cases (before referred to) the chief focus of this disease was in the surrounding
of the posterior nerve. Two cases of cornu are reported when the larynx alone was affected in the disease, and still they were removed by him. True cases of the hard palate in one case was found to be the primary centre. The larynx is frequently attacked by R. before it makes its appearance in the upper respiratory tract and when it spreads to the latter, it is usually not by continuous transmission, but by leaving a considerable part of the tract untouched. This is analogous to the extension of the process from above downwards. Although as yet proof is wanting it is highly probable that the trachea may also be a part of the Respiratory Channel where R. first appears as it on one occasion has it been found implicated secondarily. One case was held by Chiari to be a primary manifestation of the disease in the Labyrinth Ears but the evidence in support of it was not apparent. The convince.

Changes observed in the parts affected as has been said before patients often appear for the first time for examination when the process has arrived at large proportions. The suffers in nearly belong to lower classes of society who as a rule are more at ease handless of their general appearance than those in the higher walks of life.
Frequently therefore the nasal cavity is so filled up with the deposit of R. tissue that an accurate examination of the changes that have taken place is next to impossible. When a precise estimate has been arrived at it is found that the condition is one of more or less high degree of thickening of the mucous membrane which is either diffuse and smooth or food granular though occasionally the infiltration is of the densest order, nodules of varying size being found. In favour of this view according to Cheiro the nodules masses form in the posterior nares and neighbouring tissues. Round the margins of the posterior nares there is a deeper color of the mucus. The mucous membrane feels hard, more or less thickened and or grayish with occasional superficial ulcerations. The infiltration of in the nasal cavity spreading by floor and when it reaches the nostrils it at first engulfs itself at the root of attachment of the alae nasii and neighboring parts of the septum. If the deposits in the nostrils are extensively developed they push the alae nasii downward giving the nose that deformity which is the most striking feature of the disease. The alae feel as stiff and hard as cartilage. They spread out and extend the nostril nasal openings into wide apertures. It is not rare to find
The nasal septum with circumcised nares. The above changes viz. hardness imminence are found on the nasal septum but this stiffness always fades away towards the tip of the nose. Membrane and skin may remain for a long time unaltered superficially, showing that the process takes its rise in the deeper layers of the cornua. Membrane. Later it strikes superficially. The duraeum and epithelium. It then the epifascia of the skin duraeum membrane becomes necrotic, giving granular, pustulatous or pustulosa. Swellings appear at the free border of the alae. Skin gets red. Epidermis dry eroded over the nodules which feel elastic and are permeated of blue veins. As the disease progresses in the septum, the floor of the nasal cavity shrinks, the nasal opening may in time achieve placed from above downwards, downwards downwards. The cartilaginous structure of the septum then gets thickened to the nose feels as if it were found out of place. The process may confine itself to the septum or spread to the upper lip, angle of the mouth, and even as far as the lower lip. In which latter case it has been found surrounding the cavity of the mouth and in contracting causing a troublesome constriction of the mouth aperture again the infiltrating mass may strike deeply through this upper lip to the undersurface portion of the upper jaw.
The swellings in the upper lip always display that symmetry which has been already referred to. They may be one swelling placed centrally under the septum, or one may lie under each mental. These bumps are smooth glancing, and of a thick, clear, smooth, with dry crusts. When the alveolus is attacked, the whole thickness of the upper lip may be included and glued down, as it were, to the underlying thickened tissue; or the thickness of the lips may escape. The infiltration reaches the alveolus from the nasal region or the gum. When the alveolar process is implicated in this dental lesion, it is disintegrated; in the central process, first, the central incisor tooth becomes loose and fall out. If the disease is progressive, the lateral incisors, second coverts, may in symmetrical order become dislodged. The alveolus may be so swollen as to push the upper lip out like a protruber. In certain rare cases, this process has been traced from the nasal cavity to the lacrimal glands. Tumors are found in positions corresponding to these glands. One case is reported in which a tumor was found in the nasal cavity just below the extension of the process from the nasal cavity to that of the base of the nostril, near the pairinephrons. This is a very favorable site for the disease; and if the tumors were just present...

[Handwritten notes continue]
Fig. 1. Appearance of velum and pillars of the fauces in a case of R.

Fig. 3. Posterior surface of velum + posterior nares in R.

Fig. 4. Anterior surface of velum + pillars of fauces of same case as Fig. 3.

Fig. 2. Appearance of the pharynx in R.

Dr. O. Chiari und Dr. G. Riehl. Das Rhinoskienum der Schleimhäute.
Chosen in the posterior surface of the Soft palate. Here it may chiefly lay of the Piller of the Throat in the posterior wall of the Pharynx. Although Chiari, in our cases I could, to the posterior surface (as to.she will record Chirac's Drawing of this condition and its allies in the Soft Palate) of the Soft palate, the infiltration of the Throat is well of the diffuse variety. When this infiltration ultimately forms cicatricial tissue the contracture we have a deformity of the nose, that in young cases which is very characteristic. The mucous membrane may become dark red in color with occasional superficial elevations covered with a yellowish deposit. The surface of the mucous membrane is granular, scabby, or papillomatous. Sometimes the epithelium proliferates like mucous patches. Shining white streaks of cicatrices are seen on the surface giving sometimes a striking shimmer to that part. By cicatricial contract in the Mulae gets shortened to a mere streak or disappears altogether but this loss of tissue is not bought about by retraction itself but it a shrinking of the part. The Palatine arch also become distended, the arch getting more pointed & retracted, its pillars sometimes are converted into hard strings. The communication between the naso pharyngeal cavity & Pharynx becomes an area being constructed on all sides, last last may
be even completely obliterated. But here it is im-
potent to observe that there is no real adhesion
of the posterior surface of the Left Palate to the pos-
ter wall of the Pharynx (as Labati held). This is in
reality only an apparent fusion - a concentric nar-
mow of the upper three or segments of the Pharynx.
This is pointed to as a characteristic feature
between R. Syphilis - in the latter case there
is a true adhesion of the surfaces.
Hard Palate has been found occasionally affected.
The membrane membrane is infiltrated with
plate-like thickenings.

Larynx. O. Chiami who has given special
attention to the condition of the Larynx I observe
in R. finds - Stiffness, contraction thickening
of the true vocal cords like surrounding,
or still more characteristic of the disease in
the formation of horizontal swellings immedi-
ately under the vocal cords, separated from
the palate of a furrow or incorporated with
them. He so called Chorditis inferior syph.
tipia chronic (Gerhardt) The vocal cords
may else well pass these thickenings. Chiami
refers to a case of Schufft Zeller when the
vocal cords were 3 times their normal
breadth and were divided into 2 parts of
which a smaller branch, the sign of the
normal cord ran towards the wall of the lar-
ynx, the broader towards the inner side.
The outer part covers the inner. This condition is in some respects similar to the 1st case. The superior membrane of the larynx may be of an injured red colour with thickened, irregular, epitheloid folds. By contraction of the infiltration very considerable stenosis of the glottis may ensue.

Fracture. In one case examined I found that
the fracture of the larynx of the fracture was marred as far as the 1st fracture ring. The membrane, membrane thickened, as hard as cartilage, in all in some cases cartilage from
nests were observed. Epithelium in many places proliferated—bulging forward of the anti. Fracture wall. A short distance inside the
vocal cords the fracture was funnel-shaped.

Nature of the R. Infiltration

The infiltration may be either diffuse or nodular, usually beginning in the deeper layers of the skin. Membrane. This becomes converted into contracting cicatricial tissue; the effects of this contraction are most apparent when there is loose tissue abounding, e.g., the Esophagus, Palate, Pharynx, Larynx. According to
Cheim, the change from E.E.T. infiltration to cicatricial contraction is very rapid in mucous membrane, than in skin. The change from granulation to cicatricial tissue.
which occurs in this disease is, according to Helbra, the only form of retrograde metamorphosis that takes place as it neither estins nor breaks down. It has been proved prior that it adds up closely to this characteristic. In cases where ulcerations have been observed they are not to be laid to the charge of the R. process but are to be explained by external causes e.g., mechanical or chemical irritants of various kinds (including septic dressings, scratching, etc. affected part; various external employments of various kinds) — anti-syphilitic treatment, etc.

Pathological Anatomy — Bacteriology

To the Pathological Laboratory of Prof. Nech. rehmann in Vienna, when I was working in the spring of 1890, I had the good fortune to obtain microscopic sections of R. tissue — also preparations of the R. Bacteria in the tissues as well as from cultures. These specimens I shall take the liberty of sending along with this thesis.

Pathological Anatomy. I shall first describe the microscopic appearances of the pathological specimen in my possession and shall afterwards supplement this description by summarizing the results arrived at by Wohlschlegel in his subject. This Section (stained with Carmine, treated with...
Absolute alcohol (Kerogenous, containing with Canada Balsam) is taken from the case. I could not obtain any history of the case from which the specimen was got. The skin is not included in it either. It is a section through the in filtration including at the borders a few muscular fibers.

With a weak power of the microscope we see all the characters of granulation tissue, i.e.: (1) Small round cells, (2) fibrous intracellular network. In some parts, the fibrous elements predominate. in others, the most of the field is taken up with cell elements.

With a strong power (at least I can only see cells) the cells nearly maintain the type of ordinary granulation cells, i.e. consisting of a thin coat of protoplasm, round nucleus. Nuclei of all are very distinctly stained, either as a rule, round or oval, may stain in separate granules, or the whole may take in an intense tint. Sometimes we see the nuclei lying without protoplasm. The intercellular substance is in the form, when the cells predominate, of a delicate network, in other parts it increases in quantity, cells are seen to lengthen out because of irregular shape, fewer in number, again in other parts of the intercellular substance has the preponderance over the cells, becomes fibrillar which
The cells are very scarce I examined at first as in other parts we have fully formed fibrous tissue.

But besides the cells we have just mentioned there are others to be seen which bear a very different character but which give rise to this tissue. The shapes are various, including the epidermal cells, large, epi-

thelial cells, rounded, mostly protoplasm pale.

By this staining the protoplasm appears granular but Wollenweber found that in a different method ret-

inulated. They are found and lying usually rings amongst the other ground tissue cells in

greater quantity when the tissue has undergone nu-

cleus. More than in parts all other later ones with

ground tissue cells. The nuclei are somewhat thin,

invaginated into, emerging wavy, fairly stained or

very faintly. These cells (as we shall see more

frequently later in speaking of bacteriology) are

very intimately connected with the life history of the

Bacillus of R. In some of these cells vacuoles

are often seen. In one hour the nucleus dis-

placed to the periphery of the cell if a large vac-

uole - the nucleus with a fine rim of pro-

toplasm enclosing the vacuole giving the appear-

ance of a C elegans ring.

In one or two places

(not very numerous in my specimen) peculiar

glancing, broken bodies are to be seen as

by this staining appear of a salmon colour.
These are the Hyaline Bodies. In one place I see a specimen where the hyaline body appears as composed of 3 or 4 balls. Let the reader imagine an intensely stained nucleus. These remarkable bodies have given rise to a great deal of discussion amongst observers as to their origin. They have been found in the tissue of my one of the known disease of Sepsis. Their nature shall be referred to at a later period. We see also in this specimen muscular fibers of the same appear in the lower third. Sections of well developed hard rubber - like amongst the fibers tissue, wavy elastic fibres.

Macroscopic appearance of R. tissue are the following. The tissue is easily cut. The color of the cut surface of a fresh specimen is yellowish, pale or orange yellow. Like old card (mikulicz) - in places it is greyish or greyish red, especially in the nasal cavity. In the parts, streaks of cartilage are seen. A marked feature of the cut surface is its viscosity. The swollen masses and of the nasal cavity, seems are of a very friable nature. The transition from normal to pathological tissue is in some cases sudden in others less abrupt.

Sections of infiltration implicating skin of upper lip. - The process takes its rise
from the deeper layers of the corium. In its beginning the process shows itself in form of small cells along the course of the smaller vessels or it may be seen collected in the axi of the sebaceous or sweat glands, or it may be at the bottom of a hair follicle. From these different quarters it may spread upwards to the papillary sheath of the corium and to the epithelial layers themselves or downwards to the subcutaneous connective tissue as soon as the infiltration reaches the papillae the epithelial cells themselves begin to proliferate. Peter Malpighi gets struck by palm-shaped cones (especially in the conifers and gymnos) the cells of the strong and intermediate layers also take in this process of thickening. In these cones are seen occasionally clusters of epithelial cells like ‘epithelial pearls’. The invagin of the epithelial cells of the R. is very striking to the eye as the small cells (of the usual staining) have neither stained nuclei, which in contrast with the epithelial cells are of a pale color. The R. cells lie between in the protoplasm of the epithelial cells. The latter arrangement is very constant in the Peter Malpighi horny layer. This can all called infiltration leads in time to total destruction of the epithelium.
In certain regions, a peculiar vacuole process affects the epithelial cells. Their nuclei become distorted and displaced. These vacuoles swell up and are said to contain fluid. A different explanation is offered for these vacuoles than for those found in the large cells of the kidney, i.e., history pages are the result of bacterial action whereas the former are due either to inflammatory reaction or venous engorgement. Granules are sometimes found in these vacuoles. They possibly represent the remains of nuclei. The infiltration into the horny layer offers an explanation for the rich crust formation on the skin. It is a very common feature in advanced cases. The hair follicles, sebaceous, sweat glands are early attacked in the process. The explanation of the early invasion of these structures partly is because here the tissue is rich in blood vessels. Occasionally epidermal cures are seen in the midst of the infiltration. There may be atrophied hairless follicles.

Nerves: Connective tissue thickening of the peri-neurium in some cases has been noted.

Cartilage Tissue: In the neighbourhood of cartilage transitions have been observed from fibrous to cartilaginous tissue, in other cases, nests of osteophytes reveal a process of new bone formation taking place.
Hyaline formations

The connection with this subject must be ventured.

Certain nuclei which in stained preparations have a glaring appearance and look at first sight as if they had undergone hyaline degeneration. But it is found that they become intensely stained with ordinary colouring stuffs in this way differing from real hyaline bodies which yield some common staining agents pig. Haematoxylin an not colored at all.

Physical Character of the Hyaline Bodies. They are distinguished from fat globules, because at first sight they bear a resemblance because they are first dissolved by ether, Chloroform, or alcohol. By Denevic acid they are stained just black but from. They withstand the action of acids, but alkalis make them swell up, loose their sharp contours, get pale, and ultimately disappear. These bodies are not the same as those of Amyloid Degeneration for with Denevic they do not take on the mahogany colour, and with the methyl dyes never give the striking purple counter stain but assume the blue colour of the tissue unaffected with the aline degeneration. Eosin stains the hyaline bodies intensely red. Resorcini along with picric acid produce in them a yellow color. Detergent enzymes soften them the most accidental occurs. They are found in any case of R.
Bacteriology

The Bacilli of Rhinitis occur in the Throat. In Weichselbaum's Laboratory, with the help of the Assistant who instructed me in Weigert's Method for staining R. Bacilli. I was successful in staining specimens of such an of which Zumbach for my

Weigert's Method is as follows:

1. Wash 5 cc. of stained blood on
   glass, dry +

2. Add a few drops of warm
   combination of Benzine, which in
   saline water keeps it on for 10
   minutes - dry

3. Add a few drops of R1 solution

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<td>I{perm)</td>
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<td>Ag. dist 300</td>
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for 3 minutes, dry

4. Add 1 cc. of 10 perm. saline solution

5. Eosin to make tissue transparent
   without putting

6. Mount with Canada Balsam.

By this action method and with a moderate
high power, one sees in place when the tumor
mos have been rendered almost transparent,
the Bacilli deeply stained lying in groups (chiff)
arranged in four. Three rings or in four
rings from 6 to 7 times, the edge of the minute. The
Bacilli. Man often shaped them of oval cocci or rather rods pointed at the ends, of a size reckoned to be 1.5 - 3 μ in length + 0.5 - 0.8 μ in breadth, when they lie in pairs which in a very frequent arrangement, lying end to end, or capsule surround, then both. In this specimen they are seen most frequently lying in round clusters in which the separate capsules cannot be distinguished. The habitat of these Bacilli is a very characteristic one. They are found pretty constantly in the internodes of the cell (whose outlines can be traced even in the semi-transparent part of the specimen). Occasionally they are seen lying separately between thin fibers of the structure or between the cells. Not the large cells are the usual place to look for them. Besides the Bacilli, very striking clusters of granules or other bodies are to be seen in large quantities which take on the staining as greedily as the Bacilli. Their position in the tissue seems to be similar to that of the granules of Bacilli. There is still some doubt as to the true nature of these granules. They are looked upon by Kandleri (discussed under anatomy) as seminal bacteria which have undergone degeneration but have not quite passed into the final stage of hyaline bodies. See the next page.
In a large number of the granulation cells also stained with the Gentian Violet, Nolbirstedt found Bacillii in all the cases he examined, sometimes lying between the cells, separated or in groups, chiefly found in the large cells of Lichenic in which they may occupy vacuoles. They have also been discovered in the Hyaline bodies as well as in the granulation cells. He found that their shape differed greatly according to the different methods of preparation being adopted. Thus they may assume the form of cocci lying in pairs without capsules or short rods furnished with capsules or (rare) long chains with or without capsules or again irregular shaped granules among others. Noting this diversity in shape of these microorganisms concludes that they represent different stages in the development of the Bacillus. The last stage is represented by the capsule stained. Nolbirstedt offers quite another explanation. From the fact that he always got capsulated vacuoli in prep. Stained with Welsch’s Methyl blue dyes it was always less fortunate when Gram’s method was adopted. He refers that the diverse shapes lend definition of this
Bacilli indicate in what different ways they behave to different nutrients. With Bacilli lying as they do in pairs bear a very close outward resemblance to the typical cocci of Friedländer (Bacillus nemorum of Frankel & Weichselbaum).

Cultivation of the Rhizo. Schizoa Bacillus

The specimens of the species of the cultured Bacilli were got from cultures (Mu) from gelatin, (Mu) from potato. These cultures were not made by me personally. The Bacilli in the gelatin culture are 3 days old. Those of potato 7 days. They are both stained with Fuchsine. With the same power of a Hellische Mu Bacilli are well seen in both specimens as oval cocci or short rods with rounded ends, lying singly or in pairs (placid end to end). In the potato culture of the capsules are well seen — in the other not quite so evident but still in some Bacilli quite distinguishable. In these examples we see no tendency to chain formation. This latter arrangement is found when the medium is not quite sufficiently acid — it is looked upon as an inoculation form.
Cultivations on Gelatin Plates

The colonies appear as white or yellowish or grayish pink, or oval buds like encumber ends. These near the surface are more luxuriant than those lying deeper in the medium. The elevations in time run together and from a mass like melted tallow.

Dr. Gelatin test only along the line of injection at the ordinary room temperature within 24 hours a whitish cloud appears which on closer inspection reveals a conglomerate mass of granules. The further growth takes the form of confluent vegetations - further description of the nature of these appearances are rested in the publication of the paper. The surface also looks like melted hard wax no gas formed which Wolfe-Moshitz looks on as a mark of distinction between the potato culture of R. Lof Bacillus Pseudomycine when gas is often met with.

A very suitable medium is Blood Agar. Here the bacilli are of the most luxuriant type. Sharp rods with well-developed capsules. When an artificial emulsion was produced by Wolfe-Moshitz in animals by injection of R. culture into the pleural cavity the resulting lesions produced was found healing with well-developed capsules.
Beaulli. His points at 1% serum as perhaps the medium in which the Beaulli
were especially well
cultured, have also been obtained in a 50% In-
fusion of Beef Lbs. The Beaulli
grow in neutral weakly alkaline media down
then slight acid. The finest temp. at
which cultures can grow is 11-12°C, the
highest 43-44°C. That which lends
itself most favorably to growth is 32-35°C.
The cultures can grow under sterilized oil
in a space exhausted of air. The Beaulli
in nutrient jugs appear under the
Microscope as glancing pods. Then
cultures had been kept in the most
sterilized chamber for 3 months the Beaulli
then appeared diminished in quantity, as
Ermed excentric shapes had a tendency
to form into chains. They were in this
state never capable of germinating when
removed to a fresh medium. In old
cultures the Beaulli assume the invol
return form.
Clinical Aspects

My clinical experience of B. o. of cancer was limited. In all there were 3 cases — 2 in Dr. Schwitters' Clinic — 1 due to a single unlined carcinoma under Prof. Kaposi. The cases in the Language Clinic were suffering more from the manifesting of the disease in the larger than in other parts. Indeed in one of them there was no external deformity of the nose at all. The arrangement of a large Language Clinic when patients were passed rapidly from one operator to another was very tiring. After very well to note taking beyond my rough sketches taken myself I have of the outstanding features of one of the cases, August 1829. There was no other except from memory.

But as concerning those left my carefully at the time, I am led to judge alluded to give my mental notes, however unsatisfactory the cases.

[Illegible handwriting]

...33. A native of

I Arabia has suffered from chronic

6 years.

Physical examination in 1890: he is
dark complexion, of middle height;

then I attended.

normal
Examination of the throat presents the velum palati contracted but not extensively. Watch small but still moving. Eff Palati not so uneven in normal direction slightly backwards. Anterior pillars of the fauces less prominent than normal. On left side it seems pinned down to the side wall. The posterior pillars are like cicatrical bands. The posterior wall of the pharynx is granular looking, dark in color, dry, some parts have a cracked appearance. It is also streaked with light white cicatrical lines. Posterior rhinoseptic examination is in the face very easily accomplished as there is marked cicatrisation of the posterior wall of the...
Postrhinoscopic appearance of a case of advanced Rhinos.-

Nuncle

remains of past rhinos.
examining found a Laryngeal escape from the base in with the greatest uneasiness. The appearance of the posterior voices I thought would spring at the time which they were noted on the previous page. The posterior voices are here represented on a small opening about 1/2 diameter of a cent. The Porsterior Escape of the Soft Palate is here smooth and will meet with indolence like the Chiasis Case. There seems to have been or first a uniform infiltration into the tissue surrounding the Porsterior voices, the contraction of which has occurred this great deficiency. The contraction is so great that the ventilated bones escape are excluded from them. This part of the voice, pharyngeal cavity, appears in this Case to have been the starting point of the disease and it does not spread anterior to the purses at all but after elucenting so to speak in the region for several years, it suddenly wakes up as one new action in the Larynx.

Laryngeal escape examination was also an example of the foramen manifested. Anesthesis area accomplished with ease. The cavity of the Larynx is contracted. Epiglottis is red, and slightly curved on itself. Anterior...
Folds also hyperacemic I shall tend. Both true vocal cords very much thicker than normal, pedunculated in length. The right is divided, by a furrow running parallel to its long axis, into 2 divisions of which the anterior is the thicker. Blocks like a second false vocal cord being like in color structure. The left true vocal cord, also enormously thick, and has a projecting ragged swelling from its free border near the posterior attachment.

A friend of mine very kindly made a drawing of this condition of the Larynx although it shows the general structure of both organs, it has unfortunately been executed on too small a scale to make the smaller details very evident. The vocal cords were very slightly roughened. Great dysphonia & distressing cough.
Stenosis of lassafera from Rhinoceros.
Condition of the under segment of the larynx. The trachea was not ascertainment. All other organs appeared normal. The treatment consisted in painting the interior of the larynx with lactic acid. The daily introduction of Schröter's Hargies—the latter treatment giving great relief to his distress.

(2) ____________ He from Bohemia, has suffered from this disease 2 years. Present condition in May 1870. He looks a strong healthy man, measuring about 5' 11" in height. What attracts the attention particularly is the considerable enlargement of the nose. Breadth across the alae incusae. The en swelling on the left side is more extensive than on the right. The alae on both sides feel hard, less movable than usual. The septum also assumes this dense induration, which becomes f dusk away towards the tip of the nose. The whole organ feels as if it were the nose of a mousque or formed out of hair of a dog. By digital examination one feels that on both sides the induration corresponds to the cartilaginous structure of the
ri distributes into the vocal cords, even reaching up to the vocal cords. The process is more advanced on the left side than on the right. In the left nostril, a small, wet, dry, I say, when the nose is well filled, the upper lip is often partly thickened, face, etc., were found on the skin. On the right side, the nose was not so free, developed, and the skin was not yet marked. The skin over the nose was smooth, with no marks, with a thick skin, thickened, dehiscing, thick, rather normal.

Larynx. The larynx was quite normal, appearing normal, well below the carina. With very deep inspiration, with the glottis well opened, a constriction could be seen under the cords, presumably caused by swelling, coming from the sides of the upper segment and causing a stridor. There is a Chondritis vocalis, a thickening hypertrophic, chronic (Gerhardt). The cords or glottis were closed well over the constriction. It was under going noticeable dilatation of the larynx, with edema of the soft parts.
Clinical fragment. I once met a Mr. in the public ambulatory of Dr. Kapsen. We were one occasion a female patient whom Kapsen diagnosed as a case of P. From a careful (and available) examination I discovered that she had 2 swellings symmetrically placed on the upper lip, one under each nostril. They were bluish in color, elastic, and touch prompted. There were no symptoms with infiltration in the nostrils, nor very excoriated, but surrounded with inflammatory tissue. Esp. palpable very much contracted, almost hard, the lips. Whole awanting hair, no place in it, place. She had no symptoms of lupus. I noticed she was dull of hearing, partly because disease had simplified the Eustachian tubes.

I, to give more clinical completeness, shall mention 2 of them. One, W. C. Of 71 (Nobberstock) 46 years, student (Gov. Odessa). For 5 years a hatter. Former a teacher.

Present condition, 21st Feb. 1884.

Broadly across the clae was run a smell. Increased amounting to 2.75 inches. The left clae is surrounded pushed out on its upper surface. We find bunchlike excrescences separated from one another by shallow vertical furrows. They represent
nodes about the size of a hazel nut. The white
thickness of the gland is inclosed with them. The
gland is not so very thick in itself but is greatly
swelled out of a thick swelling by a
pigmented mass which has also settled
under the gland. The skin over the gland has a
purplish color and is permeated by veins,
blood vessels and one that enters is less
woven than ordinary. The remaining part
of the nose are normal. In consequence of
this huge mass on the left side its free
border lies on a somewhat low level
that that of the right nose. The nasal
openings are narrowed by the masses into
slit-like apertures which narrow themselves
distance of 1 cm. inward into small
shaped holes which are almost the head of
a pound (e.g. the right) which on the
left side the nasal channel is constructed
of a thickening of the gland - on the right
side it is confined to a portion of
the flap. The membrane, epithelium is
thickened to the extent of 1/2 inch. On the
upper lip symmetrically under each nostril an
flat hag swelling. They are sharply defined
and covered with glancing, smooth
red external skin. By their tumour the
upper lip is enlarged in a perpendicular
direction. The middle part hangs
down like a small prawn. On paring the upper lip yellowish colored swellings on his
mouth in the gums which spread to the whole palate to which is from the borders of the teeth
The central palatal maxilla teeth are loose.
Eso Palate displaced upwards. Wound quick
gun. Anterior pillars of tonsils changed to
some enlarged strings. Posterior pillars, red
end, white than usual, the left more in
wards forwards than right. Palatine arch
pointed. Posterior rete of a vein on poste-
rior wall of Pharynx. Naso Pharyngeal cavity
is narrowed. Communication between its Pharynx
and adenoid cribiform - Larynx not much in-
plicated. On both sides defects are found in
Membrane Tympani. Patient in other
respects strong. His father died at 46,
his mother at 66; has 5 healthy children.
never suffered from Syphilis. Never was ill
till 5 years ago, when he knocked his nose
against a wonder live I to relieve the
headache applied a keel to the nostrils
I on this point when the animal sucked
the tumours made their appearance.
W. (Wellington)
5th May, 1868.

Queen's birthday, 17th April 1868.

The whole of the cartilaginous part of the nose is pushed out & thickened (height of circumference 1/2 inch). The skin covering this portion of the nose is not at all changed, pale & moist. A little to the right of the middle line 1 cm from the tip of the nose one finds a small, bluish-like elevation about the size of a lentil seed. Upper lip a little drawn down. Under each nostril elastic swellings of the size of a bean were obtained. The cartilaginous part feels hard together with the swellings on the lips are less movable than normal. On the left lateral wall of the nose is a plica corresponding to the aperture pyriformis a hard cartilaginous thickening is felt. Gums at incisor teeth thickened. Triangular infiltration of a 5-0 p亲戚. Plica on anterior surface of soft palate, of which the posterior is dark red, center interspersed with stellar glancing cicatrices, affected part feel hard.

Patient is of medium height. Duration of disease is 4 years, when first seen growth appeared in the body. Two years ago, patient complained of sore throat. The parents as well as other sisters are all healthy.
Symptomatology

Often the disease begins like an ordinary cataract with attendant secretion. Voice has a nasal change. A very striking feature is that the sense of smell is hardly ever affected. Occasionally there is something in the ears difficult in hearing. The process causes very little distress of confined to certain regions and does not implicate larynx or trachea. Then is only pain on deep presence of the affected parts - no spontaneous pain. If the disease has continued long in the larynx it brings about the very striking feature of anaesthesia which has been referred to before. As does not affect the larynx or trachea. Then we have distinct changes to life, several cases have resulted in death from suffocation.

Course is usually a very chronic one. It is slow but very stubborn, defying complete removal as at the edges of the cicatrices often operate new infiltrations springing up. No case of spontaneous cure has been recorded. It never produces metastases.

Prognosis is favourable if the disease does not extend beyond larynx or trachea.
Differential Diagnosis

Lupus

Mr. Jonathan Hutchinson in his interesting Lecture on Lupus, published in the Brit. Med. Jour. of Jan. 31, 1891, prefixed his remarks on that subject by giving it a place amongst the family of which Lupus is a principal member, although very different. He argues that in many features from the forms of Lupus, it is easy to prove that its main features it comes much closer to Lupus than to any other malady, and that it has good claims to be one of the family.

On the occasion in which Mr. Hutchinson suggested this classification, he was about to deliver an opinion on the treatment of Lupus then stood in the light of Koch's famous treatment for Tuberculosis, although he did not speak enthusiastically of the permanent virtue of the treatment in Lupus, he does not fail to perceive the striking local effect that Koch's fluid has on the lupoid tissues. Thus, the fluid has a very important diagnostic virtue in that it has nothing more. I am not aware that Koch's treatment has yet been applied to a case of Lupus. It will be interesting to watch whether there will be any local disturbance in Mr. R. Trease. If there be a complete
Local immunity. Then the tuberculosis will be a mighty factor in distinguishing between it and lupus, between which 2 diseases, there is no absolute point of demarcation. Still apart from these considerations there are certain points of difference which are very observable. Thus we find in R. the disseminated tuberculous nodules with their softest quality, which are so characteristic of lupus. There is a tendency to disintegration of the lupoid tissue - a very rare feature in M. There again the margin of the infiltration in lupus is surrounded by red swollen tissue which may reach in some cases such large dimensions that it obscures the main disease. Now this is never seen in R. when there is a sharp line of demarcation between what is R. tissue and what is not.

Syphilis. Until Klera differentiated R. it was more frequently looked upon by observers as a chronic tertiary form of syphilis than any other disease. Klera himself thought the prominent red swelling on the upper lip, Erythema nummular, surface of palate as a nodular syphilides.
Distinctive points between the infiltration of Syphilis and Cancer:

Syphilis: Disintegration of the infiltration, deep pustules, if "bored out," with circumcised edges, hard acorn-like influenced by anti-syphilitic remedies.

Chronic ulcers, Hardness of infiltration, epithelial covering intact or only superficial alteration, hard base felt under.

Marked sharp border, no infiltrated tissue in the surrounding tissue or no affection of the lymphatic glands. Development, retrograde tuberculosis, slower, seems less distinct.

No real adhesion of Eff. Riedler, Posterior wall of Marques (as in Syphilis) but much thinner.

Cancer is distinguished from R amongst other things by its more rapid growth, early infiltration of the neighboring lymphatic glands, most recurring in old age, instead of in the prime of life as in R.
Chromy Blesemhia of the air passage (Störk)

Rheumatic Laryngitis (Lobert) is also a disease which is looked on by many as the R. which has taken its start in the blood vessel of the respiratory tract and through its whole course has engulfed itself in that quarter.

Films & Films, sometimes Pneumonia sometimes come difficulty in Diagnosis, but mainly Larynx. Biological investigation of the persons studied on once
Treatment

The aim of treatment is to remove the infiltration. The methods adopted till the present have only attained a temporary amelioration. The seat of the disease being, as it often is, deeply placed in the nasal cavity, the difficulties in completely removing the adventitious tissue are sometimes insurmountable. Very radical measures have been adopted however—viz cutting through the cartilaginous part of the nose in the middle line leaving pure the nasal cavity, then removing the growths thus uncovered with scissors, knife, or sharp spoon. I prizing the tissue left standing with 

‘

the actual cavity, or again causing my nitrate of silver, lactic acid be . sent in spirit of nitric acid treatment a m.phenol, only too many fellows. The stenosis of the Larynx with Schütz’s Bougie or Fraser’s bougie, nasal tubes, and tubes have been scarified with the view of promoting cicatrization. In very extreme cases the whole nose, part of the upper lips have been removed. A subsequent plastic operation has been undertaken to form an artificial nose. Bilateral flaps a furrow is in the Larynx once removed its whole interior inner covering, along with the
At a later period introducing an artificial narcosis. Unfortunately the after history of the case is not on record. Hypodermic injections of cautery substances viz. strong alcohol in solution of carbolic acid or caustic acid (1%) have been tried. Notwithstanding this has not given marked improvement from the injections of carbolic acid. He mitigated the great pains incident to this form of treatment by the addition of cocaine to the solution.
Aetiology

Amongst the influences which play the role of predisposing causes in this disease must be ranked traumatic agencies of various kinds: viz., bruises, irritative agents etc. Thus patients often seek in the onset of their disease from injuries they received to the nose. One man in a repeated case, a stoker in the Railway Service is said to have preferred his trade to being exposed to wind, local dust in the vicinity of his calling. Another case of interest in this connection is the one I have repeated from Woodcock's, in whom swellings indicative of the alienated theory arose exactly in the places where a hook had previously rested. Then amongst predisposing causes it is reckoned of prime importance are procumbent carious teeth. These may not enucleate themselves to the nasal cavity but spread to the retrospiratory tract, neighbouring channels yea, intranasal tubes, middle ear, or nasal ducts, and lacrimal ducts. Patients often complained from to the actual affection of one choice of Coryza, Homorrhagic Sphenoitis, meningitis, tympanitis, etc., with Epiphora or dacrocystitis. So frequently
are eutanks found inducing in attacks of that
notwithstanding it looks on them as more than
men predisposing causes but very justly
be specific. And as if confirmatory of the
view, the Bacillus of P. is sometime found
in certain eutanks of the recent victims now.

With regard to the true cause of this malady
although there still exist points on which cer-

tain light is needed we have now attained
a large amount of knowledge. When Freis-
cher first discovered the Bacillus that exists com-
in the tissue of P. it was thought that we
had at last found the real cause of the truth.
But when experiments were made to produce
the disease in animals artificially by injecting
the culture of these Bacilli they were met met
by disappointing results. No local disease
like P. could then be produced. These neg-
atives revelations induced certain theories
by Rabies to attack to take up a sceptical
position as to the Bacilli of Freischt being
the specific cause of the morbid process.
Bacillus asserts that in some cases he
found no Bacilli at all. In one case he
noted with the shoetowmers in con-
junction with the Bacillus of Freischt on
their grounds he considers the said Bacillus
an accidental but essential to the morbid
process
Duchko contends that the Bacillus is only found in infected tissue when the latter contains decayed products which furnish a suitable medium for its development. It is not in any sense the cause of the infectious process. If we destroy the large cells of the liver by the action of the bacilli, the Bacillus of Bacilli of R. - the result of their infectious process. Originally the large cells, according to their opinion, were granulated cells and get its typical state when they become the abscess of the Bacilli. Wallerstok, on the other hand, on the ground of the constancy with which the Bacillus is found in the tissues of R. Upon the fact that the infectious diseases in which the same Bacillus are constantly found in the tissues, you say, are generally related, says he can not deny the importance of the Bacillus in the etiology of the complaint. He thus regards the statement of saying he could not deny the importance of the presence of the Bacillus for proof was then wanting. But he very wisely states that R. is such a rare disease the condition for its development must be of a complicated character that it is not surprising that there are great difficulties in the way of producing it artificially in animals.
Friedich also pointed out that the animals employed may not have been susceptible of the infection. When Volkovitsch wrote his monograph, although he held the opinion strictly that the Bacilli associated with R. in the time course of the process, proof was still a desideratum. The demonstration of the truth of this contention was received for another observer of Friedich's Bacilli from each of them. He succeeded in proving that the Bacilli of R. are in truth pathogenetic. 4 guinea pigs 1 rabbit died of Peristomitis augusta (Peristomitis fimbriata) from pneumonitis after injecting into agar-agar culture with the Peristomitis cavity. The Bacilli were demonstrated in the exudate and in the organs. In section of the internal organs, the Bacilli were seen outside the cells, in the lymphatic spaces, also in the sinuses of the cells— in the latter were seen well stained Bacilli, but also those that were pale looking, glass-like. Then in various stages of degeneration. Also in
The kidneys, spleen, and oval lymphoid bodies of a hyaline character -- often typical hyaline cells -- are found. Thus, he asserts that he met with the elements of K. Granulations.

Disease by Hyaline & Hyaline formation

As to study the process of development for a longer period, he came and injected the cultures into the anterior chamber of the eye in rabbits. Four days after the injection of K. Bacilli, proliferation of former cells occurred in the connective cells of the Cornea & Iris, in groups of lens-like, vacuolated, large epithelial cells, with Bacilli inside them. He observed the Bacilli inside the cells in different stages of degeneration. Proliferation, swollen, round, oval, or knot-like. So 20 days afterward Bacilli were found in the cells thymus again.

In the above experiments, Komenski's affirmed that just as in offend that K. Bacilli of K. is pathogenic to animals, that a chronic granulation process is set up with the production of large epithelial cells (st. have roundish vacuoles), also in all the animals by hyaline formation.

Characteristics of K. -- were demonstrated.

The author then proceeds to state that with regard to those after the following in the conclusion. The well stained multiplying...
Bailli lie outside the cells in the lymphatic spaces. In the protoplasm of the cells are enclosed Bailli which are sometimes stained (he does not mention what stain used in this case but I think I have seen some mention of rhodamine) often unattached, granular, globular, oval or round-shaped and in various stages of degeneration. They lie either singly or in groups or fill the whole protoplasm of the cells. Unlike many of Bailli are sometimes taken up by leukocytes. The Bailli are first taken up, according to him, by the cells and degenerate. The capsules of the Bailli extruded the cell wall part of the protoplasm. Later the Bailli degenerate that they assume the hyaline glance and last the protoplasm also that lies between them becomes converted into hyaline. Hyaline is therefore the product of the mutual working of both Bailli's protoplasm. To produce hyaline in progress the latter must of necessity be in immediate presence of the latter must also be enclosed in the protoplasm of the cell but not in the immediate destruction to the protoplasm but the protoplasm has a deleterious effect on the hyaline. The results of this interchange of malignant influence, according to the experts of our science, is hyaline.
METchnikoff in a Lecture delivered at the
Institut Pasteur Dec. 29th 1890 (reprinted in
the Brit Med. Jour. Jan 31st 1891) enunciated
the theory (supported with very convincing example)
that the immunity which certain so-called
refractory animals enjoy to the dire influence of certain bacteria to which other ani-
imals succumb is due largely to the pheno-
menon of phagocytes. The epithelial cells
or phagocytes attack the bacilli. The moment
they are introduced into the tissues, enclose
them in their protoplasm and in some way
bring about their destruction. In ani-
mals on the other hand which are not immune to the phagocytes do not interfere with
the Bacilli which are allowed to enter the
lymph spaces, find their way into the blood
and ultimately perhaps bring about a fatal issue.
"The more malignant the micro-organism the
rarer is its presence within the phagocytes.
This latter condition applies to such rapidly
fatal diseases as animals as chicken.
coelia, hog cholera. But Mr. says
when we pass to these chronic diseases
as tuberculosis, leprosy, rhinocellosis
eludes the specific bacteria are much
rarer. This is taken up by the phagocytes.
If this theory of Mr. is the
true one it will go a long way
to explain the disappointing results which
then consternation (till Panderowski entered the
field of experiment) attended the attempts
lo produce R. artificially in animals.
According to this theory the epithelial
cells or 'germ cells' of R. would
instantly seize in the blood and instead
of allowing them to enter the lymph spaces
(as they appeared to do in the human
in Panderowski's animals) cause their de-
struction before they could infect with their
pathogenic influence.

In taking leave of this interesting subject
Lundy stated that Dr. Newland had gone largely into
detail in giving the results of the various
phases writings in human beings so that
the evidence with regard to Rhys's serial
has not taken any position in English
Medical Literature.

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