

attention to the skin, becomes more than vacillating, since, among the great masses of proletarians who live crowded together in large cities, tuberculosis would have to be still more frequent than is actually the case. Entire houses, and even streets, in which these poor people are huddled together, ought to be tuberculous, a circumstance which, so far as I am aware, has never been observed in any city.

These external causes may be of the utmost importance for children who bear the germ of tuberculosis, and increase and aggravate the kind as well as the number of the single exacerbations; where, however, the former does not exist, the children certainly develop slower, remain pale, lean, and small, yet do not exhibit tuberculosis, nor even scrofulosis.

Let us consider the affair from the opposite direction. In children of the opulent classes these external causes are entirely absent, and thus fewer children of the affluent ought to be tuberculous than of the poor who may have become so through the unfavorable circumstances under which they are situated. But, so far as the general survey reaches (these circumstances cannot be calculated by per cents.), it is found that children of the rich are not less frequently tuberculous than those of the poor, nay, more, the disease seems to occur oftener and more predominantly in the former class. This view also results in the fact, that by far less weight ought to be placed upon bad diet, residence, and inattention to the skin, than upon the hereditary disposition.

Although the external causes are of but slight importance in regard to generating tuberculosis in healthy individuals, it must nevertheless be acknowledged that they become powerful agents where the hereditary disposition exists. In this respect, however, other preceding diseases are of more importance, especially measles, syphilis, whooping-cough, and typhus fever. After these maladies, tuberculosis suddenly develops itself in children who formerly were apparently perfectly well. It most frequently comes on after measles; here it is such a frequent follower, that the assumption, that no child with an hereditary disposition is attacked by measles who does not subsequently become tuberculous or at least scrofulous, seems justifiable. This tuberculosis following upon measles distinguishes itself, from that of the spontaneously originated, by the fact that an arrest, and finally even a decided improvement, is much more frequently observed in it than in the latter kind.

B.—THE SCROFULOUS CACHEXIA.

By scrofulosis we understand a series of inflammatory processes upon the *skin* and *mucous membranes*, on the *organs of sense, sight* and *hearing*, in the *lymphatic glands*, and on the *bones and joints*,

which, anatomo-pathologically, *have no connection whatever*. They differ materially in their course from simple traumatic inflammations of these parts, and seldom occur singly, but in most instances on several parts of the body at the same time.

Examination of the affected parts alone, even without taking into consideration the entire state of the organism, often furnishes such peculiarities that the adjective "scrofulous" may be added to the name of the inflammatory process with the utmost surety. This remark is especially applicable to some of the diseases of the eye, to the ulcerating lymphatic glands, and the affections of the bones and joints, while most of the cutaneous eruptions, catarrhs of the mucous membranes, and otorrhœa, can only be recognized as being cachectic by the obstinacy of their course and complication with markedly scrofulous affections of other organs.

The opponents of the scrofulous diathesis theory, who obstinately shut their eyes against the manifest common and intimate connection between the affections just mentioned, fall back upon this argument in particular, that the *cachexia has not been shown to be present in the blood*. Singularly enough, they forget that, in none of the dyscrasias in general, neither in syphilis, nor in carcinoma, nor in tuberculosis, has it been possible to detect any thing specific in the blood; but that general diseases are here in question has been emphatically acknowledged by all thoughtful physicians.

The following principles must be maintained from a clinical point of view:

- (1.) There are certain chronic inflammations which have an intimate etiological connection.
- (2.) Children affected by them are, in greater part, the progeny of tuberculous parents; and
- (3.) These children very frequently become tuberculous after the appearance of puberty, even when the scrofulous phenomena have disappeared long before.

Scrofula therefore seems to be the commencement—perhaps, also, an imperfect development of tuberculosis. According to my observations, which, unfortunately, on account of the difficulties attending upon the demonstration of tuberculosis in the parents, have never led to precise results, it occurs principally in families where one of the parents is healthy, but the other tuberculous. Where both father and mother are tuberculous, most of the children perish in the first few years of life, from true tuberculosis, and overleap these milder transitions altogether.

As regards the general symptoms of the so-called scrofulous dia-

thesis, most of the signs classified under it are merely the simple effects of the local processes, and do not depend upon any particular inherited anomalies of the constitution. This is also the reason why the delineation of the so-called scrofulous *habitus* cannot be comprised in one picture, but must be given in two forms, the erethitic and the torpid.

On close examination it is seen that the description of these two forms is reduced to extremely vague statements. Thus erethitic scrofulous children are said to have a slender frame of body, feeble muscular system, keen comprehensive abilities, delicate formation of countenance, fine eyes, bluish sclerotica, and dilated pupils. The torpid scrofulous diathesis, on the other hand, is said to be recognized by coarse features, large head, wide jaws, bloated nose and upper lip, reddened eyes, swollen lymphatic glands, and large abdomen.

In this delineation general constitutional derangements have been improperly thrown together with local morbid processes. The general characters are extremely unreliable, and in addition entirely incorrect; the local, the bloated nose and upper lip, reddened eyelids, glandular hypertrophies and tympanitic distended abdomen, are indeed local phenomena of scrofula, but they are not so constant as to be capable of producing the diathesis, and their absence or disappearance is by no means proof positive that the children are *no* longer scrofulous.

Children may, indeed, entirely get rid of their scrofulous habitus, of their adenitis meibomiana, of their tumefied nose and upper lip, which, in fact, are only caused by chronic catarrh of the nasal mucous membrane and its corroding secretion, and, after several months, again acquire the same or other scrofulous affections. So, then, the habitus will be present, or not, according as to whether these local inflammations happen to be present or have disappeared.

Now, so far as relates to the local processes, they are collectively distinguished by a tedious course, frequent relapses, and obstinate resistance toward all local treatment by cauterizations, cataplasms, and ointments of all kinds. The majority of them present such characteristic symptoms that they merit a separate consideration.

(a.) *Skin*.—Here the discharging eruptions, eczema, impetigo, and ecthyma, most frequently occur.

Furunculosis, which likewise attacks only children of tuberculous parents, has already been spoken of on page 512.

By eczema an inflammation of the skin is understood, in which a fluid exudation accumulates beneath the epidermis, and assumes the form of small, closely-aggregated vesicles spread over a large surface. An eczema simplex and rubrum are distinguished according as the adjoining portions of the skin are strongly or slightly erythematous

and tumefied. The name of eczema impetiginodes has been bestowed upon a variety in which the vesicles are larger and filled with pus. No particular forms, of course, can be assumed, for all the three forms, or, at least, one after the other, may very readily occur in one person.

Symptoms.—In all cases, when the vesicles and pustules burst and dry up, yellow scabs form, which are elevated by the succeeding exudations, and the previous desiccating processes begin anew in the same manner. The crusts on the scalp become much thicker, by agglutination with the hairs, than on other parts of the body. The secretion occasionally becomes so profuse that large drops of turbid serum ooze out from some of the existing cracks and fissures of the crusts, and may even flow down. This exudation also corrodes remote parts of the sound skin, and upon these a similar suppurating eruption may originate.

Eczema has no special connection either with the glandular or with the follicular apparatus, but is a pure inflammation of the cutis; it is most frequently met with in scrofulous children upon the head and face (*tinea capitis*, *porrigo*), but, after all, does not wholly spare any part of the skin. After from four to eight weeks, a spontaneous recovery usually ensues; generally, no one place suppurates longer than half a year steadily. Where it has existed for more than four weeks, the adjacent glands will also be found enlarged, especially those of the neck; for, as has already been remarked, eczema most frequently attacks the head. These glandular hypertrophies have the peculiarity of scarcely ever undergoing suppuration; but, after the eczema has been cured, gradually lessen in size, or remain slightly indurated for some time thereafter.

Eczema heals without loss of substance; but, on the hairless parts affected, a dark discoloration of the skin will remain, which disappears after several months. Relapses are of frequent occurrence.

Treatment.—The local treatment only will be discussed here, for the general will follow at the conclusion of the section. According to my thousand-fold observations, simple cleanliness, and, for the scalp, the removal of the hair, are entirely adequate to cure it. Even this last procedure is not absolutely necessary; it, however, accelerates the desiccation, and is of great benefit to children who are extremely annoyed by the agglutinated masses of hair and crusts.

Vain mothers, however, very unwillingly consent to have their daughters' hair cut off. It is true that children are much tortured during washing and combing of the hair, but it cannot be ignored that, even in this irrational, at times even cruel, treatment, a period finally arrives where no new exudations take place, and a normal skin makes its appearance after the dried scabs have fallen off.

The crusts are best removed after soaking them with oil; they thereby become soft, and may be taken away without causing any pain. The severe itching of the skin causes the patients to scratch themselves incessantly, but this also may be prevented to a certain extent by cutting their finger-nails as short as possible twice a week.

By *impetigo* we understand an inflammation of the skin in which small and large pustules spring up on an erythematous base, and then dry up into thick yellow or brown scabs. The exudation goes on beneath the crusts, elevates them, and for some hours the inflamed corium lies exposed, but soon becomes covered with new crusts. The course, the rest of the symptoms, and the local treatment, differ in no respect from those of eczema.

By *ecthyma* and *rupia*, large solitary pustules are understood, which give rise to temporary brown scabs, and then usually pass over into torpid ulcers. In most instances the inflammatory areolæ are insignificant, but, when the cachexia is very well pronounced, they become bluish red. The ulcers that form after the scabs fall off discharge hardly any secretion; indeed, are almost dry, but nevertheless heal very slowly, and frequently last until death. This eruption occurs only in emaciated, atrophic children.

Treatment.—An attempt should be made by the aid of stimulating ointments, ung. digestivum, or by lightly pencilling them with nitrate of silver, to induce a strong reaction in the torpid ulcers. The local treatment, however, remains fruitless, if no constitutional improvement can be brought about. The remedies which are indicated will be prescribed at the conclusion of the section.

Besides these vesicular and pustular eruptions, the corroding tetter, *lupus*, is yet to be described as being peculiar to scrofulosis.

Symptoms.—Lupus occurs in children under all the four forms which dermatology teaches. We have (1), a *L. exfoliata*; (2), *L. tuberosa*; (3), *L. exulcerans*; and (4), *L. serpiginosus*, or *ambulans*.

Lupus exfoliatus consists in large and small hypertrophied spots on the integument, having glistening ground-off upper surfaces, which constantly desquamate, and induce an intolerable itching. In color, these hypertrophied spots vary from a rosy to a bluish red. The induration is more marked than the projection above the level of the normal skin.

Lupus tuberosus differs from the first form only by the greater prominence of the tubercles, which, by aggregation, may swell up into large, bluish-red tumors, and sometimes feel hard, but sometimes also fluctuate. The desquamation and color are the same in character as in the first.

Lupus exulcerans, also called phagedænicus, seldom originates

primarily as such, but generally develops itself from one of the forms just mentioned. It is characterized by hard cutaneous exudations, which rapidly liquefy, and leave behind deep, uneven ulcers. These ulcers discharge no pus, but a brownish ichor, and heal extremely slowly. They penetrate into the deeper structures, and do not spare even the bones. The crusts which, by the diminution of the discharge, form from time to time, are usually soon cast off.

Lastly, *lupus serpiginosus* is distinguished by the formation of deeper ulcers, which constantly become larger and larger by the disintegration of the new exudation deposited in the edges of the ulcer, while the parts first attacked contract, become flat, and assume a healing action. The cicatrices always remain white, depressed, and corrugated, and the loss of substance, especially when the lupus was located on the nose or eyelids, is very disfiguring.

None of these four forms ever occur in the healthy, but only in the cachectic, and, in fact, chiefly in well-pronounced scrofulous, less frequently in syphilitic children. Their site is preferably in the face, most frequently on the nose, next on the cheeks and lips, very rarely on the trunk and extremities.

The course is very chronic, and, in most instances, it takes years to cure them; the loss of substance is always considerable, and the cicatrices are visible all through life.

Treatment.—The local treatment of lupus, especially the corroding form, is of great importance. It is absolutely necessary to put a stop to the progress of the evil by a systematic course of cauterizations. Nitrate of silver is not powerful enough for these cases, and we have to resort to arsenic or chloride of zinc paste. Dupuytren's arsenic powder (ninety-eight or ninety-nine parts of calomel and one or two parts of white arsenic) is especially adapted for superficial cauterizations, when not too near the mouth and nasal passages. The ulcer should be cleansed, and the powder applied one-third or one-half a line in thickness, over which a layer of gum-arabic powder should be spread; the moisture of the ulcer soon converts the whole into an adherent paste. After from eight to ten days the paste falls off, but, in most instances, has to be reapplied several times.

Chloride of zinc paste is less dangerous on account of possible poisoning, and none the less efficacious. One part of chloride of zinc is mixed with two or three of starch-powder, stirred up with a few drops of water, and then applied upon the cleansed ulcer. The chloride of zinc corrodes to a depth equal to the thickness of the layer. The cauterization has to be renewed, after the eschar falls off, until a fine, granulating surface appears.

Without an internal treatment with cod-liver oil, continued for

years, not even temporary relief will be attained by the most powerful escharotics. It is hardly necessary to state that it is not practicable to apply the chloride of zinc paste without anæsthetizing the little patient.

(b.) *Mucous Membranes and Organs of Sense.*—The morbid alterations of the organs of sense, with those of the mucous membranes, generally are treated together, because in scrofulous affections the organs of vision and hearing invariably participate in great degree with their mucous membranes.

The mucous membrane of the mouth and alimentary canal displays no characteristic scrofulous affections. Bronchial catarrhs, so frequent and tedious in scrofulous children, are much more probably produced by actual tuberculosis of the lungs than by scrofula. Likewise in the uropoëtic system no particular derangements occur; in the vagina, however, a tedious leucorrhœa is often observed in scrofulous girls, a more detailed description of which has already been given on page 468.

Marked scrofulous lesions occur only on the mucous membrane of the *nose*, of the *eye*, and of the *ear*.

N O S E.

A suppurating eruption, eczema, or impetigo, very frequently attacks the nasal cavities at the place of transition from the mucous membrane into the cutis, in consequence of which the former becomes hypertrophied, and discharges a large quantity of corroding secretion. The nasal cavities are finally totally occluded by the crusts, which constantly become thicker and thicker; the tip of the nose swells up, and the acrid secretion that flows down over the upper lip produces a chronic inflammation and infiltration of the integument of these parts. The tumidity of the nose and upper lip is of such frequent occurrence that the scrofulous diathesis is usually diagnosed by it.

Although it cannot be denied that children so constituted are always scrofulous and suffer from still other scrofulous affections, nevertheless it does not follow that those who have no swollen nose and upper lip are not scrofulous too. This affection is by no means so frequent that it might be identified with the scrofulous diathesis.

The recovery requires months, and even years, and, when the eruption has finally disappeared, the infiltration of the cutis yet remains for a long time. These simple eczemas have nothing in common with lupus, polypous growths, and purulent coryza, or ozæna, nor do they generally pass over into such conditions.

Scrofulous ozæna consists of a bloody, purulent discharge from one or both nares, and is distinguished from the affections of the mucous membrane just described by the never-absent pungent smell of the mat-

ter that flows from the nose. It is also very tedious, disappears sometimes for several weeks, and then returns with its former severity. In most instances a periostitis of a part of the nasal bones is at the bottom of this complaint, and small necrosed pieces of bone are also occasionally discharged. This sufficiently explains the intense odor and the protracted course.

Treatment.—Injections of cold water or weak astringents render essential service when the children become large and sensible. In small children, who obstinately resist these measures, we have to be content with the use of a weak ointment of red precipitate (gr. iij to lard 3j), introduced into the nose by the aid of a thin bourdonnet. Here, also, the general treatment is the principal consideration.

E Y E.

The Meibomian glands on the lids very frequently ulcerate. Many hordeola form, part of which pass over into suppuration, and part into induration. The adjacent parts of the eyelid are here swollen, and quickly become excoriated in consequence of the accumulated augmented secretion. This affection likewise lasts several months, and often terminates with total or partial loss of the cilia.

After several days these phlyctenulæ burst, the vessels running to them atrophy, and soon disappear altogether. When this process is completed, no permanent injury to the eye, nor any visible residue, is to be observed. But the case is entirely different where the cornea has been affected.

Keratitis scrofulosa presents itself either as a simple further development of the vessels of the sclerotic conjunctiva upon the cornea, so that radiating vessels run to it at one point, or around its whole periphery, or large or small ulcers form at some one point on the cornea.

These corneal ulcers likewise originate from pustules, which correspond to the phlyctenulæ of the sclerotic; here, however, they burst uncommonly quickly, and, in a short time from the commencement of the evil, no pustules are to be seen on the cornea, but, instead, a small, visible, shallow depression, the result of a loss of substance, around which the cornea appears hazy or of a milky opacity. The ulcers thus originated, of which several often appear at once, require a long time to heal up. The place where they were situated often looks as if ground off, but the smoky opacity of the base of the ulcer and its vicinity does not disappear for many years, or remains visible all through life—macula cornea.

In strongly cachectic individuals, the ulcers may penetrate deeper and deeper, and finally perforate the cornea. If the ulcer was situated

centrally, so that the perforation, after the escape of the water from the anterior chamber of the eye, could not be closed up by the iris, phthisis bulbi generally ensues. But if the ulcer was situated more peripherally, then the iris prolapses, becomes covered with exudation, and the patients recover with a deformed pupil, by which the power of vision is but little diminished. At the place of union between the iris and cornea, a white spot with a black central point forms, from which a staphyloma may subsequently develop itself.

Perforation by the scrofulous ulcers seldom occurs; on the whole, hardly one out of a hundred perforates, and, of those which do, the favorable termination of prolapsus of the iris occurs comparatively often.

Blepharospasmus, spasm of the lids, is very characteristic of scrofulous inflammations of the eye. It is produced by the great intolerance of light, which is absent in a small number of cases only. Children will not open the afflicted eye throughout the whole day; during daylight they hide themselves in dark corners and rooms, keep their hands before the face, and hinder as much as possible the penetration of light into the eye. Although it must be acknowledged that compliant, obedient children, after much persuasion, are finally induced to open their eyes for a moment, or at least submit to have them opened, nevertheless, in other cases, the penetrating light produces such violent irritation that the child, with the utmost desire to open its eyes, is unable to do it. Such a child may indeed be secured by assistants, and the lids forcibly torn apart by the hands, but some bleeding from the angles of the eye and swelling of the lids are always produced thereby.

Therapeutically, this violent tearing open of the lids is of no use whatever, for the treatment remains the same whether there are any ulcers or not; a palpable harm, however, may result from the marked swelling and unavoidable bruising of the lids. In regard to the prognosis, this procedure may be of more importance; for a perfectly favorable prognosis may be given to the profoundly afflicted parents, when none or only a peripheral ulcer of the cornea can be discovered.

The intolerance of light is not always in exact relation to the material alteration of the cornea; the former is often present to a high degree, and the latter structure entirely intact. Along with the intolerance of light there is always profuse lachrymation, and the tears, in common with the friction and constant pinching of the eyelids, the result of violent contraction of the orbicular muscle, soon produce a humid vesicular eruption of the whole moiety of the face.

Scrofulous inflammations of the eye relapse extremely often—it may almost be said, invariably. It takes at least half a year—

often, however, many years—before the subjects attain to such a condition as to properly enjoy life again. The violent, continuous pains, by which these affections are accompanied, usually produce also some fever and loss of appetite, upon which a visible emaciation of the whole body supervenes.

There is a very peculiar alteration of the ciliæ in chronic scrofulous inflammations. At first they grow to a singular length and thickness, but thereby lose their plain, arch-like curve, and become undulating, almost curled. Later, all these degenerated eyelashes fall out, and are replaced by fine, small, sparsely distributed hairs, which remain for life.

The alternating character of the different local manifestations of the cachexia is seen most distinctly in scrofulous ophthalmia. The corneal ulcerations may persist for many months, and constantly grow worse in spite of all local and general treatment, when, suddenly, an eczema attacks the head, or an otorrhœa, or a bronchitis, or a scrofulous affection of the bones, supervenes, and the obstinate inflammation of the eyes is completely gone in a few days. Intolerance of light, lachrymation, and vascular injections, have vanished, as if by magic, nothing but an opacity of the cornea remains, which, with the exception of producing a diminution of the power of vision, has no further bad effects.

Treatment.—Notwithstanding all rational and irrational, painful and painless, old and new remedies, which ophthalmologists have recommended in large numbers, there is still no method of treatment which notably exercises an aborting and mitigating effect upon the course of this pertinacious evil.

The eyes should not be allowed to be bandaged; a green shade, however, is beneficial. All ointments and collyria are, so long as redness and pain exist, injurious, and increase the irritation. There is nothing better for this inflammatory stage than tepid-warm, distilled water, with which the eye may be bathed and irrigated every hour. Cold applications, in most cases, aggravate the pains and redness.

The patients should not be encouraged in their efforts to entirely avoid the light. They should be provided with a plain shade—umbra-culum—and be confined in a darkened room. Some benefit is derived from dropping into the eye a drop or two of a concentrated solution of atropine (gr. j to water ʒ ij) several times daily, and from the internal use of the extract of belladonna, of which gr. ss. may be given in the twenty-four hours. Immersions of the head in cold water have a decidedly beneficial effect upon the blepharospasmus; it is, however, but a few hours in duration. These procedures

can only be executed under the violent struggles of the children and their parents; and the usual consequences are, that the former are not to be found when the time comes for the next immersions. I have therefore given up this somewhat brutal treatment for the last few years, and I think the results have been quite as favorable.

When the patients are not intensely tainted with tuberculosis, which is not the case, as a rule, they will tolerate inunctions of blue ointment very well, and a tolerably good, although not always more rapid course, is observed from this treatment. ℞ss—℞j of blue ointment is rubbed in upon the forehead daily, over which a broad bandage must be tied, for otherwise the children will smear themselves all over with it, and the ophthalmia becomes aggravated if any of the ointment gets into the eye.

Against severe pain, sleeplessness, and general excitability, morphine will always prove to be the sovereign remedy. I generally cause gr. ss. to be dissolved in ℥ iij of water, and of this solution give half-teaspoonful doses, according to necessity. No bad consecutive effects can be perceived from such small doses of morphine; leeches, which formerly were often resorted to, likewise, on account of their pain-assuaging effects, may, however, cause much harm through consecutive anæmia.

When the course is an obstinate one, and no cutaneous eruptions are present, a rapid, remarkable improvement of the affection of the eyes may occasionally be seen from the production of pustules by tartar-emetic ointment. The Autenrieth's* ointment, however, is a totally inappropriate preparation for the purpose of attaining this end. The patients scratch the places where the ointment has been applied, and then rub their eyes with the soiled fingers, by which they palpably aggravate their ophthalmia. For a number of years back I have been in the habit of applying to the nape of the neck a mixture of one part of tartar. stibiat. and three parts of empl. citrin., smeared upon strips of adhesive plaster to the thickness of the back of a knife. At the end of four days the plaster may be removed, when a number of pustules will be found to have formed, which may be kept in a state of suppuration for a long time by the use of ungu. sabinæ.

Against the blepharitis and adenitis meibomiana, desiccating or slightly stimulating ointment may be resorted to. Here the white precipitate (gr. ij—iv to adēpis 3j) and ungu. zinci are especially serviceable.

As has already been observed, all these remedies have no decided effect, and the principal procedure is always a year's continued, circumspect, general treatment.

* Ung. antim. et potas. tart.—Tr.

E A R.

Scrofula furnishes the chief cause for affections of the ear, especially chronic otorrhœas, the termination of otitis externa and interna. Diseases of the bones of the meatus auditorius, and of the petrous portion of the temporal bone, occur almost altogether in children of tuberculous parents, and are combined or alternate with other local affections of the cachexia. The morbid conditions belonging here have already been delineated in detail on pages 427 to 433.

(c.) *Lymphatic Glands and Subcutaneous Cellular Tissue.*—Swellings of the glands are of extremely frequent occurrence in scrofulous children, in most instances produced by adjacent affections of the mucous membrane, or of the integument. The lymphatic glands of the neck swell up most frequently; those of the axilla and groin not quite as often.

Pathologically, a distinction may be made between simple hypertrophy and tuberculosis of the lymphatic glands; practically, however, no such distinction can be maintained. One may often see that a child becomes affected with glandular swellings in the neck in consequence of an eczema of the head, and that these glands, which originally were simply hypertrophic, nevertheless, after the eczema has long been cured, pass over into suppuration, and become tuberculous. It is scarcely possible to separate the scrofulous from the tuberculous glands, for the transition of the former into the latter occurs gradually, and does not manifest itself by any precise symptoms.

Pathological Anatomy.—Numerous extirpations of hypertrophied glands, and multiplied *post-mortem* appearances, have shown that simply hypertrophied and tuberculous infiltrated glands may occur in the same person.

In the *simply hypertrophied* glands there is but a slight alteration of structure. The longer they have existed, all the firmer and denser becomes the substance. The superficial surface, in most instances, is very vascular; when cut into and compressed, a turbid fluid may be squeezed out, which, under the microscope, exhibits the characteristic glandular element, numerous granules, a few cells, and some connective-tissue fibres. Occasionally smaller and larger cavities, with clear contents, occur scattered throughout the parenchyma of the gland.

The *tuberculous glands* are always at the same time enlarged, and, on section, display either small hyaline, gray miliary tubercles, or large yellow tubercles, and aggregations of tubercles. In the severest form of the evil almost the entire glandular parenchyma will disappear, and be supplanted by a tuberculous mass. Suppuration is the usual termination of tuberculous glands; calcification seems to