ment with arsenic. Devergie recommended ferr. sesquichloratum, 6–8 drops t. i. d., in sugar water, v. Baerensprung the internal application of chlorate of potash. With regard to the second indication, many authors emphasize the injurious effects of baths, while Hebra employed water advantageously in various ways, such as cold douches and baths, hydropathic packs, a water-bed (*i. e.*, constant stay in water of the temperature desired). Devergie and Hebra also recommended baths with corrosive sublimate, 4.0–10.0 per bath, with caustic potash, 50.0, with carbonate of soda, 100.0–150.0; also the application of the oil of cade and a subsequent prolonged bath. Hillairet recommended linimentum calcareo-oleosum and the application of cotton, *i. e.*, the same treatment as in burns. In other cases, the application of dry dusting-powders is sufficient. Disinfecting or astringent gargles may be used profitably to meet the fourth indication.

CHEIROPOMPHOLYX.

Under this name, J. Hutchinson described a disease the severer forms of which occur chiefly in women. It begins with itching and burning in the fingers, and in a few (two) days vesicles develop rapidly and symmetrically in the integument of the fingers and vola manus, looking like swollen grains of sago. Larger vesicles are also present. The feet are often affected in the same manner, but usually somewhat later than the hands. A temporary erythematous eruption (rash) and pruritus occasionally develop over the body at the same time. The vesicles form without any inflammatory symptoms, and their contents disappear in a short time. The disease is followed at times by a peculiar change in the nails;[1] they are undermined and break in the vicinity of the root. Relapses always occur in this affection. It occurs almost exclusively in adults, particularly in nervous individuals,[2] but sometimes in vigorous persons, during and after protracted mental activity. The contents of the vesicles at first are neutral, later acid; sulphuric acid produces a whitish precipitate.

Anatomy.—Robinson[3] gives the following description of the microscopical appearances. The collection of serum takes place between the upper layers of the rete Malphighi (stratum granulosum ?), and the rete-cells forming the floor of the vesicle are flattened, in places elongated. The roof of the vesicle, formed of rete-cells, has a variable thickness. There are no changes in the papillary vessels. The formation of the vesicles corresponds to the arrangement of the papillæ; the smallest vesicles coalesce into larger ones by the atrophy of the intervening cellular wall. The clear fluid contents are rendered opaque, at a later period, by an increasing number of round cells, the papillary vessels become dilated, and a round-cell infiltration occurs in the papillæ. The layer of horny cells becomes macerated, although the roof of the vesicle does not burst, and insensible evaporation of the contents thus occurs. The rete layers on the floor of the vesicle are also infiltrated with round cells in the later stages. There is no change in the subcutaneous connective tissue or the sweat-glands. These appearances combat the term dyshidrosis chosen by T. Fox for this affection. T. Fox and R. Crocker[1] found dilatation and marked sinuosity of the execretory ducts of the sweat-glands; the vesicles formed in the papillary layer of the rete, and here and there were connected with the sweat-glands; the vesicular contents consisted of granular and cellular masses. In some places, the coils of sweat-glands were enlarged.

Diagnosis —Hebra regarded this disease as a vesicular eczema, but it is distinguised from this disease by its restriction to the parts mentioned, and by the relapses and more marked nervous phenomena.

Treatment.—As the disease recovers spontaneously, symptomatic treatment of the pruritus is alone indicated.

[1] Thin, British Med. Journ., Dec., 1877. Liveing, ibid.

[2] The following must be regarded as abnormal cases of cheiropompholyx: A woman sufferlng from nervous hemicrania was affected with lancinating pains in the inner side of the right middle finger. A large vesicle soon developed, followed by several relapses in the same place (Behse, Petersb. Med. Ztg., 1869, Bd. x., S. 321). Rendu (Ann. de Dermat., Vol. vi., p. 201, Obs. 34) reports the following case: A woman is affected from time to time with chilliness, malaise, temp. 39–40°, at intervals of one to two weeks. After the fever, marked redness develops in the hands and lower limbs, with tension, throbbing, sensitiveness, and burning, as in erysipelas. General diaphoresis occurs during the painful œdema. Soon afterwards, vesicles of various sizes, arranged chiefly in groups, appear symmetrically upon the palm of the hand, sides of the fingers, the lower limb, and inner side of the foot; they are filled at first with serous, later with purulent contents. They persist for two to three days; then the skin becomes pale, crusts form, and marked desquamation. Lymphangitis occasionally develops later, sometimes with suppuration of the glands.

[3] Arch. of Derm., Vol. iii.. p. 291.

IMPETIGO HERPETIFORMIS (HEBRA). HERPES GESTATIONIS.

The disease described by Hebra as impetigo herpetiformis belongs to the series of pemphigoid affections, as a connecting link between acute pemphigus and the chronic form (pemphigus foliaceus). Hitherto it has been observed exclusively in women during pregnancy.

Milton[2] reports a case in which during several pregnancies (in the fourth month) bright-red, slightly elevated plaques, from the size of a pea to a walnut, appeared upon the inner side of the arm; pointed vesicles, usually in groups of two to four, were often situated upon the patches. The violent pruritus gave rise to insomnia. The contents of the vesicles soon became cloudy, and the affection rapidly extended over the trunk and the other limbs; general malaise and great irritability were also present. Premature delivery occurred during the sixth month. New pustular eruptions developed after delivery, but complete recovery occurred soon afterwards. E. Wilson[3] reported a similar case.

H. Auspitz[4] described a fatal case under the term herpes vegetans, because here, as in certain cases of pemphigus, papillomatous proliferations formed in some of the affected spots. J. Neumann published a similar case, but without any proliferation, under the name herpes pyæmicus. Hebra[5] applied to the disease the term impetigo herpetiformis, on account of the clinical appearances. Pustules develop in bunches, occasionally vesicles with contents which become cloudy; these become incrusted. Under the desquamated crust the skin appears reddened, destitute of its horny layer, shining, occasionally moist, but never ulcerated; secondarily, the tense, somewhat infiltrated skin may fissure in various places, especially around the joints. By the development of new groups of pustules upon other parts of the body, and the extension of the pustular process in the neighborhood of a group already present, the affection spreads over the larger part of

[1] Med. Times and Gazette, 1878, T. i., p. 632.

[2] Journ. of Cutan. Med., Vol. i., p. 311.

[3] "Skin Diseases," 6th ed., p. 294.

[4] Arch. f. Derm., 1869, S. 246.

[5] Wien. med. Wochenschr., 1872, No. 48; and "Lehrbuch," II. Aufl., Bd. i., S. 654.

the integument, especially the anterior surface of the thorax, the abdomen, and thighs. No part of the integument escapes, even the buccal mucous membrane may be affected.

The hair and nails often fall out during the course of the morbid process. Extensive pustular eruptions begin with a chill, often considerable increase of temperature, insomnia, restlessness, etc., as in a septic affection.

If the pregnancy has reached its normal or premature termination by delivery, the disease, as a rule, does not stop at the same time. In the majority of cases observed in Vienna, the disease terminated fatally. I saw one case end in recovery, several weeks after delivery.

The mildest form of this usually finely-vesicular pemphigus gravidarum is that described by D. Bulkley[1] as herpes gestationis, and by Smith[2] as hydroa gestationis. It occurs usually in the latter part of pregnancy, with violent pruritus and pains; red patches and papules appear, upon which vesicles, often of considerable size, are arranged in groups, at first upon the limbs, later over the entire body. The general condition of the patient is tolerable. The disease returns ordinarily in subsequent pregnancies.

Anatomy.—Neumann[3] has observed considerable dilatation of the vessels, particularly the veins and lymphatics; an abundant infiltration of round cells is present in the cutis, and the cells of the sweat-glands are increased in number.

Etiology.—The more intimate internal relations of this variety of pemphigus are as little known as those of pemphigus in general. The prognosis varies greatly according to the extension of the disease, the febrile symptoms, the various grades of the exudative process, whether small or large vesicles or pustules, the more rapid or slow loss of vitality.

I have seen a case of impetigo herpet. mistaken for a general pustular eczema.

Treatment.—The disease is affected very little by therapeutics, and the internal treatment is merely symptomatic and roborant, according to ordinary general indications. External treatment is directed against the accumulation of pus underneath the crusts by means of ointments, protracted and permanent baths; against the pruritus, by tar, liquor picis alkalini, Bulkley (pic. liq., 8.0; kali caust., 4.0; aq. 20.0; one teaspoonful to about 100.0–150.0 of water), belladonna, opium, and hydrate of chloral ointments, etc.

[1] Amer. Journ. of Obstetrics and Diseases of Women, Vol. IV., No. 4.
[2] Dubl. Med. Journ., 1881.
[3] "Hautkrankheiten," V. Aufl., S. 267.

CHRONIC INFECTIOUS DISEASES OF THE SKIN.

BY

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GENERAL INTRODUCTORY REMARKS.

CHRONIC infectious diseases comprise a group of affections the origin and course of which are dependent upon organized infectious matters which reproduce themselves within the body. These infectious matters have as their common and chief characteristic a generally *slow* power of increase in the human organism, thus rendering the *typical course of these affections a pronouncedly chronic one.* Their effect manifests itself in inflammatory processes which subsequently, under the specific influences of the virus, have a course and termination specific of each disease; thus these chronic inflammatory processes finally represent new formations ("tumors") which, owing to their peculiar course, have long been separated as a special family of diseases.

This class comprises, besides the diseases of the skin with which we are specially concerned, viz.—

1. *Tuberculosis.*
   - *a.* Miliary tuberculosis of the skin.
   - *b.* Scrofuloderma, to which I add
   - *c.* Lupus vulgaris.
2. *Lepra.*
3. *Syphilis.*
4. *Mycosis fungoides* (Alibert).
5. *Frambœsia tropica* s. Polypapilloma tropicum (Charlouis)—the following diseases, which we shall have to refer to at some points for the elucidation of contested questions. They are:
6. *Glanders.*
7. *Actinomycosis* which, discovered by Bollinger in animals, has also been recognized as a disease of the human species.
8. *Lymphosarcoma,* which has been recently included by Cohnheim among the granulation tumors on an infectious basis.

9. *Trachoma,* which, as has been already indicated by Virchow, must obtain its place in this class.

10. Also the proliferations occurring in parasitic sycosis, in kerion Celsi, and those in diabetic forms of balanitis (perhaps also the Madura foot, the *Aleppo bubo,* and kindred diseases) are by right to be incorporated into this group of diseases, because they represent granulation tumors due to parasites (mycelia).

The name "granulation tumors" has been applied by Virchow to this group of tumors on account of their resemblance to the cell masses of inflammatory granulations. In all these forms it is mainly, but not exclusively, the connective tissue and similar parts from which the new development arises. It usually ends in the development of numerous, generally small round cells with, as a rule, comparatively large nuclei; they bear a certain resemblance to the so-called lymph-cells. Virchow proposed for them the name "*granuloma.*"

The main question at issue—whence do the cellular elements of the neoplasms arise?—is still the object of spirited controversy. Beside Virchow's old doctrine, that the cells are derivates of the fixed tissue elements, that of Cohnheim, relative to the origin of inflammatory cells from emigrated white blood-corpuscles, has gained adherents also in explanation of these tumor cells; we likewise hold it to be most probable that the cells of granulation tumors are essentially white blood and lymph corpuscles which, after inflammatory alteration of the vessel walls, have emigrated and now form the material for the further growth of the tumors.

But a striking advance has been effected by the *elucidation of the etiological factor.* To Virchow the etiology was not the fundamental point in the consideration of the structures under discussion. The idea of "infectiousness" for the majority of the affections was superadded subsequent to Virchow. Thus it was Klebs who created the name "infection tumors" for granulomata; Cohnheim (p. 704) accepted it; Ziegler united the histological and etiological parts in his designation, "infectious granulation tumors." We are fully justified in designating this group as chronic infectious diseases in view of the finding of bacteria and other fungi in tuberculosis, leprosy, actinomycosis, glanders. We prefer the latter title, as a class name, to the above-mentioned "infection tumors," etc., because the "character of tumors" is frequently absent in the pathological process; ulcerations, and inflammations of acute course, manifest themselves in the various stages of the affection, for instance, in some forms of syphilis, in actinomycosis, etc.

It requires no special emphasis that the idea of infectious, does not coincide with that of contagious diseases.

To be sure, the view here expressed is not as yet demonstrable in all points and for every single disease. But it conforms more to anatomical and clinical experience, and is much better supported than any other attempt at explanation.

I am inclined to believe that, even for the purpose of a text-book the understanding will be better served by a harmonious standpoint than by a sceptical separate consideration, even if justified in itself.

The classification of Hebra-Kaposi rests on purely clinical principles and describes lupus under "cellular new-formations" (Cl. VIII.); leprosy, carcinoma, sarcoma, under "malignant new-formations" (Cl. IX.); finally hard chancre in Cl. X., "cutaneous ulcers" or "ulcers due to specific inflammation." This is really no classification, but merely a juxtaposition according to comparatively external factors.

Nor can we concur fully with the system erected by Auspitz, although essentially it agrees totally with ours.

His Class VIII., chorioblastoses (anomalies of growth of the corium and the subcutaneous connective tissue of the skin) contains, under B, paratypical growth, etc., paradesmoses, all the affections intended to be discussed in this chapter.

But if we enter more fully into the principles on which this classification is based, we shall have to ask ourselves how the above system could be erected; for instance, how (without regard to the etiology) lepra maculosa and anæsthetica, in which there is no mention of "granulomas of the skin," comes to be placed by the side of lepra tuberculosa. For as a matter of fact, Auspitz starts "from the point of view that in this class the granular infiltration, in the above-mentioned sense (*i. e.,* granuloma formation), constitutes the essential feature of the process." Despite this *anatomical* standpoint, he furthermore united in this class all *anatomically different* processes incited by syphilis, thus putting the *etiological* conception of disease quite into the foreground. It would require a detailed explanation that we must also protest against the intention to designate by the name "lupus" (already current for a "disease") all granulomas of the skin, that hence we could not agree with his view of a lupus scrofulosis, lupus syphiliticus (lupus leprosus, according to the Spanish school), were it not that Auspitz himself adheres with obvious tenacity to-day to this formerly advanced view.

Against this view Kaposi already had raised objections from clinical standpoints, indicating the differences in appearance, course, spread, treatment, etc., between the ulcerous syphilide and the genuine lupus. Even if we admit that the differential diagnosis is often very difficult, perhaps momentarily impossible, still such temporary embarrassment is not in itself ground sufficient to place so near to each other totally different morbid processes. For they are truly different morbid processes, even if in both affections the *first* anatomical stage is represented by heaps of granulation cells. We have accepted the class name "granulation tumors" only on the ground of the *development* of these cellular tumors which all *spring from* the same material (granulation cells). For as regards the *further* anatomical relations we are forced to differ from Auspitz when he says: "The histological examination of these new-formations has not been able hitherto to demonstrate a thorough difference between the several forms." Of course, this is true for the *first* stages of the tumor formation in which the similar cells, derived from the same source, are still undeveloped; it agrees also with some of the *terminal forms* with their altogether similar necrotic masses (tuberculous cheese and gumma detritus). In the *intermediate stages,* however, the microscopic-histological differential diagnosis (even without regard to the micro-organisms) between tuberculous, syphilitic, and leprous products is seldom attended with difficulties. And what at times does not succeed with the microscope can often be decided with certainty by macroscopic inspection.

But the most important factor is the *etiological* difference. *Syphilis has a specific virus, so has leprosy, and also tuberculosis.* Therefore, the diseases produced by them have nothing in common, even if the most conspicuous resemblances appear in their products.

Lupus we interpret as a form of the tuberculous infection.

It may be an inconsistency on our part to retain the name "lupus," instead of saying "tuberculo-derma." But the name lupus is so firmly established and so little liable to lead to misunderstanding that we may retain it. For us, lupus is a *tuberculosis* of the skin; it is erroneous, therefore, to speak of a lupus syphiliticus; all the more because this term offers no advantages, very frequently leads to mistakes, and is directly opposed to the principles now prevailing in dermatology.

Our next task is divided into two parts. First, we must demonstrate the mycotic character of these diseases, on the one hand by the microscopic proof of organisms in the new-formations which may be called the inciters of infection, on the other by the experimental demonstration that by the inoculation of its organisms the disease may be reproduced at will in the animal body. In the case of tuberculosis we are indeed able to fulfil this requirement in its entirety; in leprosy we know the parasite, but there is no final proof of its pathogenetic effect—cultivation outside of the animal body and successful inoculation of a healthy organism. In a third group (syphilis, glanders, framboesia) we

shall have to be content with the demonstration that the symptomatology bears the character of a parasitic infectious disease.

As it is not possible to discuss all the questions belonging here in connection for all diseases, I have brought them together in each affection under the head of "General Pathology."

The second part of our task will consist in tracing the connection of the local new-formation with the pathogenetic parasite. This requisite, I believe, it will be possible to fulfil exactly as regards the leprous disease. In general, the following axioms may be maintained: The local effects caused by the immigrated bacteria may be traced back to two factors, which indeed are very changeable in their importance for the pathological process in the several affections; now one, now the other preponderating, perhaps also one not becoming obvious at all. *But in every case the final product, the effect, for every species of bacteria is a specific one; the pathological processes in themselves have absolutely no specific character.*

1. One of the above-mentioned factors is an alteration of the vessel walls of the blood and lymph channels, especially the lymph sheaths inclosing the large vessels, leading to inflammation. Lymph-cells, white blood-corpuscles accumulate in the tissue, to serve, in their further stages of development, in the building up of the tumor. The process of cell production in itself, therefore, is not specific, and hence we cannot speak of a "specific inflammation." *But the future destination of the cells furnished by the vessels, which serve as the raw material, is specific for every form of disease and directly dependent upon the specific qualities of the respective virus.* There comes in question here, first, the acuteness of the inflammatory cell production and its relation to the vascular development which may proceed in more or less adequate proportion; second, especially the direct, immediate influence on the several cells exerted by the immigrated bacteria. These modify the normal course of the inflammatory connective-tissue development in a specific manner, so that either an intermediate stage of the progressive cell development is maintained for a very long time, or specific degenerative processes run their course in the cells.

2. The virus acts not only on the vessel walls, inciting inflammation, but the tissue itself is implicated. Our knowledge of these "tissue processes" is still very slight, and relates in but a few points to the vascular connective tissue. Of the nerves, muscles, and glands we know only that they have perished in certain stages. Only in a single case (formation of the primary induration in syphilis) we shall have to speak of *productive* implication of the fixed connective-tissue cells. (The "granulation cells" we trace back, as above stated, to inflammatory lymphoid cells.) Otherwise we have to deal only with *necrobiotic* processes which are excited by the virus at an earlier or later period, in the connective tissue and its vessels.

There is no "specific" implication of the epithelium. Although the latter is frequently—especially in the initial stages—found very largely increased, it furnishes no characteristic signs of the respective granulation-cell tumor.

Thus we have to deal essentially with an inflammatory process in the connective tissue. The course of this inflammatory process, however, is an abnormal one by the influence of these very parasitical formations. It does not lead to new formation of connective tissue—but, whether by an alteration suffered at any time by the cell material itself or by the vascular development requisite for the nutrition of the cellular neoplasm, sooner or later the "tumor" perishes by the same organisms which have caused it.

The acuteness and the malignancy of this process depend directly upon the qualities of the instigators of the infection.

According to the infectious materials, we distinguish the following groups.

1. Tuberculosis.
2. Leprosy.
3. Syphilis.
4. Frambœsia tropica.
5. Glanders.
6. Actinomycosis.

As regards mycosis fungoides, we lack as yet every landmark on which to base the assumption of an infectious disease; according to its structure and its clinical course, it decidedly belongs to our class.

On the other hand, I certainly hold that lupus erythematosus does not belong to this group. The inflammatory cellular infiltrations occurring in it are inconstant, and at any rate do not form the essential feature of the pathological process; perhaps lupus erythematosus, like psoriasis, belongs to the epithelial affections.

I. TUBERCULOSIS, SCROFULOSIS, LUPUS.

General Pathology.—At the present time, tuberculosis, and with it scrofulosis, is the best-known chronic infectious disease of man, and the only one demonstrated with certainty.

Villemin was the first to class tuberculosis as an inoculable infectious disease; but his doctrine failed to secure universal recognition. Further inoculation experiments were made by different savants in the most variable manner. The experimenters introduced the material into the animals from all possible points, so that the following result was rendered certain. If tuberculous material be transferred to an (appropriate) organism, there is developed in it, in a typical manner, a tuberculosis which sometimes remains more local, at other times spreads through the body generally. Only specific tuberculous material is capable of communicating this disease. Non-tuberculous matters, or those deprived of their infectious quality, *never* produce tuberculosis. It was shown at the same time that the "predisposition" of some classes of animals was variable as regards the receptivity for the disease.

Klebs described a form of micrococcus as peculiar to tuberculosis and cultivated it. In the same way, Schüller has reported experiments in cultivation and inoculations with its result. A landmark has been furnished also by the interesting experiments made by Deutschmann, who, by leaving at rest inoculable tuberculous pus, separated it into a light wine-yellow serum inactive in inoculation, and a thick, tenacious sediment which produced tubercle. Recently, Damsch, in Ebstein's clinic, has been able to demonstrate tuberculosis of the urinary passages in the living, by successful inoculations into the anterior chamber of the eye of rabbits. Aufrecht alone has described microscopically specific bacteria in the tissues, without having been able to gain general recognition of his results.

But the credit of having finally elucidated the nature of tuberculosis belongs to Robert Koch, who furnished the incontrovertible proof that *a specific bacillus is the cause of tuberculosis and of scrofulosis.*

The proof consisted, first, *in the demonstration of a parasitic micro-organism in tuberculous neoplasms.* For this a new staining process had to be invented which culminated chiefly in the fact that alkaline solutions were alone appropriate. The method originally devised by Koch was very soon modified by Ehrlich, who found the alkalescence-producing factor in anilin oil (or, according to Ziehl, in carbolic acid). His procedure is as follows: The sections, or else the dry preparations made on covering glass and suf-