2.5 grams; Amyli, 50 grams); or sulphurated zinc ointment (Zinci oxidi, Lactis sulph., āā 2 grams; Ung. emoll., 30 grams). Alcoholic frictions with salicylic or carbolic acid (2 to 3 grams of the former, 1 to 1.5 grams of the latter in 100 grams of alcohol) often are quite serviceable; should they be found to irritate the skin, their use must be interrupted. Erythemata connected with rheumatic conditions require no independent treatment; the attention must be chiefly directed to the primary affection.

3. *Erythema Nodosum.*

Somewhat akin to the polymorphous erythema, but not to be identified with it in a clinical sense, is erythema nodosum.

It appears in the shape of nodes and excrescences the size of a pea up to oval and hemispherical tumors as large as the palm of the hand, chiefly occurring on the extremities, seldom isolated, but nearly always in larger numbers. In the beginning, they are dark-red, hot, and painful on strong pressure; subsequently, they change their color, become bluish-red, yellowish or greenish, thus looking like bruises; this explains the title given to this affection by some authors—dermatitis contusiformis. The disease always extends into the deeper parts of the cutis and the connective tissue; hence movements of the affected extremities are painful. The onset of the malady is usually complicated with general symptoms and very intense prodromal phenomena, and consequently the affection is classed as pyrexial. However, being not rarely connected with inflammations of the joints or rheumatic incidents, some physicians have been led to look upon erythema nodosum, like purpura rheumatica or the erythema multiforme connected with rheumatic symptoms, as a disease due to a common cause (Durian, Legrand). Bohn[1] has designated erythema nodosum an embolic skin disease without furnishing any material proofs for this assumption; he based his opinion upon Panum's investigations, that small coagula now and then arise within the circulation, as well as upon the coincidence of erythema nodosum with venous thrombi in the lower extremities and presumably in the kidney (?), in accordance with his own observations in some cases. This coincidence, however, might only be quite accidental and has received no further confirmation. The coloration of the nodes would speak rather in favor of an exudation of blood into the tissue, as would the tension in the affected portion of the skin; still it is difficult to trace the disease to an embolic or hemorrhagic source. In our opinion, the color is due to transudation of blood, and erythema nodosum is to be looked upon as an affection distinct from erythema multiforme; although the several forms are sometimes observed to merge into each other, still the development and course of the disease show certain differences from multiform erythema, so that Neumann's view, to consider the affection an idiopathic one, is not to be altogether discarded. As the tension relaxes, slight fluctuation is exhibited in the node in its further course, but suppuration of the nodes never occurs or quite exceptionally (Uffelmann).

The *course* of erythema nodosum is much slower than that of erythema multiforme; despite the usually rapid appearance of the disease, the development of the nodes seems to require a longer time, and several weeks generally elapse from the beginning to the total involution of the nodes. The fever, which may at first reach a considerable height (41° C.), remits much sooner than the articular pains or the gastric conditions accompanying the outbreak of the skin disease. The articular affection is a conspicuous symptom and is seldom absent; still, as a rule, there is no inflammation of

[1] "Embolische Hautkrankheiten," Jahrbuch f. Kinderheilkunde, 1864, Heft 4.

the heart muscle, nor of the valves or pericardium. In particularly severe cases, there are ulcerations of the mucous membranes, inflammations of the serous membranes, pleuritis, endocarditis, with eventually fatal termination. The involution of the nodes occurs always with decrease of the tension and the pains in the skin; the dark or bluish color changes into violet, light-yellowish; the doughy, soft tumor becomes gradually more consistent, and the skin slowly regains its normal appearance.

The *anatomical alterations* show an infiltration of the skin extending into the subcutaneous connective tissue and exudation of blood in the region of the node. The capillaries are very full, the lymphatic vessels swollen and amply covered with lymph-cells. Here and there extravasations are found.

The Diagnosis

of erythema nodosum is based chiefly on the above-described dark-red or bluish nodes which, should they occur on the nates or elsewhere on the trunk, might easily be mistaken for bruises caused by contusions. Hence the form of the tumors should be noticed; the swellings due to trauma usually exhibit wheals, the tumor extends longitudinally, but shows no circumscribed formations of lighter color at the periphery than at the centre, and blending with the surrounding hue of the skin. Should pyrexial conditions accompany the erythema and articular pains be present, the recognition of the disease is facilitated. A mistake with syphilitic nodes is hardly possible if attention is paid to the manifestations of syphilis on the skin and the mucous membrane. The painfulness of the recent erythema nodes is so constant a phenomenon that, in a possible case of doubt in regard to syphilis, it may likewise be utilized.

The Treatment

is mainly directed against the pain, which may be best moderated by cold in the shape of ice or water applications, with or without Goulard's lotion. In this form of erythema a general tonic treatment is indicated—quinine, iron, wine pro re nata; rest in bed is to be strongly recommended while the acute painful stage continues. For violent articular pain the salicylic acid treatment is appropriate (three to five grams daily). Every care should be had in this disease to employ the appropriate remedies and to attentively watch the symptoms accompanying the cutaneous affection.

4. *Urticaria, Nettlerash.*

Urticaria is a peculiar cutaneous affection characterized by efflorescences (wheals) ranging in size from a bean to a thumb-nail, firm to the feel, pale-red or whitish in color, and elevated above the level of the skin. It usually appears suddenly, is of brief duration, or changes to a chronic condition, causes violent itching, and progresses without desquamation.

The onset of the disease occurs at times without prodromata, at times is preceded for a few hours or one to two days by general depression, malaise, nausea, fever, and headache, after which the roundish or oval elevations appear on the skin, which are characterized by their above-mentioned circumscribed coloration. The peculiar burning on the skin, as well as the slight or temporary swelling, is shared also by the eruption caused by the common nettle (Urtica urens), whence the title.

The efflorescences of urticaria present manifold forms in the manner of their occurrence, their extent, and their duration. The wheals may be scattered over the surface

without being confluent, they may be close together or they may be nodose resembling erythema or the exudation into the underlying connective tissue. According to its duration, the disease has also been called urticaria febrilis s. evanida, when the efflorescences disappeared soon after the remission of the fever accompanying the eruption; as opposed to urticaria perstans s. chronica, urticatio, which progresses without fever and in which the wheals alternately occupy different surfaces at succeeding intervals.

The color of the wheal is red when the papillary body is hyperæmic or white when it is bloodless. The single efflorescences usually spread in groups, wandering from one portion of the skin to another; thereby the skin appears bloated, reddened, and the manifold outlines resembles a map on which hills and valleys are plastically represented. A peculiar form of urticaria is urticaria intermittens, in which the disease occurs in a series of days and weeks, always at a certain time, and then again completely vanishes; thus, owing to the simultaneous symptoms of fever, the urticaria appears merely as a concomitant of intermittent fever. At times, however, urticaria occurs without fever in as definite intervals as a quotidian or tertian fever and may be made to disappear by the use of quinine. In rare cases urticaria also shows itself on the mucous membranes, and Milton[1] described a few cases in which the mucous membrane of the mouth, pharynx, and trachea as well as the common integument were covered with an eruption of large wheals, which form he therefore called gigantic urticaria. Cases of temporary reddening, which, however, are followed by rather intense pigmentations, are rare (urticaria pigmentosa).

Pathological anatomy has hitherto furnished no sufficient explanation of this morbid condition, because the post-mortem table gives no opportunity to examine an affection which subsides so quickly; it is not yet decided whether the formation of wheals is brought about by a rapid transudation into the layers of the cutis or whether it is the result of a simple congestion. Vidal's investigations speak for the former view, because he found the cutaneous vessels corresponding to the wheals greatly dilated and replete with blood without any alteration in the vessel walls; but in the neighborhood of the vessels white blood-corpuscles were accumulated in larger masses and the lymph-vessels were also filled with them. These anatomical data furnish material explanation of the morbid process. Every morbid factor followed by a nettlerash excites the termini of the sensory nerves extending in the external skin or in the mucous membrane; they excite the vaso-motor nerves in a reflex way, cause the capillaries to contract, and by the succeeding paresis incite the transudation in circumscribed regions, thus producing the wheal which, accordingly, represents nothing else but a circumscribed œdema.

The Diagnosis

will be easily formed from the wheals and the nervous sensations associated with them—burning, stinging, itching. But there is a series of other diseases which may lead to mistakes.

Among these belong:

a. Lichen urticatus, or urticaria papulosa.

This affection is pathologically related to urticaria and characterized by the eruption of nodules from a hemp-seed to a lentil in size which soon change into smaller wheals. Bateman first introduced the term lichen, because the efflorescences are smaller, in the

[1] Vierteljahrsschrift f. Dermatol., 1877, p. 585.

beginning resembling gnat and insect bites, and do not enlarge if left alone, were it not that the simultaneous intense itching irritates the skin so that larger efflorescences often develop from the small nodules. Lichen urticatus, therefore, represents a mixed form between nodules and wheals, sometimes the one, sometimes the other predominating. A concomitant symptom is the intense itching and whenever the effects of scratching are seen, it is not impossible to mistake it for papulous eczema and prurigo. But such a diagnostic error cannot last long, because urticaria papulosa is always of shorter duration than the affections named, because wheals are not formed in eczema and in prurigo only in recent eruptions or relapses, but not in a long-standing disease.

b. Erythema. This we have described in its various stages as erythema multiforme, but in none of them does it develop from wheals. Its efflorescences persist throughout the course of the disease, there is an absence of the severe itching peculiar to urticaria, and the desquamation, even if slight, can always be demonstrated whenever the nodes and nodules resolve. Lichen urticatus and erythema can be mistaken for one another only when there are temporarily no wheals in the former.

c. Erysipelas shows a diffuse redness with considerable swelling of the skin, is a more prolonged disease, and is attended at most with vesicles. The process lasts a few days or more, with subsequent marked desquamation.

Diagnostically it is also of importance to ascertain whether the formation of wheals or nodules—which change into the former—has been caused by external irritations affecting the skin (drugs, electricity, insects) or not. Furthermore it should be noted that, as in prurigo eruptions of wheals introduce the affection, so now and then fine urticarial efflorescences may appear in pemphigus (pemphigus pruriginosus). When urticaria occurs acutely, it should be borne in mind that it sets in preferably by night, and that by day the remnants of the efflorescences can barely be found; only in the chronic form we find also during the day the excoriations due to scratching, pigment spots, and often discrete or confluent wheals; this latter affection, known by the name of urticatio or chronic urticaria, is an exceedingly annoying malady on account of its pronounced chronic tendency.

Etiology.

The causes inducing urticaria, whether direct or indirect, in every case are such as exert quite a special effect on the vaso-motor system, partly in toto, partly on some portions of it. The direct causes affect the peripheral expansions of the cutaneous nerves themselves, while the indirect ones act as irritants on the skin by the absorption into the blood of the morbid agent. Among the direct causes we include those which have been proved to produce the appearance of wheals after a mere external influence; of course, the disposition to the cutaneous affection is dependent on the sensibility of the skin. Delicate individuals, women and children, therefore, react more easily on certain irritations than robust or vigorous persons. Stronger irritations than simple pressure are the effects produced by cold and electricity. Both agents in the beginning irritate the vaso-motor nerves and induce anæmia; then this changes into a quasi-paralytic condition, with hyperæmia; and then, according to the cutaneous sensibility, urticaria wheals break out. In an analogous manner pungent substances produce urticaria, such as touching the skin with the common nettle (Urtica urens), with Rhus toxicodendron, and similar objects; furthermore, stings of insects, caterpillars, mosquitoes, fleas, bugs, all of which provoke eruptions of wheals on more or less extensive surfaces according to the intensity of the influence.

The indirect causes of disease are far more numerous.

a. Febrile conditions. Children while teething and suffering from fever as a concomitant phenomenon of this process often exhibit a reflex morbid state in the shape of wheals manifesting themselves on the second or third day of the affection. Adults subject to rheumatic attacks are often seized with urticaria, and frequently the eruption appears simultaneously with the rheumatic exacerbations.

b. The ingestion of various articles of food or drugs (urticaria ab ingestis). In some individuals we find a peculiar idiosyncrasy against certain alimentary substances. These aliments include almost exclusively such as are partaken of as luxuries; for instance, oysters, crabs, smoked or salted sea-fish, crayfish, caviare, mussels, pungent spices, etc., also champignons, strawberries, and other fruits; a similar effect is produced by ordinary alimentary substances and tidbits when partaken of in excess.

Of drugs it is especially the balsams (such as copaiba, tolu, and turpentine), and belladonna, which may provoke, besides urticaria, also erythemata and other exanthems.

c. Excitement by moral influences, as: fright, grief, anger, and other violent mental emotions. Gibert relates of a newly married woman who, at a ball, was offended by unseemly insinuations, and was suddenly attacked by a confluent urticaria covering the neck, breast, and shoulders, which forced her to leave the place of entertainment. Similar cases are not so very rare. Not long ago, Stampacchia[1] published a case of very intense urticaria connected with manifold nervous disturbances, which had led to considerable anæsthesia of the left lower extremity, the causative factor of which could with certainty be assumed to be deep grief over the loss of a child.

d. Anomalies in the functions of the sexual apparatus, as well as of the respiratory and digestive organs. The former were mentioned by the older physicians, who stated that urticaria occurs often previous to the onset of menstruation, with genital affections, after abortions, etc. Paul and Gueneau de Mussy[2] called attention to a connection between disease of the respiratory mucous membrane and attacks of urticaria; they report a series of observations of bronchitis spastica, or asthmatic attacks, in which the latter remitted whenever urticaria broke out. Affections of the mucous tract of the digestive organs, however, must also be looked upon as causes of irritation. Thus Litten,[3] in a case of icterus due to gall-stone colic, on two different occasions observed an attack of urticaria during the passage of the stones through the ductus choledochus, which disappeared immediately after the cessation of the colic. In a second case, the same author, in an individual suffering from tænia, several times noticed an eruption of urticaria whenever pieces of the worm passed in greater quantity. In a case of echinococcus of the liver. Lerebouillet[4] witnessed an eruption of urticaria with every tapping.

In view of the fact that in urticaria, besides the wheals, we see as concomitants also the formation of nodules (lichen urticatus) and persistent erythemata, but no vesicles, hemorrhages, or ulcers in its train, we must exclude a deeper implication of the nerve centres and seek the seat of the disease in the peripheral nerves.

Prognosis.

Urticaria does not belong to the dangerous diseases, but in its chronic form it is an exceedingly annoying malady. In children and infants the sudden occurrence of urti-

[1] "Un caso di Urticaria con perturbamenti nervosi." Annal. de Dermatolog., 1881, p. 150.
[2] Gazette hebdomadaire, 1881, No. 7.
[3] Charité-Annalen. Berlin, 1879, p. 200.
[4] Gazette hebdomadaire, 1881, No. 16.

caria, if conjoined with fever, often has an alarming effect on the attendants; in this case caution is necessary lest a hasty diagnosis of graver affections be made. Even in its chronic forms urticaria has never any bad sequels; to be sure, it is often excessively prolonged, is at times hard to eradicate, but never causes any grave conditions.

Treatment.

In the acute form, a special treatment is often not necessary, the expectant plan being sufficient. The general depression and the fever are rarely grave enough to force the patients to keep the bed, and it is advisable, should the patients desire, to permit them to take out-door exercise. Even if due to a gastric cause it will hardly be necessary to give an emetic, but rather a light laxative according to the conditions. Patients first attacked by urticaria after partaking of a certain food, without knowing the cause of the malady, must be reminded of it so as to guard against relapses. In obesity, catarrhal conditions of the stomach and intestinal tract, suitable treatment must be instituted, any stases present be made to disappear, and laxative waters be recommended according to the indications; but only when we have to deal with persistent, oft-recurring forms of the disease. In this sense the waters of Marienbad, Karlsbad, Vichy, Kissingen, Wildungen, Püllna, and Ofen are indicated, but we must guard against excess. In affections of the genitals and female diseases, the necessary indications are given. In intermittent fever in connection with urticaria, quinine should be given; salicylic acid in rheumatic complications, especially of the joints.

With what has been stated the treatment of urticaria is by no means exhausted; for in this affection, especially in its chronic forms, we are forced to a direct treatment in addition to general measures, owing to the itching. An excellent remedy is cold water, partly in the form of ablutions, partly as douche, partly, where there are copious nodular eruptions, in the shape of compresses. If the patients can bear the water, the itching soon diminishes, and the swelling usually goes down rapidly. The water may also receive additions of vinegar, aromatic spirit, spirits of wine, etc. Warm baths are generally useless in urticaria, but from prolonged lukewarm baths of 24–25° C. I have seen soothing effects during their continuance, but seldom beyond it. Besides, we may employ for lotions a number of external remedies which are generally useful in itching diseases such as:

℞ Acid. carbolici, 2 grams; Glycerini, 20 grams; Alcohol. rect., 200 grams.

℞ Acidi salicyl., 10 grams; Alcohol. rect., 200 grams; Bals. Hoffmanni, 50 grams.

℞ Chloral. hydrat., 5 grams; Aq. laurocerasi, 50 grams; Aq. dest., 200 grams. (Vidal.)

It is preferable, however, on account of their longer contact with the skin, to order ointments rather than lotions; for instance: Lactis sulphur., 5 grams; Ol. cadini, 10 grams; Ung. emoll., 60 to 80 grams. Or, Naphtholi, 2.5 grams; Ung. crême cœlestis, 50 grams. In some cases these remedies prove effective, if well rubbed in, two or three times daily, and the patches are amply dusted with starch or pulv. oryzæ.

But as the drugs mentioned, and many others besides, often fail in chronic urticaria, the attempt has been made to overcome this troublesome disease by internal medication. Aside from the potions, mineral acids, aconite and arsenic used by the older physicians which may now be looked upon as obsolete, excepting perhaps the last, some of the medicaments recently recommended deserve to be noticed, such as hydrobromate of quinine (Vidal), 50 to 60 centigrams per day, from which the author has seen very favorable results; furthermore, salicylic acid, 3 to 5 grams per day, and atropine. The latter drug

proves at times extraordinarily effective in the dose of 0.001–0.002 gram per day; of course, atropine must be exhibited with the necessary care. My prescription reads : ℞ Atropin. sulph., 0.01 gram ; Glycerini, Aq. dest., āā 2 grams ; Gummi tragac., q. s. ft. pil. No. xx.

In a few cases the affection recurred when the remedy was stopped ; but where it could be used in corresponding doses for a longer time, the urticaria finally remained away in cases which had extended over a period of from three to five years.

III. NEUROTIC AND TROPHONEUROTIC DISTURBANCES.

The cutaneous affections belonging to this group depend upon disease of nervous elements ; they form disturbances on the one hand acting on the nutrition of the skin, on the other they are distinguished by manifold neurotic complications in the sensory sphere.

It is difficult to furnish scientific proof that the nutritive disturbances are caused by a certain category of nerves—the trophic nerves ; but we cannot deny the assumption that they exert an influence in the production of numerous cutaneous diseases. Even Cohnheim, who occupies a very sceptical position in reference to this question, says, in speaking of some cognate cases, "that a true and indubitable trophic influence of certain nerves and nerve centres cannot be disputed."[1]

Among the conditions to be considered trophoneurotic diseases belongs a series of inflammatory conditions, with or without the formation of efflorescences, ulcerative processes, and structural affections of the skin; but of the large number of affections falling under this head, we shall confine ourselves only to those diseases which present at the same time a neurotic and trophoneurotic character.

In the foreground of trophoneurotic affections stands:

PRURIGO.

Formerly the terms prurigo and pruritus were looked upon as synonymous, and every disease associated with itching was called either an itching or a scratching affection (prurire and scabere, whence prurigo and scabies).

Willan and Bateman first restored prurigo to an independent position, and designated the nodular forms as prurigo mitis and formicans; those occurring without nodules as pruritus localis and senilis.

This classification of prurigo, with a few exceptions, is still current in France and England; only the Vienna school, since the time of Hebra, has completely separated prurigo cum papulis as a true cutaneous disease from prurigo sine papulis or pruritus. The English have gone so far as to assert that, inasmuch as Hebra's description of prurigo does not refer to prurigo so called in England, prurigo of the Germans is a different affection from prurigo of the English; but the last International Congress gave the opportunity to obliterate these quasi-differences.[2]

Symptoms and Course of Prurigo.—The disease we call prurigo consists in the presence, mostly on the extensor surfaces of the extremities and less on the trunk, of numerous discrete nodules, having at first the color of the skin, and gradually darkening;

[1] "Vorlesungen über allg. Patholog." Berlin, 1882, i., p. 518.
[2] Transactions of the Internat. Med. Congress, London, 1881, III.

they are from a millet to a hemp seed in size, and occasion violent itching; after a brief existence, they are freely intermingled with excoriated efflorescences. The disease appears in earliest infancy, and has a chronic course; it is nearly always preceded by wheal-like efflorescences, which are never absent, besides, in relapses of the disease.

The prurigo nodules are distinguished from the nodular eruptions of eczema papulosa, erythema, and scabies, chiefly by not being spontaneously transformed into other efflorescences, and the fact that throughout their whole existence they change neither into vesicles nor crusts, but appear, even if the affection last for years, as mostly flat, slightly reddened elevations, or perish in the subsequently forming infiltration of the skin in case the disease extends greatly. The deeper layers of the cutis form the seat of the nodules, and thus it happens that the intense subjective sensations are often perceived before changes can be seen on the integument. This fact probably made prurigo appear identical with pruritus; but if such a case be followed in its further course, the difference in the affection becomes marked, and while in pruritus the skin seems altered at most by excoriations, in prurigo the nodules will manifest themselves early, and largely increase in number.

The most prominent symptom in prurigo is the continuous violent itching which may reach so high a degree that the patients suffer the most unbearable nervous complications, and cases are known where some unfortunate people were driven to insanity and suicide by it. The sensations provoked by the itching are very manifold, and manifest themselves chiefly at the places most affected; often, however, owing to the fixed irritation, the skin is attacked in its totality, even on parts quite free from efflorescences, and then the sensation becomes one of general pain and discomfort, described by the patients in the most glowing colors, and despite the comparatively favorable physical conditions as regards nutrition and assimilation, the vital processes are seriously impaired. Some patients feel tolerably well by day, but as soon as they seek their bed at night, the unbearable itching commences; the patients often sit in bed for hours, tearing their skin and detaching the nodular efflorescences with their nails, so that here and there the upper epidermal layers appear covered by crusts of dried blood. It is not so much the evening or night time which causes the increase of the nervous sensation, but rather the heat of the bed which awakes the temporarily dormant irritation of the skin, and, when once aroused, permits its alleviation only with difficulty. I have observed cases in which the patients had been more weakened and reduced by the continual sleepless nights than by many a dangerous acute disease. Equally irritating are warm or close-fitting garments, at times also increased temperature of the surrounding air.

The sequels of prurigo manifest themselves on the skin by considerable alterations on its surface; for, both by the persistent itching and the frequent scratching, the skin becomes firmer in its texture, dingy, lustreless, and loose exfoliations of the epidermis form, which cover the entire diseased surface. Such alterations arise only gradually, and where they are found we may presuppose that the affection has existed several years. In a skin changed by an old prurigo we find an almost entire absence of the pruriginous efflorescences, and will be inclined rather to take the actual morbid picture for a squamous eczema or an ichthyosis. The experienced practitioner will probably at once recognize the differences; but even the less expert will soon be able to make a correct diagnosis if he bear in mind that prurigo presents peculiarities which do not belong to other diseases. If the prurigo be of long standing, the further alterations occurring are such as are found in chronic eczema, and very frequently we can find besides the prurigo the