

also employed by the laity as a remedy in cases where the epidermis has already been lost, but here it is altogether out of place. The secreted exudation combines with the lycopodium, forms hard, large crusts, and considerably increases the inflammation of the skin. Where this injudicious measure has been employed, the crusts are first to be soaked off with oil, and carefully removed. The existing excoriations are best treated with lead or zinc ointment, and, among the poor, ordinary tallow may be substituted for these remedies. Tepid baths are the best preventive against chafing.

(9.) **FURUNCULOSIS.**—Children of various ages frequently suffer from solitary furuncles or boils, which, corresponding with the more rapid metamorphosis of the tissues generally, comparatively quickly cast off their core and soon heal up. But, in children the progeny of tuberculous parents, the case is totally different.

In the latter, large numbers of furuncles occasionally occur on the occiput and over the entire head, come on one after the other, break, and cause the child great suffering for a long time. Usually no firm core is expelled, as in the simple phlegmons, the contents consisting only of thick, yellowish, or bloody pus, which often becomes agglutinated with the surrounding hairs into thick flat crusts.

Coincident swelling of the glands of the nape of the neck occurs; they are very painful to the touch, and, in fact, now and then suppurate.

These furuncles may become so numerous that the whole occiput is finally covered with a mass of confluent crusts, under which new ones constantly appear, elevate the old crusts, and, by the discharge of their contents, assist in thickening it. In this manner the extremely painful process is protracted for many weeks. Young children hardly sleep at all, but older ones, when the nurse takes them upon her arms, where they can then lay their face upon her shoulder, are able to sleep. Finally, the crusts dry up, and no accessions follow. The scabs become loose and may be removed, together with the hair, or what there is left of it. The marks of the phlegmon may be recognized for some time after by the bluish-red, glistening cicatrices. The consecutive swelling of the cervical glands also disappears. The nutrition and development of the children, from the constant sleeplessness, suffer in an extreme degree; but, if the digestive organs are not attacked by catarrh, they will rapidly improve after the furunculosis has been cured.

In perfectly healthy children this disease is scarcely ever observed; but ordinarily it is the harbinger of a long list of scrofulous affections.

Treatment.—This affection cannot be cut short. The only thing the physician can do is to attempt to remove the constant restlessness

and sleeplessness, by which a great service is rendered to the patients and their relatives. This is very easily done by one or two drops of laudanum, by which a few hours of refreshing sleep are induced, even in the most restless children. No bad effects are ever seen from this moderate use of opium.

Locally, the crusts are best treated with some oleaginous substance. Simple cerate, or some mild ointment, is applied daily until the crusts soften and fall off. By these measures, the painful pulling of the agglutinated hairs is avoided. No relief is obtained from prematurely opening the boils, and it is best, therefore, to wait until they are sufficiently large, and the apices have become yellowish, when they may be punctured with a needle. By this means the painful tension and several hours of pain may be avoided.

(10.) **SCABIES—ITCH.**—Since, in the composition of this chapter, a knowledge of the diseases of the skin in general is presupposed, I may appropriately omit a zoological description of the itch animalcule, and immediately proceed to speak of the morbid alterations of the skin produced by it in small children. The best description and representation of the *acarus scabiei* are to be found in *Simons's Diseases of the Skin*, and *Küchenmeister's Parasites*.

Symptoms.—The *acarus scabiei* penetrates, with especial preference and remarkable rapidity, the delicate epidermis of the nursling, and, a few days after the infection has taken place, the consecutive exanthema begins to appear. In young children this varies according to their age. Very young infants, a few weeks old only, have it in a less degree, because they are still unable to scratch themselves so severely, while those a few months old become universally covered with it.

Generally, the exanthema is most developed upon the hands, buttocks, and abdomen, and at first presents the following form: A rose-colored papule originates upon various parts of the body, and upon their apices small transparent vesicles become developed, accompanied by intense itching. When these vesicles remain uninjured, their contents in a few days will become opaque and purulent, and thus form pustules which burst spontaneously, and leave behind them a yellow circular crust. But, if the vesicles are prematurely scratched open, as is usually the case, then these irritated spots will bleed a little, and the small crusts that then form are of a black color.

The more the children scratch, the more extensive will become the exanthema. By the coalescence of single pustules, large ulcers often form, especially on the lower extremities and on the buttocks. These ulcers resist the treatment for a long time, and, in chronic cases, the whole skin, even those parts of it that are free from pustules, assumes a dry, scabby character.

The state of the general system of small children is much affected, in consequence of the incessant itching and sleepless nights, and they become visibly emaciated if the scabies is not properly treated, which is, unfortunately, often the case even at this day.

As regards age, new-born children are the only ones exempt from it, for the reason that the animalcule requires several days to penetrate the epidermis, and to produce the exanthema. Not until this has taken place do we become aware of the course of the animalcule, for, previous to that, there is, in most instances, no cause for examining the integument with great attention. Infants a few weeks old are very susceptible to the itch, and generally acquire it if any child has introduced it into the house.

Scabies is more difficult to diagnosticate in children than in adults, because the animalcule has not, as in the latter, a preference for the hands, but burrows its passage (or cuniculus) at any point in the body. As only a single one is generally found at a time, it is often necessary to search for a long time before a characteristic cuniculus can be discovered. The discovery of these cuniculi is rendered still more difficult by their remaining perfectly white, and differing but slightly from the normal skin, while those on the hands of adults soon become dirty blackish in consequence of the different location, and cannot be made white by simple washing, the dirt that has found its way beneath its epidermis remaining entirely unaffected by the water. In young children these tracts are most frequently found upon the skin of the abdomen and buttocks, also on the face, a condition which is never observed in adults. The attendant exanthema is always more extensive and severe in the former than in the latter.

Older children, with a fine, delicate skin, sometimes have excessively large pustules, which may reach to the size of a split pea, or larger. When these are punctured, a large drop of pus escapes, and, generally, the pustules fill again several times if their contents are evacuated by repeated punctures. Most of them leave a dark-colored cicatrix, which is visible for a long time. This large pustular eruption has also been called *fat scabies* (*fette Krätze*).

The course of scabies in children is always very tedious, and may be prolonged for months if proper treatment be not adopted. In addition to that, the pustules and excoriations constantly become larger, and more numerous, the restlessness still greater, and the emaciation makes alarming progress. Finally, when almost the entire skin is covered with thick scabs, a spontaneous improvement seems to ensue even without any treatment.

Therapeutics.—The treatment of scabies in children is essentially different from that proper in the adult, and varies according as to

whether the consecutive eruption consists only of papules, or also of pustules and ulcers. In infants who are still unable to scratch themselves, it is usually only papulous, and, in such cases, the rapid-cure may very advantageously be employed.

The whole body of the child, with the exception of the face, is rubbed over with green soft soap, and, half an hour after that, the child is placed in a warm bath, in which the soap is soon dissolved. After it has been carefully wiped dry, the old Helmeric ointment, consisting of one part of carbonate of potassa, two parts of sulphur, and eight of fat, is likewise smeared over the entire body, and, if possible, should be allowed to remain upon the skin for twenty-four hours. But, if the latter becomes more severely inflamed, and the child very restless, the ointment should be removed before the expiration of that time by a second bath. It is hardly necessary to mention that all the garments and bedclothes must be changed, and thoroughly purified with lye. Sometimes the scabies disappears completely with the first infriktion; in most instances, however, this procedure will have to be repeated two or three times. This is always advisable as a precautionary measure, and may be the more readily executed, as the patients are but little annoyed by it.

The circumstance is entirely different when the skin is very much irritated by scratching, and extensive pustular or ulcerating sores have formed. Here the green soap produces the most excruciating pains when applied to the denuded or ulcerated cutis, and œdema and erysipelatous inflammation on some parts of the body may be the result. This remedy consequently cannot then be employed. Also the Helmeric ointment, on account of its containing carbonate of potassa, may have to be omitted, for the skin may be too severely irritated by it. In such children we have to content ourselves with an ointment, consisting of one part of *f. sulphur*, and four parts lard, rubbed in daily after each bath, and change of the garments daily. It will be found that, even by this mild treatment, the itching of the skin will be subdued, the pustules heal, and no accession occur.

Particularly high temperatures, as is still prescribed for scabies wards in some hospitals, conduce but little to a rapid recovery, and have the great disadvantage that the patients thereby become debilitated and disposed to contract colds.

In the treatment with the simple sulphur ointment, I allow the children, during the pleasant seasons of the year, to be out in the free air the whole day.

That no favorable result will be attained in families, where several members suffer from scabies, unless all of them are simultaneously subjected to the treatment, is of itself understood. In the lower

classes of people, where a sufficient change of linen cannot be commanded, and the procuring of the baths is too expensive, the chances of a speedy recovery are very small, and the little patients will not get better until the older members have undergone a thorough treatment in some hospital.

(11.) CONGENITAL NÆVI—MOTHER'S MARKS.—As *nævus vasculosus*, *varix*, *telangiectasis*, have already been treated of in connection with the diseases of the vessels (page 242), it only remains for us to describe here the congenital pigmentary *nævi*, moles, and congenital adipose tumors.

By pigmentary *nævi*, *stigmata*, *spili*, spots on the skin are understood, which are round or irregular in form, yellow, brown, black, or gray in color, and vary in size from a pea up to the palm of the hand, and, in some instances, cover even a large part of the body, the whole back, or an entire extremity. The alteration of color is due to a deposit of pigment in the Malpighian net-work. On these places the skin is sometimes hypertrophied and uneven, so that the mole projects somewhat above the sound skin, and occasionally is profusely studded with hairs, by which it is made to resemble the brown fur of an animal. The pigmentation is not always distributed alike over the whole *nævus*; sometimes the centre, sometimes again the periphery is brighter. These pigmentary moles never become enlarged, except in proportion to the growth of the body in general, and occasionally they remain exactly of the same size as at first.

By *warts* are understood higher prominences of the skin, produced by an elongation of the *papillæ*, and the formation of new tissues; these are usually of a brown color. Those warts that so frequently originate later in older children differ essentially from these under consideration. The former consist of a number of perpendicular prominences of the elongated *papillæ* of the skin, which are covered by an indurated layer of epidermis. They are not pigmented, develop themselves on the different parts of the hands and face, and after several months disappear, without leaving any traces behind, and for this reason have become such desirable objects of attention for the so-called sympathy-cure, stupidity, and imposition. The congenital warts, first described, never disappear spontaneously.

By *nævi lipomatodes*, adipose tumors, we understand roundish or cylindrical fatty growths, covered with normal skin, most of which are pediculated, but sometimes seated upon a broad base. Strictly speaking, they do not belong to the diseases of the cutis, for the skin is entirely unaffected, but they are due to an abnormal extuberation of the subcutaneous adipose tissue. These usually enlarge in proportion to the growth of the body, but in some cases also faster.

Therapeutics.—In regard to the total or partial extirpation of these various moles, and the cautions that are to be taken into consideration in the operation, according to their situation, we refer the student to the standard works on surgery. In small *nævi*, surgical procedures may frequently be avoided by performing vaccination upon them. The punctures, with the vaccinating needle in these cases, must be made so close to each other that the pustules resulting therefrom will coalesce.

By the seventh or eighth day the whole *nævus* rises up as a high, painful pustule, which suppurates for a long time, and frequently ulcerates; ultimately, however, heals, and leaves a rose-colored or white eschar. Although, in large moles, this process is not capable of destroying all the pigment, still it serves to divide them into small islands, which, by subsequent operations, may be removed with greater ease.

In children who are already vaccinated, deep pustular ulcerations may be produced by a continuous local use of tartar. stibiat., or corrosive sublimate, in the form of a paste or ointment; and, by the time these pustules heal, the whole mole will be found destroyed. At least, the hair-follicles, in those moles that are covered with hairs, are destroyed by this means, and their disfiguring appearance is thereby considerably diminished.

In the simple, non-congenital warts of older children, which start up in a crop in various places at the same time, all surgical measures, cutting, and cauterizing, are totally unnecessary, for they disappear spontaneously in the same manner they appeared. The internal use of small doses of alkaline carbonates, or of carbonate of magnesia, is said to accelerate the disappearance of these warts.

(12.) BURNS (*Combustio*).—Burns very often occur in children, in consequence of their ignorance and carelessness; but, when a child has once burnt itself severely, there is little danger of the repetition of the accident. This fact has become proverbial, that "a burnt child dreads the fire." Most frequently the children burn themselves about the upper extremities and face, ordinarily on hot utensils, or with hot liquids, milk, water, or soup. The severer grades of burns, characterized by total or extensive destructions, with the formation of scabs, are for this reason rare. We seldom see any thing more than the formation of blisters.

Suppuration, however, is also severe and protracted even after this inferior grade of burns, and the cicatrices are very much disposed to become contracted. In extensive burns, a severe reaction and violent fever come on as early as the second day, and in nervous children these will be accompanied by convulsions. Usually the general

symptoms are not very violent, and, under proper treatment and position of the burnt part, disappear after a few days.

Treatment.—The local treatment is conducted according to the degree of the burn. The pains of *simple erythematous burns* are most quickly allayed by inunctions of lard and covering the part with cotton wool. Cold is advisable only in very small erythematous burns; in extensive burns, on the contrary, the most experienced surgeons, such as *Walther*, *Nussbaum*, and others, consider it dangerous.

Large *blisters* should be punctured with a fine needle, and the serum allowed to escape, the epidermis, however, should not be removed, for it assists the process of cicatrization better than any kind of plaster. The best results in these cases are derived from pencilling the part with a concentrated solution of nitrate of silver (3 ss to water $\frac{3}{4}$ ss). But this remedy causes too intense pain where the cutis is denuded. When suppuration has set in, simple cerate and subsequently lead-and-zinc ointment may be used. Any two opposite surfaces when denuded of their epithelium, for example, between the fingers and toes, should not be allowed to remain in contact with each other, but should be carefully kept apart by interposing pieces of adhesive plaster or lint smeared with cerate.

The diarrhoea which sometimes comes on in extensive burns should be controlled by opium. The treatment of the general symptoms should be antiphlogistic. For the continuous restlessness and sleeplessness, opium is, once more, the sovereign remedy.

In deep burns of the hands and arms, marked contractions of the tendons result from the cicatrizations, and an effort should therefore be made, by the aid of counter-extending apparatus, to prevent them.

(13.) CONGELATIO, FROST-BITE, CHILBLAIN.—So long as children are unable to walk, freezing of the extremities does not readily occur. But, if they are exposed for a long time at this tender age to a low temperature, general cyanosis comes on, and they very quickly fall asleep to wake no more. Indeed, this criminal practice is probably performed oftener than the authorities become aware; for it is scarcely possible to prove it by a *post-mortem* examination.

In winter, chilblains are of very frequent occurrence in older children who play a great deal in the snow, and have little respect for cold and wet feet. Here, as in burns, three degrees are distinguished. First grade: redness, slight swelling, itching and pricking, especially in chilblain. Second grade: bloody blisters, which in part originate through the influence of cold, but in part also from pressure of the shoes, and therefore occur predominantly on the heel and toes. Third grade: gangrene of the skin or of entire extremities. The first two are the principal grades which occur in children.

Treatment.—Gelatio of the first degree, when still fresh, is best treated by rubbing it for a little while with snow. If it has already existed for some time, it is no longer possible to remove it quickly, and the evil, as a rule, is too slight to make it necessary to subject the children on that account to a treatment of several weeks' duration. Chilblains usually disappear spontaneously as the spring of the year sets in. The greatest benefit has been derived from pencilling the parts with a solution of nitrate of silver or iodine, especially where the itching is intolerable. Various kinds of fat and ointments, equal parts of tallow and brandy, etc., and particularly cabinet-maker's glue, from which some very striking effects may sometimes be seen, are some of the most popular remedies.

The active discolored ulcers which originate from the bloody blisters of the second grade, resist the treatment for a long time. It is frequently necessary to cauterize them, and to treat them with digestive ointments until healthy granulations appear on a level with the skin. All pressure, of course, must be avoided.

These are the most important diseases of the skin which in form or treatment vary from those of the adult. All others, for example, favus, ichthyosis, pityriasis, lichen, zoster, urticaria, peliosis, etc., are similar in character to those of the adult, and for this reason merit no further attention here. Some of the cachectic cutaneous affections will yet be specially treated of in the section on scrofula and syphilis.

The original plan of this work was, that it should also contain a chapter devoted exclusively to the diseases of the organs of locomotion, of the bones and muscles. But on more accurate examination it was seen that the greater part of them require purely surgico-orthopedic relief, and the specialists who have written upon this subject have already produced a very extensive literature. We would, therefore, have to be either very minute or content ourselves with merely furnishing a simple extract from the writings of the later surgeons and numerous orthopedists, and for that reason prefer to refer the student at once to these authors. To this chapter would belong defect and malformation of the hands and feet, talipes equinus, varus and valgus, curvatures of the spinal column, traumatic luxations, and fractures.

The morbid alterations of the bones produced by scrofula and rachitis will be described with the cachexiæ.

CHAPTER VIII.

GENERAL DISEASES OF THE SECRETIONS.

CACHEXIÆ.

(1.) RACHITIS, RICKETS, ENGLISH DISEASE, DOUBLE LIMBS.—By rickets is understood a developmental disease of the skeleton, in which a diminution of the calcareous constituents of the bones is the principal symptom. The earliest definite descriptions of rickets date from the middle of the seventeenth century, and were given by the English physicians *Whistler*, *Boot*, and *Glisson*. About this time reports of a new disease were heard from various parts of England, and a commission, consisting of the physicians just named, was appointed to investigate it thoroughly.

Since that time but little has been added to our knowledge of the pathology, or causes, or varieties, of rachitis, till some fifteen years ago *Elsässer* discovered the rachitis of the skull. The pathological anatomy has been considerably enriched and elucidated since then by the researches of *Kölliker*, *Virchow*, and *Hermann Meyer*.

Pathological Anatomy.—For the purpose of correctly comprehending the rachitic alterations, it is necessary briefly to recapitulate the physiological growth of the bone. Every tubular bone grows in length and thickness. It grows in length by new layers of cartilage-cells which constantly form between the epiphyseal cartilage and the bone, in which calcareous salts are then deposited. It grows in thickness by the addition of new layers of bony substances immediately beneath the periosteum, from the tissue by which the latter is cemented to the bone. As the growth in thickness is much more insignificant, and progresses slower than that in length, the disturbances of the physiological growth at the cartilaginous ends are also more striking and liable to occur.

While the bone is enlarging externally in every direction, by the addition of new elementary tissue, the medullary space within it also increases in circumference. Thus we have a constant new formation of bone externally, an absorption of bone internally. The femur of a child may with ease be put into the medullary canal of the same bone of an adult, so that, by the time the child has grown up, the original infantile bone has been completely reformed.

The physiological growth of a bone consists, then, in—

- (1.) New structural cell-elements deposited on its upper surface.
- (2.) Their prompt ossification; and in
- (3.) Absorption taking place in the centre of the bone.

Rachitis consists in the suspension, or in the imperfect performance of the second function or process, while the first and third remain normal, by which various very striking and peculiar alterations in color, form, and consistence, become perceptible.

In regard to *color*, the rachitic bone is particularly distinguished by a dark-red color, which, on the skull, may even assume a bluish redness. The more livid the bone, the greater, as a rule, has been the duration and the degree of the rachitic disease. All the bones of the same skeleton are not always reddened in an equal degree, some are darker, others again are brighter in color, and from this alone it is readily seen that rachitis is no simple chemical process, but is due to a complicated anatomo-physiological condition.

No rachitic bone retains its normal *form*. All the sharp angles of the bone become rounded off, the tubular bones in all cases become shortened, they cease to grow in length, the epiphyses swell and become bulbous, a condition which is most plainly seen on the sternal ends of the ribs, which are curved in various directions. On the tubular bones, for example, on the ribs, simple curvings occur, but very frequently actual fractures, or, more correctly speaking, contortions of the bones occur, especially in those of the lower extremities. In advanced rachitis the external layers of the bones, as we will show more in detail in the delineation of osseous derangements, contain so little calcareous salts, that they cannot be completely broken.

The internal parts of the bone lying next to the medullary canal, formed before the appearance of the rickets, may, it is true, break, and do indeed very frequently break, owing to their attenuation, in consequence of the absorption that goes on within. The external portions of the bones, however, yield, and, though they bend, still do not break, and therefore no displacement of fractured ends can take place. The bones that are bent, after the manner of a quill or willow-twig, subsequently heal with a blunt angle. This bending of rachitic bones, and the subsequent angular deformity, may result from the action of the flexor muscles and from the superincumbent weight of the body.

The apex of the angle thus formed in the forearm looks outward and forward, that of the arm almost straight outward, that of the thigh forward and outward, and that of the tibia, which usually bends near the ankle-joint, straight forward.

When such an infraction is sawn through longitudinally, after complete recovery, compact substance will be found on the convex surface only, and on the concave a broad layer of spongy substance. The medullary canal is completely closed at the point of fracture, by thick bony extuberations, which subsequently become attenuated,