the casting off of those layers of epidermis in which the fungus has its seat. Bazin first elevated epilation, with simultaneous application of corrosive sublimate washes, to the dignity of a therapeutic method; for this purpose he employed tweezers and in a few days complely epilated the affected parts of the head, together with a larger, apparently still healthy marginal portion. The epilation was followed by washing with a one-half-per-cent solution of corrosive sublimate containing some alcohol; in other cases Bazin also used frictions with tar, or an ointment of crude carbonate of sodium and quicklime, of each two parts, to lard sixty parts; or rubbing with ointments containing mercury, especially turpeth mineral one part, to lard thirty parts. These ointments are rubbed in morning and evening; if the cutaneous irritation becomes too violent, application is made for some time of cataplasms of oil or of potato-meal. After about three or four weeks epilation is recommenced, and repeated at longer or shorter intervals, with subsequent use of the ointment until the cure is complete. At first the epilation is painful, but becomes less so with every succeeding procedure. In place of the sublimate or the painting with tar, we may also choose *ad libitum* among the disinfectant coal-tar derivatives which at the same time excite some slight inflammatory action of the skin, such as benzol, phenol, thymol, creasote, naphthol, salicyl, etc. Parasiticides are then only of value when they have at the same time an irritating action on the skin and thus hasten the casting off of the upper layers; of late, chrysarobin and pyrogallic acid have been superadded to the large number of agents named above. Croton oil induces too violent pustular inflammation of the skin to permit of its use. To rub in pure carbolic acid can hardly be recommended, owing to the symptoms of toxic absorption to which it may give rise, and to its great painfulness. The disease can be declared cured only after several repeated tests: after a variable length of treatment (mostly five to six months and more), the hairs are permitted to grow without any therapeutic interference, and from time to time during about six weeks the hair and scalp are carefully examined, in doubtful cases even with the microscope. If during this time there are formed neither scutula nor any red round scaly spots (herpetic stage), the treatment, or the danger of infection, is at an end.

Favus of the rest of the body is more rapidly and more easily cured than favus of the scalp. The scutula find little support in the efferent ducts for the lanugo hairs, emollient applications soon cause them to drop off, and the subsequent employment of frictions with tar, etc., prevent the re-formation of the fungus.

In favous onychomycosis, the most rapid and complete removal of the nail substance by mechanical or chemical means is the most appropriate practice. Either the nail is carefully filed or scraped off, or the corneous lamellæ are softened by repeated application of concentrated potash solution or protracted soap, soda, or potash finger baths, until healthy nail substance grows forward from the matrix. The effect of the so-called parasiticide ointments and solutions, if used alone, is generally but short-lived.

DERMATOMYCOSIS TRICHOPHYTINA.

Herpes circinatus and tonsurans, Sycosis parasitaria, Eczema marginatum, Kerion Celsi. Ringworm.

In accordance with its location and duration, the clinical picture of dermatomycosis trichophytina assumes a special type. On the body, on parts where there are only lanugo hairs, it begins as a small red spot, somewhat scaly in the centre, barely elevated, often

bearing extraordinary resemblance to squamous eczema; the border is not always quite round, and soon enlarges into a wider circle. This circle has quite a characteristic appearance; at its periphery it is composed of a series of the smallest vesicles, each surrounded by a delicate red areola; toward the centre the branny scales give to the skin a more dirty gray color. In some cases the vesicles form a partly imperfect ring, there being lacunæ in the latter by defective development, or there are merely curved rows of vesicles.

In other cases again, the vesicle formation is only indicated, constituting merely an insignificant, not translucent elevation of the epidermis. At times, there is no indication of vesicles, so that the differentiation from eczema squamosum is possible only by the microscope or by characteristic neighboring efflorescences. On the other hand, there occur here and there large uniform elevations of the corneous layer of the epidermis, the size of a five-cent nickel, beneath which a small quantity of sero-purulent fluid accumulates, that is, a formation of bullæ; this soon dries into a thin crust which looks as if glued on (one form of impetigo contagiosa, Tilbury Fox). Cases of this kind are not so rare as might perhaps appear. From the central bullæ the affection often extends as typical herpes circinatus; the bulla formation is observed chiefly in the face of children.

The vesicular contents, at first bright, later somewhat yellowish, persist in all cases only a very short time, often but a few hours; they evaporate or dry up, the cover of the vesicle being very thin and the contents very small in amount.

When in the course of days or a few weeks the circle—at first from the size of a five-cent nickel up to that of a quarter dollar—spreads farther, while a number of circles or larger rings form either from multiple infection from the beginning or by auto-infection, there will finally be here and there a contact of adjoining rings. In this case there ensues at the point of contact of such curves a disappearance of the vesicles and obliteration of the sharp demarcation, and a uniform desquamating surface results. Where two or more such circles unite, the limits form peculiar festooned figures.

By the side of these circles bordered by vesicles (herpes circinatus, ringworm), we also frequently see round or oval, more or less elevated patches with steep margins. They are covered with a moderate quantity of dirty gray scales, projecting like spines, often of a very brawny feel; at times their centre is somewhat depressed, discolored light-brownish or yellowish, hardly desquamating at all. A peripheral red areola cannot always be demonstrated. Their size is very variable, just like the other form. Hebra distinguished it as herpes tonsurans squamosus. Isolated small patches, ranging in size from that of a five-cent nickel down to that of a three-cent piece, are covered with a coherent, silvery, thin scale; peripherally they are limited by a distinct, slightly elevated, red, variably wide border which gradually merges into the normal color of the skin.

Some of the rarest cases are those in which two concentric circles of vesicles are present, and recently Unna[1] has figured a case in which three concentric rings could be observed. I am indebted to Dr. Lesser, of Leipzig, for the photograph of a case with three concentric rings of vesicles. Only the forearms were affected. The affection had existed but a few weeks. Under the microscope Dr. Lesser found an extraordinary number of fungi, trichophyton Malmsten.

The fungous affection called by P. Manson[2] tinea imbricata is a variety of herpes

[1] Vierteljahrsschr. f. Dermat., 1880, Heft 2 and 3, p. 165.

[2] McCall Anderson, Edinb. Med. Journ., 1880, p. 205, after Chinese Imperial Customs Gazette, 1879.

tonsurans. According to this author, this tinea is distinguished from herpes tonsurans endemic in Europe in almost every particular; the epidermis is thrown up in large flakes in concentric parallel wavy lines, similar to the sand dunes terraced by the tide.

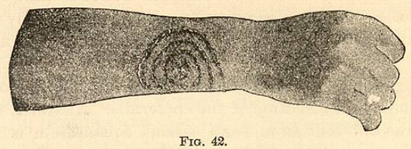

FIG. 42.

In Wilson's *Journal of Cutaneous Medicine*, iv., p. 251, we find the following notice by Turner on Tokelau (Samoa) ringworm: it resembles ichthyosis more than any other disease. The scales, however, differ from it mainly by the fact that they are arranged in squares as well as in concentric rings, and we can represent their form by lifting the uppermost layers of a hard cardboard by means of a knife so as to cause them to curl up. The detached flakes of epidermis often exceed one-quarter inch in size.

The conidia at the same time are exceedingly numerous, lie only in the most superficial layers of the epidermis, are oval or square, irregularly spherical, in separate groups or dichotomously branching twigs, at times dark in color, and often contain reddish-brown granules. Mycelium pale or darkly granular, generally long, straight or curved, dichtomously branching, partly separated by intervals, small lateral protuberances, numerously jointed. The threads end either in bulbs or in chains of conidia. The disease affects mainly parts having little hair.

Inoculation always produces tinea imbricata. After about nine days there ensues an elevation of the epidermis with formation of brown masses between corium and epidermis; the detached epidermis is still partly connected at its margins with the skin. Rubbing causes the scales to fall and the pale corium becomes visible. Meantime there is formed in the centre a new brown spot which undergoes the alterations before described, and thus, while the affection extends peripherally in circles, new concentric circles form continually in the centre. Tinea imbricata may spread over the whole body.

When the trichophyton has taken root on hirsute parts such as the scalp, it rarely, and then only in the beginning, presents the appearance of herpes circinatus. Usually there is formed a slightly reddenened, desquamating spot, on which the color and shape of the hair soon undergo changes. The hair becomes dry, dull, loses its normal glossy color, breaks under gentle touch, dark hair becomes lighter. When we try to pull a diseased hair, either a large part of its lower end remains behind, or, when the affection is more recent, we obtain a hair with a thickened grayish white root sheath. The small discolored hair stumps are seized with difficulty and hard to remove, and are surrounded by grayish white sheath of scales in which the fungus is as plentiful as in the hair. The morbid process spreads continually; the scalp is thickly covered with dull gray scales beneath which more or less vivid redness is visible (herpes tonsurans). Usually the outlines of such a spot are very irregular and ill defined, alongside there are frequently small surfaces covered with fine scales resembling simple psoriasis, in which only the most careful attention can here and there discover a shapeless hair-stump enveloped in scales. Only rarely the swelling of the skin assumes greater dimensions; there may be pustular, eczematoid eruptions. In isolated cases proliferating inflammatory processes

have been observed; such rare cases have been described as kerion Celsi. The borders of the hairless patches are round only in the beginning, later they are of different sizes and in variable numbers and generally are marked by irregular diffused margins.

In some cases, the depilated patches become absolutely bald, the skin as smooth as ivory and glossy so that they may be taken for patches of area Celsi. Only at times is it possible to discover in the environs of such an area hair-stumps and heaps of scales which permit the diagnosis. Such cases may well have given rise to the assumption of the simultaneous occurrence of herpes tonsurans and area Celsi, as well as to the assertion that there is an infectious area.

Trichophytosis of the body as well as the scalp causes in most cases more or less intense itching; it is never associated with febrile symptoms.

In the beard, trichophytosis genenerally presents the same phenomena as on the hairy scalp, and these more or less superficial alterations, even when of rather long standing, occur in the fine, light, thin beard hair. In dark, coarse, dense, frequently shaved beard hair, and from causes still unknown, more violent and deeper inflammatory processes are not rare. We then see, on a surface at first generally round, the several follicles become elevated in the shape of small red papules soon exhibiting purulent contents in the centre, or else the skin early becomes thickened, reddened, nodular, around the hairs distinct pustules form which soon loosen the hair; if we remove the loosened hairs with their purulent sheath, a copious watery, light yellow, gluey fluid exudes from many pores as from a sieve; this fluid dries almost at once and forms crusts (sycosis parasitaria). The originally very limited process soon extends with deep phlegmonous infiltration into the surroundings. The skin acquires a deep red color, has a doughy feel, the hairs are the centre of a pustule; considerable pain is present and a feeling of great tension in the skin. At times larger isolated subcutaneous abscesses are present in the infiltrated, little resistant tissue. Incisions in the skin cause enormous capillary hemorrhages. Swelling of the submaxillary or upper cervical glands is rarely absent. In isolated cases febrile conditions are present.

Not rarely the surface of the infiltrated parts of the skin covered with thick crusts becomes uneven, nodular, verrucose, there appear mulberry-like, acinous, papillomatous proliferations between which pustulation occurs.

Where the affection has run its course with considerable abscess formation, we must expect healing with cicatrization. In most cases, when properly treated, restitution ad integrum follows.

The disease described by Hebra in its more intense stages as eczema marginatum, and by Bärensprung in its lighter forms as herpes inguium, likewise begins usually as a typical trichophytosis and by preference in the pudendal and inguinal regions, particularly where the scrotum touches the thigh. A picture resembling eczema marginatum is at times also produced on the neck by the trichophyton.

Slowly the originally small circle, healing in the centre with brownish discoloration, extends in all or in only one direction, so that there results either a very large circle or, what is more frequent, a brownish discolored large surface limited by curved lines. The affection spreads from its original site, on the one hand forward and upward from the pudendal and internal inguinal region to the abdominal wall, and on the other across the perineum to the anal and gluteal region. The margin of the affected parts is raised like a wall, at times small vesicles are still visible, but the majority of these is soon destroyed by the more plentiful sudoral secretion on these parts of the body and the coincident greater maceration of the epidermis. Besides, as

the disease is usually observed only after it has existed for some time, considerable alterations have been produced by the scratching finger. As a rule the itching is so violent that the effects of the scratching give rise to a picture very similar to eczema: a number of weeping spots by the side of brown bleeding crusts, together with very great thickening of the skin, especially at the periphery as in chronic infiltrated eczemata: besides the formation of furuncles. The hairs in this region are generally intact, some are torn off

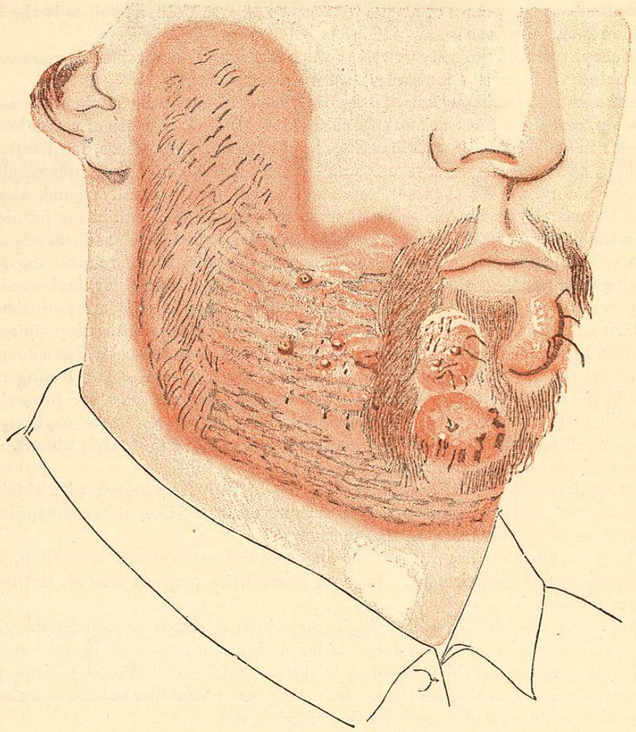

FIG. 18.—Sycosis parasitaria, after Köbner, from Virchow's *Archiv*, Bd. XXII.

by the scratching finger. A further peculiarity is the great relapsing tendency of the affection.

In tropical countries[1] the affection is very frequent, and this is ascribed to lack of cleanliness. Men are particularly attacked by it. Köbner[2] succeeded in demonstrating by experimental inoculations the etiology of the affection, so that no doubt

[1] Nicholson, "Burmese Ringworm." Wilson's Journ. of Cutan. Med., i., p. 377.
[2] "Klinische Mittheilungen," Erlangen, 1864, p. 6.

remains in the minds of unbiased observers; it is solely the peculiar seat of the affection which causes the singular course, and not, as Hebra[1] maintains, "that the maceration of the epidermis and irritation of the corium must be fulfilled as the first condition in the development of eczema marginatum, and that then, on the favorable territory thus prepared, the further development of the fungous elements, which have reached the skin from without, takes place."

The nails are not exempt from the invasion of the trichophyton, although onychomycosis trichophytina, as compared with the frequency[2] of the other cutaneous affections due to the same fungus, is rather rare. Mahon first observed the concurrence of herpes tonsurans of the head with disease of the nails. The toe nails are far more often attacked than the finger nails.

The nails become considerably thicker; their surface becomes rough, uneven, and split; irregular longitudinal and transverse streaks are plainly visible. At other places, whole pieces of the nail substance are sprung off, and only a larger or smaller remnant of the nail is present at the matrix. The thickening and friability affects by preference the free edge of the nail, and here we often see the several layers of the nail substance folded apart like the leaves of a half-open book; at times the nail is more or less inclined toward the finger tip (a slight degree of onychogryphosis). At the same time the nail loses its natural lustre, becomes dull, pale yellowish, with irregularly scattered, small grayish white spots. Here and there dirt accumulates, especially at torn portions of the nail. The alteration does not always attack the nail over its entire length, and not all the nails of the same extremity.

If we examine the splinters of the nail under the microscope after prolonged maceration in potash lye, we find mycelia generally more plentiful than conidia.

Although the whole nail is often degenerated, still at times spontaneous recovery ensues after detachment of the diseased nail.

The diagnosis can generally be determined only by the aid of the microscope.

Dubini (1865) has described under the name of vespajo del capillitio an affection of the hairy scalp which closely resembles sycosis parasitaria and has almost the character of a furunculous or plegmonous dermatitis, but which he did not believe to be parasitical. Similar cases have been described by Wilson[3] as kerion Celsi (honeycomb), who thought the disease to be a phytiform (!) degeneration of the skin; it was T. Fox who first included it in the series of affections produced by trichophyton; so did Tanturri[4] and Auspitz. According to Tanturri, the disease begins with red, round or oval plates covered with fine scales (herpes circinatus) which are but slightly elevated above the skin. Soon these places become very prominent, vivid red; from innumerable small points corresponding to the efferent ducts of the hair follicles there exudes a tenacious or less viscid cohesive yellowish fluid and pus; here the hairs can easily be removed. When the disease is recovered from, permanent alopecia and pale discoloration of the skin remain on the most intensely affected places. It is not always easy to find the fungi. When less grave, the disease in its external form corresponds more with small furuncles or closely resembles small patches of impetiginous eczema.

[1] "Lehrb.," 2te Aufl., Bd. i., p. 492.
[2] Köbner, Virch. Arch., Bd. xxii., among several hundred cases of herpes tonsurans saw only two of nail disease.
[3] "Skin Diseases," 1867.
[4] Morgagni, 1871, p. 130.