once after remittent fever, and once after scarlatina. Others have also observed vitiligo after typhoid fever. This concurrence is so frequent relatively that we cannot look upon it as merely accidental. I have seen two patients in whom pruritus preceded the occurrence of vitiligo spots. In isolated cases the affection is stated to have started from a cicatrix,[1] and indeed I have seen in a joiner, who exhibited on the rest of the body a vitiligo in the ordinary form and arrangement of the white spots, numerous white patches situated on the dorsum of the hand and the flexor surfaces of the forearms, of irregular, not round form, within which there were, at least in part, smaller and larger cicatrices. The patient stated that the disease had commenced at the scars on the hands and arms, due to injuries suffered while working at his trade. But we still lack any explanation how these processes lead to this peculiarly localized pigment atrophy, and on the other hand to the pigment hypertrophy existing at other points.

The diagnosis, in the majority of cases, will be very easy, only we must not forget that we can place very little reliance on the statements of the patients. It is for this reason that I thought myself justified in interpreting as vitiligo some of the cases described by Bärensprung as partial albinism, because the only point on which that diagnosis was based was the statement of the patients that the spots had existed from earliest infancy, while the description of these cases corresponded exactly with the former disease. The differentiation from partial albinism, however, will nearly always be easy even without the aid of the patients' statements; for mistakes are guarded against by the regularly round form of the original patches and the likewise quite characteristic markings produced by their confluence; and by the mostly symmetrical arrangement, and especially the great accumulations of pigment at the borders which are never absent when the decolored portions have attained a certain size. All these peculiarities are absent in partial albinism; the forms are not regular, there is no symmetrical arrangement, and the transition into the normal skin is often effected through an intermediate, very slightly pigmented zone; at all events there is never any accumulation of pigment at the margin. Of other diseases, only morphœa and leprosy might have to be considered. The former is distinguished by the scar-like quality of the affected parts; and the white spots occasionally occurring in leprosy show a slight desquamation which never takes place in vitiligo, and besides, a decrease in the sensibility can always be demonstrated in them.

The prognosis appears as a natural sequence from what has been stated above, and our treatment is altogether powerless. Only in cases where the white portions have spread so far that between them nothing but small brown islands are present, we can remove, at least for a time, the resulting disfigurement, by dispelling the pigment of these brown spots according to the methods given above, and thus produce uniformity. But even here the effect is of but short duration, and after some time the pigmentation reappears in its former character.

PIGMENT ATROPHY AFTER SYPHILIS, PIGMENT SYPHILIS.

A secondary pigment atrophy comes under observation in a series of cutaneous diseases, but in this place I intend to discuss only the pigment atrophy after syphilitic efflorescences. Perhaps the majority of observers are inclined to deny absolutely the existence of a typical "pigment syphilis."

[1] Hebra: "Lehrbuch," Bd. ii., p. 128.

In the first place, I intend to give here a brief description of the alteration in question, and afterward discuss the other publications relating to this matter.

Early in the secondary period, usually after the disappearance of the first exanthem, there occurs in many syphilitics—by no means in all, and, I may say here, almost exclusively in women—a peculiar discoloration of the skin, particularly on the neck, frequently also around the axillæ, in rarer cases on other parts of the skin. The impression first conveyed by these places is that of an almost net-like brown marking, but by comparing many cases, it becomes altogether unquestionable that the characteristic feature is the occurrence of round or oval light spots, ranging in size up to that of a quarter dollar, situated on a more or less strongly pigmented background. It is especially those cases in which but few such white spots are present that leave no doubt as to the correctness of this interpretation. Here, on a skin but slightly more pigmented than the normal, we see isolated white spots up to one centimetre in diameter, which are separated by interspaces three or four times as large. In the majority of cases, however, the white spots are much more closely aggregated, at the same time the pigmentation of the intervening portions of skin increases in intensity, so that a brown network first strikes the eye, and the interspersed light places appear normal. But comparison with the first-described cases, and observation of the development of this discoloration, proves that in these latter, too, the original pathological element is the occurrence of the decolored places, that the increased pigmentation around them is but secondary, and rests on the same displacement of pigment which we have become familiar with in vitiligo. In the latter disease, likewise, similar mistakes have actually been made, and the brown spots have been considered the original morbid process. True, the brown spots are not normal either, but their increased pigmentation can be looked upon only as secondary, due to the pigment atrophy of the other spots.

This mistake of assuming the pigmented places to be the originally affected ones has been made by the majority of observers. Although later observers have described the affection quite correctly, their conception is always that the pigmented spots represent the actual pathological process. That this error may lead to incongruities is shown by the fact that Fournier[1] describes pigment syphilis quite correctly in the text; he compares the confluent brown places to a coarse-meshed lace, and speaks of a possible confounding with vitiligo, and still, in the plate appertaining thereto (Pl. VIII.), the relation is depicted quite falsely, brown spots being represented surrounded by a light network. In another point, however, I fully coincide with Fournier, namely, that the decoloration in the lighter places is not complete, that they are not quite white, but merely light as compared with their darker surroundings, for they are found regularly at points which are normally usually darker in color thn the remaining skin, particularly on the neck.

Quite in harmony with my conception, however, are the description and illustration of pigment syphilis in the work of Henry Fox,[2] who accordingly terms the affection leucoderma post syphilidem.

The question whether we have to deal here with an independent syphilitic exanthem deviating from the ordinary forms, or merely with the sequels of a cutaneous eruption coinciding with the well-known syphilitic efflorescences, I think I can answer with Schwimmer in the latter sense. Observation has shown that the light spots appear at the points

[1] "Leçous clin. sur. la syph." Paris, 1881, p. 326.
[2] "Photogr. Illustr. of Cut. Syph." New York, 1881, p. 55, Pl. iii., Fig. 2.

formerly occupied by syphilitic papules; hence I assume, even for the cases in which this process had not been observed directly, that the decoloration is effected corresponding to the absorption of syphilitic infiltrations. I would call to mind here an obviously similar process in the absorption of psoriatic efflorescences after the employment of chrysarobin, where light spots likewise appear corresponding to the former seat of the psoriatic patches which become doubly conspicuous by the darkening produced by the chrysarobin on the surrounding parts. Another point in favor of this view is the pronounced intractability of pigment syphilis. In spite of all imaginable antisyphilitic courses of treatment, the affection persists one or two years, disappearing quite gradually, even without being treated.

Herein, then, lies the exceedingly great diagnostic importance of pigment syphilis. In many cases, in which all other distinct manifestations are often absent, within the first years of the syphilitic diathesis it furnishes an absolutely certain proof of the presence of the disease, and its value is only enhanced by the easy accessibility of the parts usually affected. And as the occurrence of pigment syphilis, at least in women, is relatively frequent, I hold it to be a new, exceedingly important diagnostic landmark.

We now enter on the consideration of those anomalous colorations of the skin produced by foreign coloring matters. These may be introduced into the skin either by the blood-vessels from within, or penetrate mechanically into it from without. In the former way is effected the icteric coloration of the skin and argyria; in the latter, those due to tattooing and the introduction of gunpowder.

The icteric color of the skin is produced by the impregnation of the skin with bile pigment which takes place whenever the blood, from any cause, contains this substance which is not normally present in it. Of course, the skin shares this fate with all other tissues of the body, at least in so far as they are not very deficient in blood and lymph vessels. According to the quantity of bile pigment passing from the blood into the skin, the intensity of the color varies from a light yellowish tint to an intense yellow, yellowish-green and olive-green, and even still darker, blackish-green shades in the gravest chronic forms of icterus, and these have given rise to the names icterus viridis and melas. The saturation of the skin with the pigment is at first quite diffuse, only if the icterus is of very long standing it is possible to demonstrate by the microscope here and there some small, angular greenish-yellow particles. The most disagreeable symptom, next to the discoloration, and often more annoying than the latter, is the often occurring pruritus, evidently produced by the direct irritation of the nerve terminations in the skin by the bile pigment.

Argyria is produced by the introduction of silver into the intestine and its transportation by the blood into the various organs of the body. The symptom of this disease, which is of the greatest importance to us in this connection, the discoloration of the skin, shows itself first by a dull, steel-gray or faint bluish color appearing earliest in the face and on the hands, that is, on the uncovered parts of the body, where it also attains the greatest intensity subsequently, when the entire skin has been implicated. When, with the continued introduction of the drug, the alteration increases in intensity, the color becomes darker, and may finally acquire a deep grayish-blue. This discoloration is usually participated in by the mucous membranes, as that of the mouth and conjunctiva, also by the nails, though in a slighter degree. The hairs, too, acquire a peculiar reddish color, as, for instance, in persons dyeing their hair with solutions of silver nitrate.

Microscopic examination of the skin shows that the epithelial portions, the rete mucosum, also the glandular epithelium, are altogether free from depositions of silver. On the other hand, throughout the connective tissue portions of the skin there are accumulations of the finest granules of silver. These deposits of silver are the most dense immediately beneath the epidermis in the uppermost layers of the papillary body, and in the membranæ propriæ of the sweat-glands, where they form a continuous strip, of a violet appearance under low powers. In like manner we find more or less extensive deposits of silver in all internal organs, with the exception of the central nervous system.

These phenomena appear only either after the very long-continued use of silver nitrate, or after a shorter employment of very large doses. Hence, as a rule, we have to deal with patients who have taken silver nitrate internally for years because of chronic affections of the nervous system, tabes, epilepsy. Another mode of origin of argyria is reported by Neumann,[1] the case of a physician affected with ulcer of the stomach, who, for several months, injected two to three times daily into his stomach, by means of the œsophageal sound, a solution containing about 1.5 gm. of silver nitrate. After about twelve doses, the first indications of the discoloration are said to have appeared. Furthermore, cases of argyria have been observed after the very long continued applications to the pharynx or tongue, such as is often employed for years especially by hypochondriacs, evidently in consequence of small quantities of the remedy being swallowed.

Attempts have been made repeatedly to produce argyria artificially in animals by long-continued feeding with silver nitrate, but thus far always with negative results as regards the skin; in some internal organs of these animals silver could be demonstrated.

Opinions are still divided as to the chemistry of the processes taking place therein. Reimer's view[2] appears most probable; he assumes that the silver, having been reduced in the intestine, and being in the state of finest subdivision, is taken up by the chyle vessels, thence transported into the blood current, and then deposited in the vaiours organs. It is difficult, however, to bring into harmony therewith the influence of light on the staining of the uncovered parts, which is indisputable in view of the clinical observation, for the color of the reduced silver can no longer be altered in any way by the light.

In the present state of our knowledge, argyria must be considered an incurable affection. Neumann[3] alone reports that, in a case under his observation, according to the statement of the patient, the intensity of the stain decreased in the course of several years.

Finally, there remains the consideration of the color changes of the skin due to the mechanical introduction of substances from without.

The procedure, of course largely modified in its details, consists simply in outlining with a fine needle the desired design by closely adjoining punctures, then firmly rubbing into the skin thus prepared the pigment in question, indigo, powdered carbon, cinnabar, carmin, with which occasionally the needle may also be charged, and finally applying a bandage over the part. The particles of pigment which have thus penetrated

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[1] Medic. Jahrbücher, Bd. iii., p. 369, 1877.
[2] Arch. d. Heilk., Bd. xvi., pp. 296 and 385.
[3] Arch. d. Heilk, xvi., p. 382.

through the minute wounds beneath the epidermis into the corium remain there and undergo no further alterations, so that the design produced by them persists forever.

Tattooing is of interest to the physician really only in so far as repeated infections with syphilis have occurred in consequence of the habit of moistening the needle employed with saliva so as to make the pigment adhere.

The numerous attempts to utilize tattooing of the skin for the purpose of covering annoying pigmentations, in the case of nævi, etc., have unfortunately not been crowned with success, while, as is well known, tattooing of the cornea in opacities of that structure is often employed with advantage.

A similar effect is produced by the penetration of minute particles of carbon from powder burns, which in part are made intentionally with the same object as that of tattooing, in part are accidental, as in gunshot wounds, etc.

The color presented by these carbon particles through the skin is not a pure black, but has a distinct bluish tinge, probably due to the portions of skin overlying them.

In workmen, too, who have much to do with coal, miners and firemen, who are also largely exposed to injuries by falling pieces of coal, we often find small particles of carbon sprinkled into the skin which appear bluish-black, exactly like the granules from powder burns.

ANOMALIES

OF THE

SEBACEOUS GLANDS AND THEIR FUNCTION.

BY

ERNST VEIEL, M.D.,[1]

OF CANNSTATT.

IMBEDDED in the several layers of the skin, we find a series of organs which represent invaginations of the epidermis into the corium. These blind tubes—sacciform or tubular formations—are the sweat-glands, the hair-follicles, and the sebaceous glands or follicles. While the sweat-glands represent deep-seated convolutions of tubes which, situated in the corium, penetrate it in gentle spirals, but traverse the epidermis in diminishing, cork-screw-like twists and always terminate by themselves, the hair and sebaceous follicles form virtually but one organ. The sebaceous glands belong to the class of acinous glands; in their simplest form, they occur as unilobular or bilobular, grape-like sacs, or else multilobular, mulberry-like (in the capillitium, on the nose, scrotum, etc.), and terminate in one efferent duct, together with a hair-follicle, or apparently alone. In the latter case, we find almost invariably small (atrophic) hair-sacs, with downy hair (lanugo), as lateral appendages, which either remain hid in the efferent duct of the sebaceous gland or project from the pore. Sebaceous glands and hair-follicles are organs appertaining together; they are either equally developed, in which case the efferent duct of the sebaceous gland terminates in the hair-follicle while still within the cutis, the sebaceous gland appearing as an appendage of the hair; or else, as on parts scantily supplied with hair, the hair formation is merely rudimentary, so that the small atrophic hair-follicle represents an appendage to the fully developed sebaceous gland and its efferent duct. The efferent duct of such a sebaceous gland is identical with the uppermost part or with the terminus of a hair-follicle. On perfectly hairless parts, we are forced to assume an absolute atrophy of the accompanying hair-follicle.

[1] When the esteemed author died, on January 7th, 1883, the manuscript for this chapter was found completed, with the exception of the sections on "Acne rosacea" and "Sycosis," the writing of which Dr. Th. Veiel was kind enough to undertake.