

and they are obviously nothing but various forms of degeneration of the protoplasm. The third group of bodies are the most variable of all. They always lie in vacuoles in the protoplasm. They are irregular in size, and careful study will show every variation between the most indefinite of these bodies and structures which may certainly be recognized as cells, and even the special variety of cells may be distinguished. The cells of carcinoma differ further from ordinary epithelial cells in their marked phagocytic properties. The included cells may be cells or portions of cells from the tumor itself, polynuclear leucocytes, or the lymphoid and plasma cells of the stroma. The last two groups of inclusions are easily explained; they are in no way peculiar to carcinomata or any of the tumors.

The various transformations which included cells may undergo can probably be better studied in the large cells of typhoid fever than elsewhere. They are also very numerous in the proliferating connective-tissue cells of granulation tissue. The bodies first described are more difficult of explanation and probably no single explanation of their origin can be given. I am convinced that many of them are due to degeneration of the nucleus. In a tumor which developed in a cicatrix after the operation, and in which they were very numerous, it was possible to see transitions in the nuclei leading to these bodies. The chromatin of the nucleus disappeared, the whole structure becoming homogeneous, and the nucleolus remaining as the central granule. They may also be referred to degeneration of segments of the nucleus which are occasionally thrown off and which represent the degenerative direct division. Borel believes that some of them are certainly to be referred to changes taking place around the centrosome, the radiate bodies being the spindle, and the granule in the middle the remains of the centrosome. In the giant cells of a sarcoma I have seen degenerations of the numerous centrosomes which become swollen up and the spindle around them more definite, but none of these bodies were found. Whatever the explanation given, there is nothing in the present state of our knowledge which should lead us to regard them as parasites. The defenders of the parasitic theory have been able, in a small number of cases, to cultivate yeasts from carcinomata. They have inoculated animals with these cultures and in a very few instances, not more often than could be explained as a coincidence, epithelial tumors have resulted. Almost invariably the new formation of tissue which has resulted from the inoculation has been granulation tissue of a sort which would follow from the introduction of any injurious agent.

It would not be justifiable to deny the possibility that carcinoma may be due to a parasite, but no evidence of this has been adduced up to the present time. On the contrary, everything we know of the tumor speaks against this idea. If a parasite is the cause, it must be different from any form of parasite we know, and its relations to the tissue must be different. It would be difficult to assume that a parasite could infect the tissues at a certain point, giving to the cells certain properties which would be retained by all following generations of cells. Otherwise we must assume a symbiosis between cell and parasite, as the parasite must be present in all cells and be carried with the cell to produce a metastasis, for a metastasis cannot be due to a parasite alone.

When the carcinoma once starts the cells themselves act as parasites. In the removal of a carcinoma, if the operation is to be successful, all the parasitic cells must be removed. It is not sufficient to remove the primary tumor and the lymph glands connected with the tissue, but the tissue between the two, in which the lymph vessels run and which may contain straggling cells, must also be removed. It may be extremely difficult to do this, for the blocking of the glands by metastases and the occlusion of the ordinary lymph channels may bring other collateral channels into play. The frequency with which the tumor reappears in the cicatrix after opera-

tion may possibly often be due to infection of the incised part by the knife of the surgeon.

W. T. Councilman.

CARCINOMA. (CLINICAL.) See *Cancer. (Clinical.)*

CARCINOMA OF THE SKIN.—A uniform nomenclature of malignant growths of epithelial tissue is, even in the present state of our pathological knowledge, by no means employed by writers.

In a general way, however, carcinoma is used to designate all varieties of malignant growths of epithelium, including both the glandular and the surface varieties. The majority of writers use the term epithelioma when referring to primary cutaneous cancers.

Fabre and Domergue* make a clinical and pathological distinction between epitheliomata and carcinomata of the surface in the manner of growth (orientation) of the cells and the relationship of the cells to the basal layer of the epidermis.

In the present article carcinoma is employed as a comprehensive term embracing all the varieties which have their starting-point in the surface epidermis or its appendages.

SYMPTOMATOLOGY.—The primary forms which skin cancers assume depend to some extent on their seat and minute structure. We are unable, because of so many exceptions to this statement, to formulate any rule which will always associate a definite clinical type with a fixed histological structure.

The old division of carcinomata of the skin into (1) the superficial, flat, or discoid, (2) the deep-seated, nodular, or infiltrating, and (3) the papillary, is still largely employed as furnishing convenient terms for use in descriptions.

This classification is more or less imperfect, as the flat or discoid form may become deep-seated, the latter involving the skin secondarily as a superficial growth, while both are at times complicated by papillary outgrowths.

Unna† has attempted to reduce the majority of skin carcinomata to a few types according to the gross histological appearances or architecture of the growths. He obtains in this way three chief forms which he designates (1) the fungating, (2) the cylindrical, (3) the alveolar, each of which is further subdivided. A fourth or sub-form (carcinomatous lymphatic infarction secondarily affecting the skin after breast cancer and in metastases) is added to this classification.

The classification proposed by Unna is based chiefly on the histological structure of the growth, and in the fungating form the macroscopic appearance of the tumor is considered as well.

To one unfamiliar with the histological details of carcinoma of the skin the classification is too involved for practical purposes. A further reference will be made to it in describing the minute anatomy of these new growths.

To avoid confusion in the clinical picture of the malady certain primary types of more or less uniformity will be described, and then reference will be made to the forms which follow or develop on some pre-existing morbid condition of the skin or constitute the final stage of such affections, as xeroderma pigmentosum, Paget's disease, lupus vulgaris, syphilis, etc.

An important fact to be borne in mind is that carcinomata of the skin are not infrequently multifiform in their manifestation and often have a relatively benign course.

Superficial Epithelioma.—One of the most frequent forms in which carcinoma of the skin begins is as a small, hard, pearly gray nodule generally found on the upper two-thirds of the face in individuals over forty years of age. These nodules are often multiple, may remain for years with little or no change, or even may disappear spontaneously. If they are removed during their primary stage before ulceration begins they show only a slight tendency to recur.

* "Les Cancers Epithéliaux," Paris, 1898.

† Unna, "Histopathology of the Diseases of the Skin," p. 670.

After a time one or more of these small growths may slowly increase in size, the centre at the same time sinking in and eventually becoming fissured or excoriated as the result of scratching or other irritation. At this stage, the new growth consists of a superficial ulcer covered with crusts made up of blood and secretions from the affected surface, and surrounded by a hard, elevated, waxy looking margin (Fig. 1, Colored plate XXI). The central ulceration may heal but is sure to recur, each time becoming somewhat larger, but seldom involving the deeper tissues; it has a red, granular base, secretes but little pus, and rarely causes pain. The floor and edges of the ulcer, consisting of soft friable tissue extending beneath the overlying epidermis, are easily removed by the curette. Instead of extending in a regular and progressive manner the ulceration may heal in the centre while continuing to spread at the margins, or one side may cicatrize, as a result of which gyrate and irregularly outlined ulcers with new foci may develop in the scar tissue (Fig. 1135). Such a carcinomatous ulcer may



FIG. 1135.—Superficial Epithelioma of the Face (Rodent Ulcer Type) of Fifteen Years' Duration. Showing scar tissue and peripheral ulceration.

generally be differentiated from syphilitic or lupus ulceration by the presence of the elevated, waxy, or pearly gray margin.

The progress of the affection is excessively slow, lasting ten, twenty, or even forty years before the patient dies from this or some other malady. It may eventually, however, invade the orbit, destroy the greater part of the skin of the face, the malar bones, the upper jaw, and penetrate the skull, causing the death of the patient from hemorrhage, exhaustion, or the involvement of vital organs. Fungating tumors reaching a considerable size may spring up from these ulcerating surfaces.

This variety of malignant growth, which has its primary seat near the eye, beginning as a minute, pearly gray nodule and spreading in a slow but progressive manner, is the so-called rodent or Jacob's ulcer, regarding the nature of which there has been so much discussion and divergence of opinion. It seldom or never invades the lymph nodes, and does not produce metastases or give rise to cachexia. It was looked upon by the older writers, such as Brodie and Paget, as a disease distinct from carcinoma and some modern authors even now deny its carcinomatous nature. Probably several varieties of superficial skin carcinoma during their course may assume the appearances described, so that the name, if retained, should be used in its clinical significance rather than to indicate a distinct species of epithelial new growth. Unna, on the other hand, opposes the view that every flat, superficial, carcinomatous ulcer should be called rodent ulcer. He believes that the latter affection has certain definite clinical

as well as histological features which are characteristic, and that it should not be confused with other varieties of carcinoma.

In addition to the early lesion in the form described, epitheliomata about the face may begin as brownish-red tubercles, hemispherical in outline, quite smooth, and of medium consistence. When first observed they are smaller than a split pea, slightly elevated, and may reach the diameter of half an inch before breaking down. These small nodules are readily scraped away with the dermal curette and apparently show little tendency to recur. They are seen about the ala of the nose, the eyelid, and the forehead. Sections of such growths under the microscope are found to contain proliferating bands, tubular processes, and acinous-shaped masses of small epithelial cells which correspond to those in the basal layer of the epidermis. These proliferating tracts and masses of cells are surrounded by a layer of columnar cells which represents the basal layer and probably limits their rapid growth. They are enclosed in a loose meshwork of connective tissue which is generally poorly developed or may be almost absent.

If undisturbed these nodules grow slowly for a number of years, then, under the stimulus of some irritant, increase more rapidly in size, finally resulting in open ulcers.

Disseminated Epithelioma of the "Sebaceous Type."—Multiple epitheliomata which are met with especially about the face, sometimes on the hands and trunk, are usually preceded by certain definite changes in the skin to which the name "senile keratosis" has been applied.

The skin at first becomes somewhat rough, and is covered by scales adherent to the follicular openings. Later, scabby concretions of a dirty yellowish-brown color form, and beneath them is found a warty condition which bleeds readily on slight irritation. Small cup-shaped depressions are subsequently noted beneath the thickened and altered horny layer; these coalesce and give rise to open epitheliomatous ulcers having hard, elevated edges and bases. A number of years may elapse from the time when the first changes in the skin appear before a malignant development takes place.

The same patient is frequently affected with several epitheliomatous ulcers in different stages of growth as well as with encrusted papillomatous areas which have not yet undergone the malignant change. The severer cases occur among those patients who are exposed to vicissitudes of weather and to the heat of the sun and in whom the earlier alterations in the skin which predispose to the condition are overlooked or neglected.

Other senile changes in the skin, as pigment deposits, papillomata, alterations in the blood-vessels, atrophy of the subcutaneous connective tissue, predispose to malignant new growths. These changes are allied to those which occur in the young in a more aggravated form, constituting the disease known as xeroderma pigmentosum, which, as a rule, terminates in the development of one or more malignant tumors. They are also met with in the condition known as sailors' skin, which Unna* has observed and investigated. The changes which take place on the exposed portions of the face and hands are at first a cyanotic redness, followed by pigment deposits and leucodermatous spots. Localized thickening of the horny layer of the epidermis next occurs, and this, at certain spots, assumes a warty character, to be followed by papillary and ulcerating epitheliomata. While in their early stages these ulcers pursue an indolent course, and involve only the superficial tissues; at a later date they are more rapidly destructive than the rodent ulcers.

In Paget's disease of the nipple a superficial, moist, crusted, slightly scaling dermatitis may exist for a number of years as a precancerous condition. Healing cannot be brought about by the ordinary applications and eventually a superficial or deep-seated carcinoma appears in or beneath the chronic dermatitis. It is usually of the alveolar type, and more frequently begins in the lactiferous ducts than in the epidermis itself. Swell-

* Unna, "Histopathology of Diseases of the Skin," p. 719.

ing of the lymph nodes is met with in the later stages of the disease.

Multiple epitheliomata at times develop on old patches of psoriasis. The prolonged use of arsenic in this and other chronic skin diseases is at times followed by patches of keratosis and horn-like lesions especially on the palms of the hands and soles of the feet, beneath which cancerous ulceration begins. These malignant changes are usually multiple, and in fifty per cent. of the cases recorded they developed before the age of forty. Among arsenic miners carcinoma, beginning as arsenic warts on the fingers, has not infrequently been observed.

Hutchinson has repeatedly called attention to the etiological relationship supposed to exist between the internal use of arsenic and the development, on the palms and soles, of keratoses which terminate in carcinoma; and lately Hartzell* has reviewed the subject, giving at the same time the report of a case of his own which showed this sequence of development.

Chimney-Sweeps' Cancer of the Scrotum.—This variety of cancer, which at one time was often met with in England, has become less frequent since the enforcement of laws forbidding sweeps to ascend flues. The retention of soot in the folds of the scrotum gives rise to a chronic dermatitis and warty outgrowths. After a time one or more of these warts ulcerate and eventually involve the superficial as well as the deep tissues. The inguinal lymph nodes after a time become implicated.

Tar and Paraffin Cancer.—Volkman† first called attention to the occurrence of cancer of the scrotum and forearms in workers in coal tar and paraffin. The antecedent changes in the skin are similar to those met with in chimney-sweeps' cancer. The follicular openings are occluded, the skin becomes dry, thickened, and the seat of warty growths which subsequently become malignant.

It is not improbable, as has been suggested by Esmarch and Langenbeck, that tobacco, soot, tar and paraffin are closely allied in their power to stimulate epithelial growth. Abnormal cell division has been experimentally produced by treating the dividing cells with poisons and chemical agents, thus rendering more probable the relationship which is believed to exist between the long-continued use of arsenic and the development of cancer, and at the same time favoring the view that this variety of new growth may owe its origin to the stimulation furnished by such chemical agents as tobacco, tar, etc.

Chronic affections of the derma, as lupus, syphilis, etc., seem to favor the development of carcinoma by lessening or removing the normal barrier which separates the epithelium from the connective tissue. At the same time a constant irritation is exerted on the epithelial layer which causes it to undergo hypertrophy and ultimately may lead to its becoming the seat of a malignant growth.

Carcinomata develop from active lupus or from its scar tissue so frequently as to indicate more than an accidental relationship. They are apt to assume fungating forms, to prove rebellious to treatment, and to pursue a more rapid course than when they develop independently of such a connection. They have also not infrequently been observed to start from late syphilitic lesions of the skin, in which case there is danger that they may be overlooked because the original disease often obscures their characteristic features.

Syphilis of the tongue is one of the most frequent precancerous affections of this organ. Late syphilitic neoplasms, interstitial glossitis, and leukokeratosis may be followed by rapidly growing carcinomata. Indifferent scar tissue of the skin, when exposed to long-continued irritations, forms a favorable soil for the development of a malignant tumor. The course of such growths is less rapid than when they start from the scar-tissue of lupus. In the latter case there is nearly always more or less ac-

* "Epithelioma as a Sequel of Psoriasis and the Probability of its Arsenical Origin." The Amer. Jour. Med. Sci., vol. cxviii., 1899, p. 265.

† Beiträge zur Chirurgie, 1875, p. 380.

tive tuberculous disease and thus less resistance is offered to the epithelial ingrowths.

Papillary Carcinoma.—Papillomatous tumors bear much the same relationship to epitheliomata as the adenomata do to glandular carcinomata. They consist of a rapid growth of the cells comprising the Malpighian layer with a consecutive hypertrophy of the papillae beneath. As long as the basement membrane remains unimpaired the invasion of the underlying tissues by the growing epithelium is prevented.

Papillary growths frequently spring up from the base and periphery of carcinomatous ulcers, especially when a mucous membrane is involved, and obscure by their rapid development the features of the primary tumor. The scalp is sometimes the seat of these secondary growths (Fig. 3, colored plate XXI.), which assume a cauliflower-like appearance and convey the impression of a more malignant tumor than is warranted by their clinical course. These outgrowths are usually broader at their surface than where they are attached to the morbid growth, and they spread over the healthy skin in a radiating manner for a considerable distance.

The seats of predilection of a primary papillary carcinoma are the glans penis and the lips. An absence of a firm epithelial covering facilitates the surface growth of the prickly layer (Unna). The horny layer may in the early stages be thickened and firmly attached, but, later, cornification becomes abnormal, and the enlarged papilla with the rapidly growing and unprotected prickly cells, bleeds readily on slight irritation. Surface infection takes place with consecutive necrosis of the superficial layer of cells. As long as the epithelial proliferation is superficial, these growths are easily removed. When the deeper tissues are invaded they spread at times with alarming rapidity owing to their active cell-growth. Sooner or later ulceration takes place and the early features of the affection may be lost. In Fig. 2 of the accompanying colored plate a carcinomatous ulcer is depicted which began as a wart, but at the time when the picture was taken the papillomatous growth had entirely disappeared.

These carcinomata differ from the growths of the rodent-ulcer type in their tendency to form horny or hyaline pearls as well as in their more rapid and malignant course.

Cutaneous horns are modified papillomatous tumors in which cornification is greatly exaggerated. Epitheliomata sometimes start from the base of such growths and terminate in open ulcers, which pursue the ordinary course of the malignant new growth.

Carcinomata from Nævi.—Pigmented and non-pigmented moles often present the structure of an alveolar carcinoma, and while the great majority of such congenital malformations retain their benign character, they occasionally give rise to growths of great malignancy.

Unna* and Gilchrist† have shown that these nævi are caused by the snaring off of epithelium from the surface epidermis in embryonic life or in early youth. Malignant tumors arising from such a matrix later in life are therefore carcinomata and not sarcomata, as has been so long held by the majority of pathologists.

It has not been clearly determined that all malignant melanotic tumors are carcinomata, but if certain of these are of mesodermic origin it is impossible to differentiate the two classes clinically. These melanotic tumors may develop on any part of the body, generally on the extremities or genitals. They are at first bluish-black or slate-colored growths assuming wart-like or fungous forms.

Secondary tumors may develop in the vicinity of the parent growth, and, spreading along the lymphatic vessels, give rise to large nodular growths in the lymph nodes. Metastatic tumors rapidly form in the viscera, and cachexia soon appears, followed by a fatal termination, sometimes within a few months after the appearance of the primary tumor.

* "Histopathology of Diseases of the Skin," p. 745.

† Journ. of Cutan. and Genito-Urinary Dis., vol. xvii., p. 117.

EXPLANATION OF
PLATE XXI.

EXPLANATION OF PLATE XXI.

(Illustrating Dr. Fordyce's article.)

The colored pictures have been copied from photographs of author's cases.

FIG. 1.—Early stage of superficial epithelioma of the face, the so-called rodent-ulcer type of the affection.

In this variety of epithelioma the new growth is made up of small epithelial cells which correspond to those in the basal layer of the epidermis or in the outer root-sheath of the hairs.

The growth began in this case as a small pearly-gray nodule which slowly ulcerated in the centre while spreading with an elevated margin. The progress of this type of epithelioma is exceedingly slow.

FIG. 2.—A more advanced stage of epithelioma of the skin. The growth here portrayed is of eight years' duration. It began as a wart which rapidly spread after the application of some caustic. The post-cervical lymph nodes were enlarged. The microscope showed the tumor to be a squamous-celled epithelioma, the prognosis of which is more grave than that of the rodent-ulcer type.

FIG. 3.—The tumor here shown was seen when fully developed on the scalp of an old woman. It was attached by a broad peduncle, its margin resting on the healthy skin. The body of the growth was made up of moist, warty vegetations which readily bled on slight irritation. Under the microscope the tumor was found to resemble an alveolar carcinoma, the connective-tissue framework being rich in newly developed blood-vessels.



FIG. 1. EARLY STAGE OF RODENT ULCER OF THE FACE.



FIG. 2, SQUAMOUS-CELLED EPITHELIOMA OF THE SKIN.



FIG. 3. PAPILLARY OUTGROWTH WHICH DEVELOPED ON EPITHELIOMA OF THE SCALP.
CARCINOMA OF THE SKIN.

EXPLANATION OF PLATE XXI.

(Illustrating Dr. Dodson's article.)

The colored pictures have been copied from photographs of author's cases.

FIG. 1.—Early stage of superficial epithelioma of the face, the so-called rodent-ulcer type of the affection.

In this variety of epithelioma, the new growth is made up of small epithelial cells which correspond to those of the basal layer of the epidermis or in the outer root-sheath of the hairs.

The growth began in this case as a small pearly gray nodule which slowly ulcerated in the centre while spreading with an elevated margin. The progress of this type of epithelioma is exceedingly slow.

FIG. 2.—A more advanced stage of epithelioma of the skin. The growth here portrayed is of eight years' duration. It began as a small tumor which rapidly spread after the application of some caustic. The growth here is of the squamous-celled type. The microscope showed the tumor to be a carcinoma of the skin, the growth of which is more rapid than that of the rodent-ulcer type.

FIG. 3.—The tumor which here is seen developed on the scalp of an old woman. It was situated on a small patch of healthy skin. The body of the growth was made up of small cells which bled readily on slight irritation. Under the microscope this tumor was found to resemble an alveolar carcinoma, the connective-tissue framework being rich in dilated blood vessels.

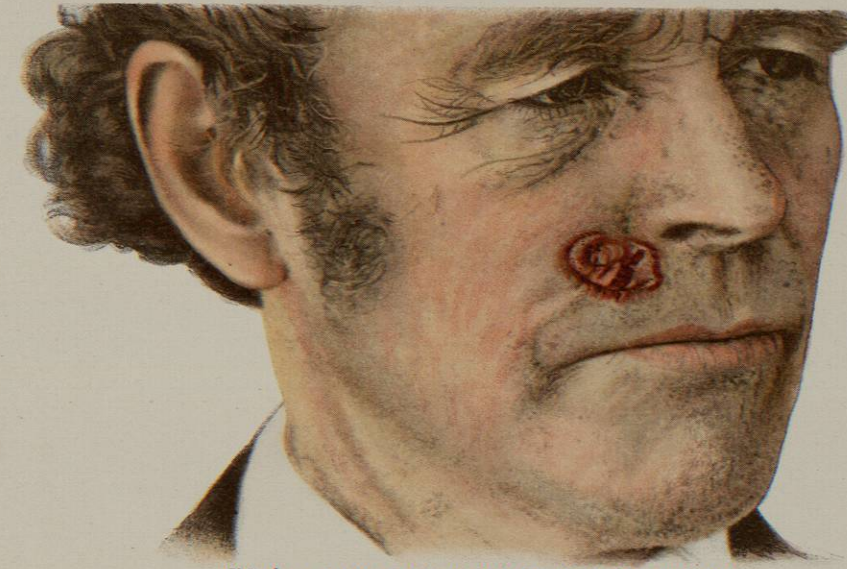


FIG. 1. EARLY STAGE OF RODENT ULCER OF THE FACE.

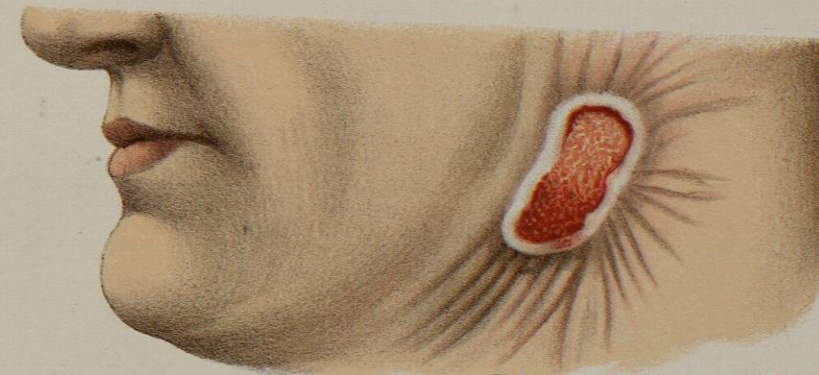


FIG. 2. SQUAMOUS-CELLED EPITHELIOMA OF THE SKIN.



FIG. 3. PAPILLARY OUTGROWTH WHICH DEVELOPED ON EPITHELIOMA OF THE SCALP.
CARCINOMA OF THE SKIN.

Deep-Seated or Nodular Carcinoma.—The great majority of cutaneous cancers conform to one or more of the types which have been described and are in their early stages more or less superficial. Many preserve such a location during their entire evolution, the new growth ulcerating as soon as it develops. Others may early tend to involve the deeper tissues, giving rise to distinct indurations or veritable tumors which invade the muscles or bones. The deep-seated or nodular carcinoma is, therefore, usually secondary to a surface ulceration, but it may occur near the cicatrices of former operations for malignant disease, a group of cells in the subcutaneous tissue acting as a focus for the relapsing growth.

Metastatic cancers of the skin from visceral or breast carcinoma are usually first detected as small subcutaneous nodules which, in exceptional cases, may enlarge, assume an irregularly rounded shape, and become firmly attached to the underlying tissues.

Certain carcinomata of the surface epithelium, more especially of the tongue and lip, show an early tendency to deep infiltration and are apt to pursue a more malignant course from the beginning. The only plausible explanation that has been given as to why these growths tend to involve the deeper structures, is, that the downward growth of the epithelium can take place more readily in these localities where the tissues are rather succulent. Fabre-Domergue, however, attributes their more malignant course to the character of the new cell growth, which is favored by the absence or non-continuity of the basal layer about the masses of growing epithelium. In carcinoma of the tongue there is little or no disposition on the part of the epithelial cells to form concentric globes containing horny or hyaline masses, but the constituent cells grow, multiply, and end their existence independently and simultaneously. There is, consequently, in these tumors of the tongue an absence of those histological features which limit cell growth in many of the surface epitheliomata.

Deep-seated epitheliomata, when primary, may begin as single or multiple pea-sized nodules of a whitish or purplish color. They increase slowly in size, become more irregular in outline, and form adhesions to the overlying skin. Eventually there is produced a firm, projecting tumor, which may reach the size of a hen's egg, over which dilated blood-vessels are prominently seen. Ulceration subsequently takes place, leading to the formation of cavities which increase in a progressive manner as the infiltration spreads and breaking down of the tissues occurs.

Papillomatous growths sometimes spring up from the base or walls of the ulcerating surface, the edges of which may contain waxy nodules like those seen in the superficial varieties. The lymph nodes may be involved at a comparatively early period and metastases may develop in the internal organs; then follow marasmus and death.

Under the name of tuberos carcinoma cases of this kind have been described in which multiple, deep-seated tumors developed simultaneously and broke down into ulcers which soon led to the patient's death.

Carcinomatous Lymphatic Infarction.—This is the name given by Unna to a sub-form of cancer of the skin. It is generally described as lenticular carcinoma. It is met with, in the great majority of cases, in the skin covering the female breast as a development secondary to mammary carcinoma; it may also develop in the cicatrix following operation for cancer of the gland. Epithelial cells from the primary growth are conveyed by the lymph vessels and give rise to the formation of small white or pinkish papules from the size of a small shot to that of a pea. Infiltrated patches at times result from the confluence of numerous primary nodules which may or may not undergo ulceration.

When the lymphatic infection is active and extensive the entire cutaneous surface over the front and back of the chest may be involved, the process even extending to the skin of the abdomen and arms. In the later stages the skin becomes hard and leathery in consistence from

the growth and contraction of the connective tissue, producing the condition known as *cancer en cuirasse*.

The constriction produced by the new growth may be sufficient to interfere with respiration or may give rise to edema of the arm from interference with the lymph circulation. A fatal result may follow within a few months after such a development occurs, but in certain cases general infection is delayed for a number of years.

Carcinoma of the Sweat Glands.—The most divergent opinions exist as to the rôle played by the sweat glands in tumor production. Certain pathologists at various times have attempted to show that many small-celled epitheliomata, in which the cells grow in tubular processes, have such an origin. It has, however, been clearly demonstrated that neither the shape, size, nor arrangement of the cells furnishes sufficient criteria on which to base the diagnosis of sweat-gland cancer. Darier* has reported a peculiar case that occurred in the service of Besnier, in which multiple, deep-seated, and painful tumors developed with great rapidity on the trunk of a man aged seventy-one. Darier's examination showed that each tumor started with a proliferation of the sweat-gland epithelium, which filled the lumen of the canal, broke through the membrana propria, and infiltrated the connective tissue. He gave to his case the name "diffuse multiple epithelioma of the sudoriparous glands," and believed it to be unique in the number, the rapid evolution, and the structure of the tumors. The author was able to find but two analogous cases in medical literature, one of which was reported by Malherbe, the other by Creighton. In the latter case a dog was the subject of the affection. In Darier's case death resulted within a few months after the beginning of the affection.

The author of the present article some years ago examined a tumor which had been removed by Dr. Bronson from the anterior surface of the leg of a man thirty-five years old, and which proved microscopically to be a carcinoma originating in the coil gland. The growth in question was composed of distinct lobules, separated by the ingrowth of connective tissue; it was soft to the feel, about half the size of a small egg, and defined from the surrounding tissue without being distinctly encapsulated. It extended about one inch below the skin, and measured an inch and a half in its long diameter. An open ulcer, somewhat larger than a dime, was present over the tumor. The cancerous nature of the new growth was not suspected prior to the microscopic examination.

Neither the duration of the tumor nor its onset as a surface or deep affection was noted.

Carcinoma of the Lip.—Cancer of the lip, by reason of its frequency, malignant course, and the importance of an early diagnosis, demands a separate consideration. Its seat of predilection is the lower lip, at the junction of the skin and mucous membrane near the median line. It may occur near the angle of the mouth. The development of a tumor on the upper lip has been noted in one or two instances. In these cases contact with the primary growth on the lower lip may have served as a cause. Cancers of the upper lip, as a rule, occur at some distance from the vermilion border and are usually of the rodent ulcer or superficial type of growth. When the mucous membrane is involved by the extension of such a tumor of the upper lip its clinical course differs from that of the typical cancer of the lower lip. It does not penetrate deeply nor infect the lymph nodes as in the latter case.

A number of primary changes in the surface epithelium may precede ulceration or tumor formation. Hyperkeratosis over a limited area, followed by a fissure and later by ulceration, is often observed. The ulcer is irregular in outline and surrounded by thickened and elevated margins (Fig. 1136). The base of the ulcer becomes indurated and the infiltration gradually extends to the deepest issues.

In another case the epithelium may become eroded in-

*"Contributions à l'étude de l'épithéliome des glandes sudoripares." Arch. de méd. expérimentale et d'anat. pathol., 1889, pp. 115, 207.