lieve that in some cases of epilepsy of other than central origin amelioration if not cure may be obtained by the permanent cure of chronic intestinal stasis. Melancholia, lumps in the breast, albumin and casts in urine, and other untoward conditions, have disappeared after relief of stasis.

Lane has long contended that cancer, among other diseases, is associated etiologically with chronic intestinal stasis. Such a contention is manifestly difficult of proof, but should nevertheless be given careful consideration. Fig. 8 illustrates a case in which

A

Fig. 8.—A. Carcinoma of stomach; B. Distended duodenum, resulting from kink at duodeno jejunal junction.

there is strong presumptive reason for thinking that there may be some causative factors in common between the two conditions, or that one is superimposed upon the other as a result thereof.

THE PATHOLOGY AND TREATMENT OF CUTANEOUS CANCER.*

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The statistics of the American, Dermatological Association, Eighth Annual Meeting, Richmond, Va., Nov. 9-12, 1914.

logical Association as given by Pollitzer¹ show that nearly 2 per cent of all dermatoses are cancerous in nature. Therefore, the disease is frequent enough, as well as serious enough, to merit careful consideration.

According to Unna,² the first division of carcinomata of the skin was made by Hannover³ in 1852, when he made use of the term "flat" and "infiltrating," a division that was brought into popularity in the great work of Thiersch⁴ in 1865. To some extent Thiersch, and to an even greater extent some subsequent writers, attempted to classify skin cancers according to the tissues from which they sprang. Unfortunately for this plan the early advocates of it were not good pathologists, and consequently fell into many evil traps; for example, all tubular carcinomata were supposed to spring from sebaceous glands. As a result of such errors the earlier cutaneous pathologists, headed by Unna, totally overthrew all attempts at such a classification.

In recent years, however, the brilliant work of Krompecher,⁵ in Germany, so ably seconded by Bloodgood,⁶ in America, has definitely established that carcinomata may originate, not only from the different epithelial structures of the skin, but also from the different layers of these structures. They have gone even further and shown that in rapidity of growth and in the power of metastasizing these tumors markedly differ one from the other.

There are, of course, the following epithelial structures from which cancers may arise:

- (1) The surface epithelium.
- (2) The hair follicles.
- (3) The sebaceous glands.
- (4) The sweat glands.
- (5) The sweat ducts.
- (6) Congenitally displaced epithelial structures.

Three varieties of cancer may spring from the surface epithelium, those originating in the prickle cells, those originating in the basal cells, and those originating in the cuboidal cells. Tumors originating from the hair follicles, in the light of our present knowledge, spring from the basal cells alone. Concerning the glandular elements it is possible that

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the origin might be from either the basal cells or from the more highly differentiated secreting cells, but with our present technique for histological examination this question is not as yet definitely settled. The naevo-carcinoma (or sarcomata) spring from misplaced tissue existing in various types of naevi. A consideration of these facts will give the following classification, which is based not only upon the correct pathology of the tumor, but upon its clinical course as well:

- (1) Malignant epithelial warts.
 - (a) Prickle celled.
 - (b) Basal celled.
- (2) Basocelled carcinomata.
 - (a) Flat rodent ulcer.
 - (b) Nodular carcinoma.
 - (c) Rolled edge carcinoma.
 - (d) Depressed scar-like carcinoma.
 - (e) Morphoea-like carcinoma.
 - (f) Fungating carcinoma.
 - (g) Deep ulcerating carcinoma.
- (3) Cubo-celled carcinomata.
 - (a) Fungous carcinoma.
 - (b) Ulcerating carcinoma.
- (4) Prickle celled carcinomata.
 - (a) Ulcerating.
 - (b) Fungous.
- (5) Carcinoma of hair follicles.
- (6) Carcinoma of sweat glands.
- (7) Carcinoma of sebaceous glands.
- (8) Naevo-carcinomata.
- (9) Paget's disease.
- (10) Carcinoma en cuirasse.

1. Malignant epithelial warts, as already indicated, are of two varieties, the basal celled and the prickle celled. The basal celled are so rare as to be practically negligible. Bloodgood, in his first series of 468 cases of epithelial growths, saw 24 instances of malignant warts. They were most commonly situated upon the lips or the face, but also were found upon other parts of the body. They usually presented a more or less pedunculated appearance, but the most characteristic feature was the lack of induration at the base. These growths do not give rise to metastases, hence only a complete local removal is sufficient to effect a cure, even when the tumors are situated upon the lips. However, when they are

situated upon the tongue or penis it might be safer to remove the draining glands, although this point is not definitely settled. If there is induration beyond the pedicle, and if this is of a cancerous and not of an inflammatory nature, as sometimes occur, the neighboring glands should be removed.

2. The basal celled carcinomata are the growths most frequently encountered by the dermatologists and general practitioners. They are most apt to be seated upon the face, especially around the eyelids and naso-labial folds. By many of the English writers they are spoken of as "Jacob's ulcers," by the early surgeons as "cancroids," and by the majority of later surgeons and dermatologists as "rodent ulcers." Although they vary much in clinical appearance according to their inherent power of growth and the resistance of the invaded tissue, still all have certain general characteristics. The most important of these features is the fact that they never metastasize. They grow rather slowly, and as a rule are superficial at the start. However, it seems fairly certain, according to the work of Petersen⁷ and others, that they may have a multicentric origin. The fact that they are so frequently multiple would seem to confirm this possibility, also the fact that when the early ones recur after operative removal they practically always recur in the neighboring skin and not in the depths of the wound. Histologically it is found that they arise from the basal layer of the rete, and that the cancer cells retain many of the characteristics of the parent cells. They stain rather deeply with the basic dyes, such as haematoxylin, and never form epithelial whorls or pearls. In early cases they form solid masses, the "carcinoma basocellulae solidum" of Krompecher and Bloodgood. Later cystic degeneration may occur, the cells may arrange themselves in long, finger-like processes, or the cells may become scattered in small foci, the "carcinoma stellatum."

The naked eye appearance of these growths is most important, for, if the surgeon is a good gross pathologist, he can usually decide

while operating as to the nature of the growth, and not be forced to wait for a frozen section, which in doubtful cases may be confusing. Characteristic of these baso-celled tumors is the superficial character of the infiltration, and the small size of the cancerous acini, usually looking like excessively fine white threads.

The important things to remember about the growth of these tumors is that they may have a multicentric origin, thus requiring an extensive local removal, and that they never metastasize, thus requiring a local removal only. Personally I feel that surgical removal is the correct procedure in the vast majority of cases. This may be done with the knife, with the cautery, or in very rare cases with the curette and caustic. Personally I prefer to use the knife and then to cauterize the edges with the acid nitrate of mercury after the method of Sherwell.⁵ In early cases of the eyelid or ear, where operation would leave a great deformity, or in inoperable cases, it is permissible to use the X-ray or massive doses of radium. It is most important to impress upon the patient that a recurrence of the disease is vastly more disfiguring than a proper operation.

3. *Cuboidal celled carcinomata* spring from the transitional layer of the rete, the layer of cells lying just above the basal cells, and not yet differentiated into prickle cells. These tumors are not especially common; they may be situated upon any portion of the body, they may be either ulcerative or fungous in character. They usually grow rather more rapidly than do the basal celled growths, and they may metastasize, although apparently not at an early date. In the rare instances where it has been reported that basal celled neoplasms gave rise to metastases it is probable that there was an error in diagnosis, and that the growth arose from the cuboidal cells. Microscopically no whorls are present, and the cells are rather larger than those occurring in basal celled cancers. In the gross the cancerous alveoli are almost as large as those of the prickle celled type. In early cases it is probable that a

local operation is sufficient, but in late cases a complete operation should be performed.

4. *Prickle celled carcinomata* spring from the squamous or prickle cells of the skin or mucous membrane. They occur most commonly upon the lip, but may develop upon any portion of the body. Most malignant tumors of the mucous surfaces or of the limbs are of this nature. The tumors usually grow rather rapidly, they may be either fungous or ulcerative, or combine the two characteristics; the surface is usually rough and verrucose, and the infiltration is deep. These tumors nearly always metastasize; metastases have been found as late as five years after the removal of the original growth. Under the microscope it is noted that the cells are large, that they tend to form whorls, and that they stain more intensely with the acid dyes, such as eosin or orcein. To the naked eye the acini are large and resemble fine white threads radiating out from the surface. Because of the grave danger of growth in the neighboring glands it is imperative to remove these at the original operation. X-ray and radium are justifiable only in inoperable cases, as they cannot reach the glands with any hope of success.

5. *Carcinomata of the hair follicles*, excluding from consideration the multiple cystic epitheliomata of von Jarisch,⁶ are rare, and usually occur upon the face or scalp. They tend to grow rather slowly and do not give rise to metastases, so a local operation is all that is necessary. It is possible that a fair proportion of the basal celled cancers may really have their origin from these structures.

6. *Carcinomata of the sweat glands* are also rare, and there is still considerable question as to their power to metastasize, but judging from analogy they should be able to do so at an early date.

7. *Carcinomata of the sebaceous glands* are almost unknown, possibly because of the fact that the fat cells so readily degenerate so as to be indistinguishable from other epithelial

cells. In one case under my observation metastases formed at a very early date.

8. *Naevus-carcinomata* (*melanotic carcinomata* or *sarcomata*) are still a bone of contention, as Fordyce¹⁰ well points out. It is only certain that a few of these growths really spring from epithelial tissue, while the remainder may arise either from epidermal or mesoblastic tissue. As is now well known these growths spring from either pigmented moles or from other varieties of naevi, and metastases are often widespread by the time that trouble is noted in the original growth. These secondary deposits may be widely disseminated throughout the body and skin, or they may, in rare instances, be localized to the neighboring glands. Such cases only are curable. The others are not curable, but are usually preventable, for any mole or naevus that is the subject of irritation should be removed.

9. *Paget's disease* usually develops upon the breast adjacent to the nipple. However, it may develop upon almost any other portion of the body. At first there is a peculiar raw-looking eruption that is usually mistaken for eczema, but which refuses to heal. Then a tumor develops, sometimes in connection with the dermatosis, sometimes at a distance from it. It is still disputed whether the cutaneous lesions are primary or secondary to the cancer, but one important fact is clear, namely, that a section should always be taken from a suspicious area, and that if the peculiar-looking Paget's cells are found a complete operation should be performed, for metastases do develop from these neoplasms.

10. *Carcinoma en cuirasse* has been well studied by Pollitzer.¹¹ It is usually secondary to cancer of the breast, and pathologically consists of a blocking of the lymphatics by cancerous cells. Clinically there is a reddened, thickened area, that usually does not make the physician think of cancer, but rather of scleroderma or lichen planus.

A word must be said about the performing of biopsies upon malignant tumors. Simply excising a bit of tissue leaves gaping blood

vessels and lymphatics, into which cancerous cells may escape. It is better to follow the use of the knife with a caustic, or still better to excise with a cautery, or with an old knife heated to a cherry red. In an emergency a piece of wire can be employed. The use of heat seals all openings as soon as they are made, and is a perfectly safe procedure.

Volumes could easily be written about treatment, largely in the way of criticism of both the surgeons and dermatologists, both of whom have not been sufficiently radical.

The knife is most generally used in the surgical treatment of cancer, and is indispensable in many cases, especially where it is necessary to remove the glands. In local operations it is useful for two especial reasons, first because it leaves a wound that can often heal by first intention, and second because it does not damage the removed tissue, thus facilitating pathological examination. At the same time many surgeons have the feeling that they have fewer recurrences when the cautery is used, or when the edges of the wound are cauterized.

The cautery, either actual or electric, is being more and more employed by surgeons in dealing with carcinoma. It is used just as is the knife, a safe margin being given and the tissue excised with it. It is really surprising how small a scar results in many cases, and the percentage of permanent cures is probably higher by this method than by any other.

The use of the *curette* is usually to be deplored, especially upon prickle celled neoplasms, for it can hardly reach deep enough to destroy the outlying ramifications, where a few cells have penetrated deeply into otherwise healthy tissue. To some extent the subsequent use of a deeply acting caustic, such as the acid nitrate of mercury, will offset this objection. In very superficial growths, and in a few cases of extensive rodent ulcers, especially those invading the orbit, this method is of extreme value.

Caustic pastes, in spite of their use by many of the leading dermatologists, are to be almost

unreservedly condemned. In the first place they are very painful, in the second place it is hard to control the depth of their action, and in the third place they are inefficient. Bloodgood has found that nearly one-half of the advanced cases of skin cancer coming to the surgical department of the Johns Hopkins Hospital give a history of treatment with caustic pastes of some kind. So far as the author knows no one has ever published a series of permanent cures effected by this method.

Fulguration, dessication and similar methods have not as yet been demonstrated to be permanent cures. In addition they have the fatal defect of not permitting examination of the tissues in order to determine the character of the growth. They are certainly not applicable to tumors that metastasize early.

X-ray is admittedly useful in inoperable cases, if only to lessen pain and discharge. It is also admittedly useful in early cases of basal celled cancer where operation would cause great deformity. It is also useful in the very old or very weak. With the exception of a few enthusiasts it is universally admitted to be dangerous in all cases where there is danger of early metastases, as in the prickle celled group. While it may cure the original tumor, still it will not cure a focus in a neighboring gland. Between these two extremes there is room for many honest differences of opinion, but the author considers it safe to say that in the vast majority of cases the knife or cautery has a much higher percentage of cures. When the X-ray is used it is probably best to use it in a few massive doses, as MacKee and Remer¹² are doing. Of course both the quality and quantity of the ray must be carefully determined.

Radium is very popular in certain hands, and, as Wickham and Degrais¹³ have shown, can at times work wonders, but it is necessary to use very large amounts, which is not possible for the majority of either physicians or patients. While it is generally conceded that the rays emanating from radium are physically different from the X-rays, still the majority

of expert radiologists believe that they can duplicate all of the results obtained with radium.

Internal treatment, with any known drug, has never been demonstrated upon a long series of cases to be of any value.

CONCLUSIONS .

1. Different types of cutaneous cancer behave very differently; the basal celled ones never metastasize, and the prickle celled ones nearly always do except in the case of pedunculated warts. The rapidity of metastasis in the others is as yet uncertain, and we need a long series of statistics upon them.

2. To properly treat a cancer of the skin we must know whether or not it is of a metastasizing nature. If it is the neighboring glands must be removed; if it will not metastasize, a local operation will suffice.

3. Because of the possibility of a basal celled cancer having a multicentric origin it should be more widely removed than is the usual custom. a permanent cure is more to be desired than a temporary beautiful cosmetic result.

3. The knife, followed by a caustic, or the actual cautery, is in the vast majority of instances the best means of removing a cancer.

4. Caustic pastes are to be condemned. X-ray and radium are useful in selected cases.

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DISCUSSION.

Dr. Alexius McGlannan, Baltimore, Md.: Dr. Bloodgood has been called home and has asked me to open this discussion. First of all, in the paper, we note the fact that practically all malignant tumors of the skin go through a period of benign tumor, which is a period of warning. The patients have a warning, and if they are operated upon promptly during this period, the malignant tumor is prevented and the patient is cured. As far as our laboratory records and our own clinical experience go, the cure of the malignant tumor from the pigmented mole in the skin is practically impossible. There are a few scattered cases here and there—rare is the experience of individual surgeons—where the operation of removing the pigmented tumor and the next group of lymphatic glands has resulted in a cure. Of course, it is conceivable that one might strike a malignant tumor at a time when metastasis has not taken place. Then we might hope to cure the disease, but so far as experience goes, nearly every patient operated upon for such a malignant tumor is dead within two years, from the malignant tumor, without regard to the extent of the local operation—even after high amputations for tumors situated on the extremities.

The second point of great importance, and really of the most importance, is the necessity of distinguishing between the basal cell carcinoma of the skin and the squamous cell carcinoma of the skin. Everyone who has written on the subject and studied the cases knows that the basal cell tumor does not metastasize. All we have to do is to take care of the growth without regard to its extent. These are the cases which can be cured by radium, by X-ray, and occasionally by cancer paste, and there is one authentic case on record where the tumor disappeared spontaneously after a piece had been excised for diagnosis. Any strong connective tissue reaction is likely to cure the basal cell carcinoma on account of its low grade malignancy. In squamous cell we have a condition directly opposite to the basal cell. The squamous cell metastasizes to the glands early in its course. For the cure of such a tumor it is necessary to remove not only the local disease, but the next group of lymphatic glands. These two sets of tumors have relatively distinct distributions. The common skin tumors on the face above the mouth, except at the mucocutaneous borders, are basal cell tumors, as are tumors of the covered portions of the body. The common tumor on the extremities is the squamous cell tumor, and tumors about the mouth are the squamous cell tumors.

Concerning the covered portions of the body, one exception is the tumor developing in the scar of wounds that have long been in healing; on old burns, about the openings of chronic sinuses, and particularly the scar of X-ray burns. The tumors of these locations are squamous cell tumors, and require not only complete removal, but the removal of the next group of lymphatics for their cure.

The use of cautery is a most valuable remedy in our methods of treatment, particularly in

the doubtful cases. Of the patients with cancer of the lip, that have come for secondary operation on account of metastasis to the glands of the neck, the patients operated on with a sharp knife, had all had extensive metastasis, while those operated with the cautery have had less extensive metastasis and sometimes none, even with a recurrence at the original site of the operation. So, when in doubt, use the cautery.

For the tumor situated on the extremities, it is best to excise the local tumor, cauterize the wound with the actual cautery, then examine the tumor microscopically. Should it be squamous cell cancer, take out the next group of lymphatic glands without further delay.

Dr. C. Augustus Simpson, Washington, D. C.—The X-ray men do not believe in cutting into these tumors in order to get a section for pathological examination, the result is that it is oftentimes impossible to distinguish clinically basal cell from prickle cell carcinoma. For this reason we are often without positive proof of the pathology of the lesion. I have heard the doctors say they had never seen or heard of a prickle cell carcinoma being cured by X-ray. I would like to refer them to an article by Dr. Pusey in the *Journal of Cutaneous Disease*. In this case he did make a biopsy and found the tumor to be a prickle cell carcinoma. If we consider the fact that the majority of the malignant tumors of the upper lip are prickle cell carcinomas and the number of lesions in this location that have been cured by Dr. Pusey and others with X-ray, I think we have ample proof of what the X-ray can do if properly applied. I believe that the X-ray will cure most of the malignant epithelial tumors of the skin providing the massive doses are given, properly screened. As soon as these tumors undergo malignant degeneration they at once become more radio-sensitive than the surrounding tissues. Yet Schultz, of Berlin, has shown that some of the lesions vary in this sensitiveness. If the correct hardness of the X-ray tube can be found, I believe few skin cancers will fail to resolve under the X-ray if given in large doses. I am not one that claims universal success in the treatment of internal cancers with X-ray. I think that the majority of these tumors will resist the ray because in filtering out the softer rays with aluminum filters we are often doing away with the very ray that often makes the tumor sensitive to the hard penetrating ray. Schultz has demonstrated that such a condition does take place in the treatment of skin cancers by X-ray. Radium has the same faults and the buried tubes do not entirely do away with this. I want to congratulate Dr. Hazen on his excellent paper and am also pleased with his opinion on radium. It has been getting too much unwarranted advertising and the results to be had with it have not met our expectations. There is not a single skin cancer which has been cured by radium that could not have been cured by X-ray with the new technique. A few laryngeal and vaginal warts have been cured by radium because it is impossible to apply the X-ray in those cavities, but the same lesions on the skin are cured every day by the X-ray. I will repeat the

statement that the X-ray will cure any skin lesion that radium will and this includes prickle cell carcinomas, as Pusey and others have shown.

Dr. E. C. Samuel, New Orleans, La.: In backing up Dr. Simpson in his remarks, I think what he said about the X-ray therapy of tumors of that kind is right. The reason why we did not get the results possibly five to six years ago that we get today is due to the modified technique of McKay, of New York. He described his massive doses some time last year in the *Journal of Cutaneous Diseases*. I do not know the exact number. The reason we had our failures before that was the small doses the radiologist was giving to the superficial tumor. With the massive dosage that is recommended by McKay, we give two or three exposures to the tumor, using a tube of very high penetration, as Dr. Simpson has said, giving us about seven or eight on the Benoist scale (?) using an aluminum filter of one to three millimetres in thickness, and thus get a very rapid reduction in the size of the tumor, but treatments of this kind can only be carried out by a competent radiotherapist and should not be attempted by any other man. The measurement of the dosage is a very essential thing to be taken into consideration. The dosage we give in my laboratory is measured by the Kenebeck meter. We give sometimes as high as 100-X, and see a disappearance of the lesion in four to six weeks afterwards. I have in mind a case of epithelioma of the nose, in which the dosage of McKay was given. At the end of four treatments, she got, in all, 50-X, I think. We had a disappearance of the lesion. When we see these things we are bound to think there is something in the X-ray yet.

Dr. Hazen closes: Regarding the melanotic tumors, it is possible that all of us are too pessimistic. I have seen at least two cases in which I am certain that a radical operation at an early stage could have saved the patients' lives. One case, a farmer's wife, in Maryland, had been pecked by a hen on the arm, and five years after the date of the local removal she came in with a practically inoperable mass of sarcoma in the axilla. I feel that if she had been treated with a radical operation at the start, her life might have been saved. In a few of these cases we might, occasionally, save a life by doing a radical operation at the start.

As regards X-ray treatment: In the first place, I am an X-ray man myself, and I know the technique pretty thoroughly, and personally I refuse to use it upon tumors unless I am certain of the diagnosis. I think it is radically wrong to use X-ray upon a squamous cell tumor, and I do not feel that the X-ray will do more than proper local excision would, and I have protested against the use of local excision alone. We have got to make our diagnosis first. We have got to get the glands out, and it makes no difference whether you completely remove the tumor with the knife or the X-ray. I think the X-ray is bad, because the pathology of the tumor is not studied at the start.

ON THE IMPORTANCE OF DESTROYING THE CERVICAL MUCOSA IN SUB-TOTAL HYSTERECTOMY AS A CANCER-PREVENTING MEASURE.*

By GEO. T. TYLER, A.M., M.D.,
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Pt., Mrs. G. J. R., aet. 45, II para.; seen March, 1914. Four weeks ago she noticed a blood-tinged vaginal discharge. She had been operated upon in 1908, at Johns Hopkins Hospital for P. I. D. Perineal repair, removal of uterus (sub-total), tubes, ovaries, and appendix were done. Recovery uneventful; in fair health until p. i. On examination, a cauliflower growth protruded from the cervix, which fitted collar-like around it. In knee-chest position there was all the appearance of a cervical polyp; removal of which was advised. At operation, March 27, 1914, the growth proved to be a squamous-celled cancer, rising in the anterior lip of the cervix. Total removal of the cervix was done, leaving only a thin bridge of tissue between vagina and peritoneum. Recovery uneventful, but recurrence took place, which was treated by actual cautery, and caustics until a vesico-vaginal fistula resulted and later, a papilloma of the bladder grew from the scar. This was removed under spinal anesthesia in September, 1914, with the actual cautery, including a wide margin at the base. Later there was recurrence in the vaginal vault; for which repeated cauterization with the actual cautery has been done. Patient is now no better.*

In reviewing this case I censure myself for not removing the cervix by the radical abdominal operation, for though the microscope indicated that the growth was circumscribed, still the result showed that it had not been eradicated.

The question of malignant degeneration of

*Read in Section on Surgery, Southern Medical Association, Eighth Annual Meeting, Richmond, Va., Nov. 9-12, 1914.

*The pt. died January 26, 1915. She had been offered gratuitous treatment by radium; and as there were no palpable pelvic, inguinal, or lumbar glands, she was considered an excellent case for this treatment. But she refused it, became addicted to morphia, and finally succumbed.