ORIGINAL COMMUNICATIONS.

ON THE MODERN PHILOSOPHY OF CANCER.

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I PROPOSE, in the following observations, to call the attention of the Society to the necessity of a reform of the Classification and Nomenclature of Cancer, and of the diseases allied to it; and to point out the practical benefits which would result from such a reform.

There are three principles on which the classification of these diseases has hitherto been based.

The first is the outward resemblance of morbid growths to natural structures, or to common objects in nature; hence such terms as encephaloid, and mammary sarcoma, and the comparison of tumours to mushrooms and cauliflowers, and to unripe pears or potatoes. But this mode of classification cannot be trusted to; because masses of structure, widely differing in their real elements, may be nearly alike to the naked eye. For instance, any mass, composed of blood-vessels and delicate areolar tissue, with abundance of plastic cells, and of about the consistence of brain, will present nearly all the visible and tangible properties of soft cancer. In fact, I have known a piece of soft flabby tonsil, which had been cut off, pronounced to have a *truly malignant look*: it did look like soft cancer to the naked eye.

The second mode of classification is founded on the vital qualities of morbid growths—their effects on the health, their curability or fatality. Hence, to use the words of an eminent surgeon in 1829, “chronic local diseases may be divided into tractable and intractable”, or into the more familiar classes, malignant and benign; and when the observation of the Clarkes respecting uterine diseases, and of Henry Earle, Travers, and Cæsar Hawkins,* in surgery, showed the insufficiency of this division, then arose such terms as locally malignant, and semi-malignant, and canceroid; regarding which last term, it may be mentioned that, although useful in its day, it is essentially unphilosophical, and ought to be abolished, as the similar term, pseudo-syphilis, has long been. Names should be positive; not comparative, nor negative.

The third mode of classification takes as its basis physical structure, and deals with morbid growths in the same manner in which all other natural objects are dealt with by the botanist or zoologist, or student of other branch of natural history. It divides according to the forms, structures, and chemical composition exhibited at various periods of development, and studies the vital properties which exist together with them. It does not take mode of life as its basis, and consider physical properties as accidents.

Now, between the last two modes of classification, there is at present a struggle. During this struggle, pathologists are using hesitating and uncertain terms; knowledge is hindered; statistics are worthless; and, above all, the art of healing is seriously obstructed, until diseases which possess many properties in common shall be classified accurately according to their differences, and until it is decided whether, along with difference in structure, there is or is not difference in susceptibility of cure.

It is my present object to urge upon my professional brethren the necessity of altogether abandoning the second mode of classification, and the terms founded thereon, and of employing terms derived from structure alone. But, before I do so, let me briefly attempt to define what cancer is as a species, and what are its varieties.

Cancer is a disease of the blood, manifested by the evolution, in some part of the animal economy, of a structure

called the cancer nucleus. This is a bright oval well defined plump body, averaging a little less than one-two-thousandth of an inch in its long diameter, and containing one or more large and distinct nucleoli. In soft, *intense*, rapidly growing cancerous tumours, these nuclei may be free, floating in a liquid, or may be imbedded in a soft transparent amorphous substance; but, usually, this amorphous substance is gathered about the nucleus in a more or less definite spherical mass, called a cell. One cell may enclose one or more nuclei. It becomes much more visible by the addition of water, but vanishes on the addition of acetic acid, which renders the nucleus more bright and distinct. Taken together, the characters of the cancer nucleated cell are, the large size of the nucleus, and of its nucleoli; and the fact that the cells, if abundant and adhering, and ill developed, are heaped together amorphously; that, if few and well developed, they have no adhesion to the tissues around them, but readily exude from a cut surface in a milky liquid, called the cancerous juice. This juice in general mixes readily with water; and the cancer cells, being, like the similar bodies in milk and pus, not adherent to each other, are equally diffused throughout the liquid, and do not usually clot together as some other cells do.

But, since cell structures, as they are called, have, besides the cells, some intercellular matter, so in cancer, besides the cancer cell, there is usually some intercell, the varieties of which occasion the varieties of the species. Cancer cells abundantly heaped together, with liquid, or with scanty and delicate filamentous tissue, constitute soft cancer, which is the most intense and rapidly growing example of the species, and which is usually described as the medullary or encephaloid. Scantier growth of cells, more closely packed together in the meshes of fibrous tissue, constitutes the hard, better known as the scirrhus cancer. Immense development of loops of blood-vessels, accompanying superficial cancer, causes it to be called *cellular*. When, together with the cancer cells, there is development of a peculiar jelly-like matter, or of a dense imperfect bony matter, the cancer is called colloid or osteoid respectively. Other varieties depend on other incidental circumstances: thus infiltration with black pigment gives rise to what is usually called melanotic or melanotic, but which might as well be called, in plain English, black cancer. Fatty degeneration occasions the appearances called reticular by Müller, and phymatoid by Lebert. Infiltration with blood produces the well known fungus hæmatodes.

Whilst alluding to varieties of cancer, I may well take the term *melanosis* as an example of the mischief and confusion arising from the want of definite principles of nomenclature. I might defy any person, reading certain books and journals for the last twenty years, to form a clear idea of what is meant by melanosis. By some persons, the term is used as if synonymous with cancer; by others, not. It is a fair instance of a name which is popular because founded on a character which is striking, but erroneous, because founded on a character which is accidental and variable. In man, black pigment is found in those cutaneous growths commonly called moles; it is also found in some specimens of cancer. In the horse (especially in old greys), deposits of pigment are very commonly associated with fibrous or fibro-plastic growths, which become diffused over the body, just as black cancer in man, and which may soften and ulcerate, or may cause death by accumulating and interfering with the functions of various organs; or, on the contrary, may remain harmless, and allow the animal to reach a good old age. Whether any of the black tumours in man, which may be *diffused* over the body, are of this sort, I know not. But, to return to the subject of classification, the presence of black pigment is no proof that a tumour is a cancer, or that it is not; and it is a caricature of pathology to see, on one shelf in a museum, black cancer from man, and black fibrous tumours from the horse, all arranged under the common head, “Melanosis”.

To return to the subject of cancer. When we speak of *varieties*, we imply the existence of a definite form, the

* See Henry Earle, on the Influence of Local Irritation in the production of diseases resembling Cancer.—*Med. Chir. Trans.*, vol. xii. Cæsar Hawkins, on Warty Tumours in Cicatrices, *ib.* vol. xix; and on Malignant Diseases of the Face, *ib.* vol. xxi; B. Travers, *ib.*, vol. xvii.

presence of which determines the species; and we believe that the presence of cancer is determined by the existence of the cancer nucleus or cell. Where these exist, there is cancer, no matter with what variety of accompanying circumstances. On the contrary, where there is no cancer nucleus or cell, there, we hold, is no cancer, no matter what else there may be as to structure, and no matter whether the morbid structure which does exist be, or be not, quite as destructive as cancer.

I know very well, however, that some of my professional friends raise an objection to an anatomical or structural basis of classification, on the ground that the anatomical element of cancer, the cell, is not a sufficiently positive quality; or that cancers may exist in which no cancer cell can be detected.

To this the reply is simple and logical. If, in any growth, after thorough examination by competent persons, no cancer cell or nucleus can be detected, that is evidently not a cancer. Let its anatomical elements be figured and described, and let its clinical history be drawn up for comparison with similar specimens which may hereafter be met with, and let some new and positive name be given to it; but if in any disease, no matter what it is, and how it proves fatal, nothing is found which can be identified with the cancer nucleus, that disease ought to be called by some other name than cancer.

Again, in the search for this structure, there are some sources of error and difficulty which require to be well understood, and which I will describe, as I have myself met with them.

In the first place, the observer, who is studying the cancer structure, must be prepared to meet—just as he must in studying any other series of natural objects—with imperfect, immature, and ill developed specimens. This, as Lebert observes, will most probably be the case in the examination of rapidly growing and exuberant soft cancers—the fungus hæmatodes or medullaris of authors. Here the nuclei in large masses may be small, and the nucleoli ill marked; the cell substance being hardly defined.

Again, in other specimens, there may be difficulty, arising from a directly opposite source, namely, degeneration; for the cells constituting portions of a tumour may be dried up and shrivelled, or filled with oil globules, or broken down and mixed with large granular cells and crystals of fatty matter.

Again, in every cancerous tumour, the whole mass is not cancer; and it is perfectly possible that portions of a specimen may consist of gelatinous stuff, imperfectly organised areolar tissue, exhibiting fibrillary matter, intermixed with the elongated, caudate, fusiform, and bifid nuclei and cells which may be found in almost every growth; or there may be a confusion, arising from the remains of the structures into which the cancer is deposited.

I mention these possible sources of error, with the further observation, that they are met with equally in all other branches of natural science. Ill developed, or withered, or monstrous specimens, may at times perplex the botanist; but practice, and the art of distinguishing essential characters which it teaches, soon overcome the difficulty. In fact, if any one denies the existence of an anatomical characteristic in cancer, we may ask how he can account for the fact that such men as Hughes Bennett, Paget, Lebert, Hannover, and a host of others, working independently and far apart, can find, describe, and figure such a structure, and agree with each other in so doing? From my own observations, I believe that any one, who will take the trouble of procuring and examining specimens, and who guards against the possible sources of error which I have pointed out, will soon be convinced of the existence of the cancer cell. Then, to repeat what I have said before, under whatever circumstances this cancer structure may be found, whether it cause hypertrophy or atrophy of surrounding parts; whether it be melanin in colour, or xanthous; whether universally diffused and quickly fatal, or whether it lingers on in one organ, and allows the patient to die of

some other disease,—there is cancer, with its one specific determining sign.

Now, this mode of treating the subject is simple and definite, and allows statistics a sure basis to rest upon; and it allows morbid products to be accurately defined by their physical forms at the various epochs of their development; and thus the vital qualities and clinical history, the effects of causes in producing, and of remedies in curing them, can be accurately stated. For instance, the epithelioma (or epithelial cancer, as it is often called) differs from cancer in its anatomical structure; for, instead of the cancer cell, the affected parts are infiltrated with abundance of scaly epithelium, larger than cancer cells, flat, folded, often adhering together, with less distinct nuclei, and very seldom a nucleolus. These also exude from a cut surface, mixed with a serous liquid, and constituting a *juice*; but this juice differs from the cancer juice in being not so equally diffusible through water, and in the fact that the cells adhere in clots or pellets. They are also often found rolled together in large concentric masses. This disease usually seems to begin in the rete mucosum, by a destruction somehow of that limitary membrane, which confines epithelium to the surface. As it differs from cancer in its anatomical elements, so it does likewise in its favourite seats, in its etiology and clinical history, and susceptibility of cure. It is apparently much more liable to be produced by local causes. It almost invariably commences on cutaneous or mucous surfaces, such as the lower lip, penis, scrotum, tongue, larynx, etc. It is excessively liable to relapse, if cut out, but, so far as is known, always comes back in the part first attacked, or in the nearest lymphatics; and does not, like cancer, become diffused over the body. Lastly, there is reason for believing that, in epithelioma of *certain parts* of the body, excision may probably lead to a perfect and lasting cure. In the same manner, the fibro-plastic tumours may be defined as consisting of small round or oval cells, with small flattened nuclei, intermixed with intercellular fibrillary matter. The cells and nuclei may be in various degrees of elongation, and the fibrillary matter tough as hemp, or soft and flickering like jelly. Glandular tumours are composed of tissue, like that of secreting glands. Many other varieties of growths might be so defined; but my present purpose will be answered if I show that the plan of classifying according to structure is simple and intelligible, and permits the clinical and vital history of each growth to be fairly studied and compared.

On the other hand, the plan of classifying growths, not according to their structure, but according to their vital characteristics, is based upon the doctrine stated by the most illustrious of English pathologists, that we ought to “choose modes of life rather than structure for determining the affinities of morbid products, and for arranging them under generic names. As of all tumours, so especially of cancers, the true nature is to be apprehended only by studying them as living things.” Or, as the doctrine is still more broadly stated by some of my professional friends, if any tumour behaves as cancer does, it is so far “malignant” or “cancerous”. For instance, a glandular tumour is removed, and never returns: this is a glandular tumour *pure et simple*. Another glandular tumour returns after extirpation, again and again. This is said to be “malignant”, or to “partake of malignancy”, or to be “disposed to take on malignant action”.

Now, after careful study of the subject, the continued use of the word malignant, instead of structural terms, to characterise morbid growths—and this in spite of the unanswerable objections of Walshe, Lebert, and others, to the word—seemed to me at once so illogical and mischievous, that I determined to bring the subject for discussion before the Medical Society of London, in the hope of inducing my professional brethren to agree with me in the necessity of stricter terms. In the course of my investigations, I endeavoured to analyse the term malignant into the several qualities which, when combined, constitute “malignancy”; and, at the same time, I endeavoured to frame a statistical

table of morbid growths, which should show how far, and in what proportion of cases, the separate items of malignancy were exhibited by each growth. I soon found that accurate data for such a table are not yet to be had; but the analysis of malignancy may be of some use, as exhibiting certain pathological facts in a new light.

The vital characteristics of cancer may be described in about fourteen terms, the sum of which equals the word malignant. They are: 1. Constitutional Origin; 2. Rapid Progress; 3. Constant Progress; 4. Pain; 5. Return after Extirpation; 6. Secondary Deposits; 7. Diffusion; 8. Cachexia; 9. Resistance to Treatment; 10. An Infiltrating Mode of Growth; 11. Degeneration and Softening; 12. Ulceration; 13. Invasion of Lymphatics; 14. Heterology of Structure; 15. Death. As an accidental and occasional accompaniment, Inflammation or Hyperæmia deserves one word of notice.

1. *Constitutionality of Origin* is the first of these characters of malignancy; and since even now we sometimes hear the opinion that cancer is at first a local malady, that it contaminates the system at large only after a certain length of existence, and that, by means of early extirpation, this contamination may be prevented, we may state that the reason why cancer is called constitutional is because, in an infinite majority of cases, if true cancer structure exists, though it be completely extirpated so soon as conceivable, there will yet be a return either in the part first affected or elsewhere.

But it is frequently held, even by most eminent pathologists, that, whilst cancer is constitutional, other growths, such as the fibrous, are local in their nature; and, since confusion in the use of terms is one of the greatest obstacles to the progress of any science, let me, without going into scholastic subtleties, endeavour to give a precise definition of these terms. A local malady is one the causes of whose origin and continuance are strictly confined to the part affected, or one which, if caused at first by constitutional causes, wholly or concurrently, is no longer dependent upon them. A constitutional malady, on the contrary, has its origin in causes affecting the whole body; or is perpetuated, extended, and maintained by such causes, even though its first origin were local. But, when we speak of causes affecting the whole body, we must refer either to deviations from the healthy composition of the blood, and of the other parts of the material fabric; or else to disturbances in the laws which govern growth and development; although we can hardly separate our ideas of such laws from our idea of the material substances by and upon which their existence is made known to us.

Now, tried by these definitions, I can scarcely conceive of a morbid growth which has not at least a concurrent origin in constitutional causes.

Take the case of the most innocent and local tumours, as they are reputed—those fibrous or fibro-plastic tumours which are caused by local irritation. Thousands of women have their ears bored for ear-rings; thousands of children have leeches applied; and men are cupped often: yet it happens as a most rare case that a fibrous tumour is developed in the bored lobules of the ears. I have seen raised circumscribed fibrous lumps in the site of each leech-bite in a child, and similar ridges in the site of an old cupping; but, as these effects are not produced on all patients by these local injuries, there we must admit some constitutional peculiarity in the patient to account for them, or else we must abandon the doctrine which is the foundation of all physical science, that like causes produce, *cæteris paribus*, like effects.

I will pass over the fibro-plastic tumour, since it is generally admitted that many of the deposits which come under this head are connected with some cachexia, perhaps the syphilitic or scrofulous; merely adducing as an example the well known *tarsal tumour*, which infests the eyelids, and the origin of which I believe to be always referrible to some degree of debility or cachexia. Certes, I have known patients affected by them at one period of their lives, and quite exempt at others. But I will adduce the glandular

tumour, of which a fair example is to be found in the common bronchocoele. Of this, a true tumour consisting in exaggerated development of gland tissue, whether it be of the severe endemic sort prevalent in mountainous countries, or of the milder variety which may affect women anywhere, it is impossible to deny the constitutional origin. In every case which I have seen in London, there has been some concurrent deviation from health, and always on the side of deficiency—anaemia, atonic dyspepsia, or amenorrhœa. I have patients in whom the earliest sign of getting out of health is enlargement of the thyroid gland, and in whom that enlargement subsides as the health improves. In one lady, it is always caused by a residence at the sea, and disappears when she removes inland. The connexion of the chronic mammary tumour (as the abnormal development of gland tissue in the breast is called) with deviations from health is sometimes palpable, often not so; but the true idea of the significance of such tumours is, as it appears to me, to be found in the study of the origin of the same tissue when occurring normally. Whatever meaning may be assigned to the term constitutional, there is no act in the whole career of life so truly constitutional as the development of gland tissue. From the Wolfian bodies, the thymus, and the suprarenal capsules, to the later developed sexual glands, there are no structures in the body whose development and decay are so inseparably connected with the most general laws of growth, and with the composition of the entire solids and fluids, as the glands; and what may be said of the normal, I do not hesitate to apply to the abnormal development of gland tissue.

Space compels me to pass over the bony, the cartilaginous, and other tumours, reputed local, with the observation that it is most difficult to conceive of hereditary, multiplied, and symmetrical tumours, as merely local: I must conclude this part of my subject by stating my belief that all tumours, properly so called, are constitutional. In what respects they differ, in this quality, I shall say presently.

2 and 3. *Rapidity and Constancy of Increase*. I may pass rapidly over the second and third signs of malignancy, because, though more characteristic of cancer than of any other growth, yet they have little absolute diagnostic value, and afford scope for little remark. Not so the fourth characteristic.

4. *Pain*. This is a symptom which attends morbid growths of all kinds, in differing degrees, and the *rationale* of which is not evident at first sight. Now, exclusive of pain depending on accidental inflammation, or on pressure or distension, or on the existence of an ulcerated surface, all of which kinds of pain may be common to other morbid growths as well as to cancer, there is another pain, of a purely neuralgic sort—stabbing, lancinating, or aching. But, although this is not so characteristic of cancer as it is of certain small fibrous tumours which, from that very circumstance, are called *painful subcutaneous*; and, although glandular tumours of the breast, and other tumours elsewhere, are sometimes accompanied with extreme neuralgic pain, yet it is extremely valuable as a diagnostic sign, and especially in the case of secondary cancer. This was pointed out to me long ago by my friend Dr. Ferguson, from whom I derived the following most useful practical rule:—If, after extirpation of a doubtful tumour, the patient complains of neuralgia, secondary cancer may be predicated. By this rule, Dr. Ferguson was able to give a diagnosis in a case of cancer within the skull, at a time when the doctrine of the painfulness of secondary cancer was not generally received by the profession. Of neuralgic pain, too, there are many varieties. Dr. Ferguson believes that, at the time of the formation of secondary deposits of cancer, much of the most acute and agonising pain may be owing to the presence of cancerous plasma within the capillaries—a thing rendered probable by the intense pain caused by the injection of morbid fluids into the arteries of animals. At all events, the significance of pain, as a rational sign of cancer during the latter two-thirds of its existence, is scarcely to be overrated.

5. *Return after Extirpation*. In speaking of the fifth

malignant character, a distinction must be drawn between tumours which return because some portion of the original is left to repullulate, and others which return in spite of the freest extirpation; but yet the doctrine so often insisted on by Lebert, that the return of non-cancerous tumours is generally due to incomplete extirpation, is, I think, scarcely consistent with true pathology. At the same time, this doctrine tends to keep out of sight the true facts relating to the return of tumours, which, I think, exhibit strongly their agreement in constitutional origin, and their differences; which may be summed up in a formula something like the following, viz.: That, of some tumours, the constitutional causes are transitory; the morbid material is consumed, the necessary conditions are exhausted, the aberrant laws fulfilled, by the very production of the tumour; which, if then extirpated, is no more reproduced than an arm or leg would be;—that, of other tumours, the constitutional cause, once established, is permanent; and extirpation is sure to be followed by reproduction.

That there is some common bond of connexion between various tumours, especially the glandular, cartilaginous and epithelial, is another proposition which may be proved at the same time.

On tabulating a certain number of cases of tumours of external parts (not including the uterus or viscera), including those mentioned by Paget in his Lectures, in the Catalogues of the Museums of St. Bartholomew's and of the Royal College of Surgeons, many from Hughes Bennett, Lebert, and Warren, and from the medical periodicals and private sources,—it appears that there is no tumour whatever which may not return after extirpation, even though the general characteristic may be the reverse. No better example can be desired than the case related by Paget,* of a fibrous tumour, yielding gelatine on boiling, removed twice, and returning, whilst similar tumours were developed in the lungs, as was ascertained by *post mortem* inspection. In this series of cases can be found a dozen instances of such tumours removed twice, one instance of six removals, ten instances of cartilaginous tumours returning, and so forth. The true conclusion seems to be, that return after extirpation, from a continuance of the original cause, is a thing possible in the clinical history of any tumour whatever, and deserves to be known and commented on as a fact. But when we find the fact of recurrence made by some pathologists a ground of classification, and read of subspecies of "recurring cartilaginous", "malignant glandular" tumours, etc., we must say that this fact is no better a ground for classification, than if some botanist, disregarding structural affinities, should erect the *tritium repens* or horseradish into separate divisions from their kindred species, on the plea of the difficulty of uprooting them from the soil.

The comparison of the same series of cases tends to show that there is some alliance or connexion between the causes of various kinds of tumours. This is evident from the instances of various growths combined in one tumour, of enchondroma combined with cancer (or, in the testicle, with any other growth), of glandular tumour, and of epithelioma combined with cancer. It is evident, too, from the instances of one sort of tumour succeeded after extirpation by another. For instance, in the St. Bartholomew's Catalogue: a glandular tumour of the breast, excised; tumour returns in opposite breast; excised; followed by a tumour in the former breast, half fibrous, half medullary; excised; followed by a brain-like medullary tumour on sternum. The affinity of various tumours, too, is evident from the instances of enchondroma and other tumours occurring in persons of cancerous families, and from the occurrence of cancer in persons whose parents had died of epithelioma. Lastly, it is evident, from the acknowledged frequency with which cancer and epithelioma supervene on warts, moles,

and naevi. Now, since this fact, and since the true nature of warts and moles, are, from their very triviality, overlooked, let me observe, that they are true fibrous or fibro-plastic tumours of the skin, which, in warts, are accompanied by hypertrophy of papillæ; in black moles, by deposit of pigment; whilst, in the common raised smooth mole, there is a distinct deposit of a fibro-nucleated matter within the meshes of the cutis, but without the black pigment. The fact that these growths are not mere hypertrophy was pointed out many years since by Müller. Now, these growths are the favourite seats of epithelioma, of the corroding ulcer or lupus, and of cancer, especially of the soft and black varieties—a thing commonly attributed to "malignant conversion". The only true explanation I believe to be, that the constitutional causes of cancer or of epithelioma are superadded to those of the growth which existed before, which proves alliance between them, but neither identity nor conversion.

6. *Diffusion*; and 7. *Secondary Deposit*. By diffusion is understood a multiplicity of tumours arising from increase of the *materies morbi*; and by secondary deposit is understood the deposit into a fresh place of materials absorbed from the first seat of the disease. Paget noticed secondary deposit in two out of seven cases of epithelioma; and, in the College of Surgeons' Museum, there is apparently a case of secondary deposit from epithelioma of the tongue of an ox. But, as a rule, cancer is the only disease which presents either diffusion or secondary deposit; in the case of the fibrous and other tumours, it is a rare exception; but it is from exceptional cases that the true limits of natural laws are to be defined.

8. *Cancerous Cachexia*. This characteristic is, I believe, much more indebted to imagination than to observation, for the colours in which it has been painted. As regards myself, I can gather no other conclusion than that the yellow anæmic hue, the emaciation, the sickness, loss of appetite, diarrhoea, despondency, and sleeplessness, are in most cases distinctly traceable to two sources: first, the pain, discharge, and irritation, which produce in the cancerous neither more nor less than the amount of cachexia which they cause in any other cases; and, secondly, the interference with the functions of internal organs. I believe that cancer may, and usually does commence, not only without cachexia, but with an apparently good state of health; therefore, that the cancerous material is not poisonous *per se*; that in most cases the cachexia, in other words, the decay of health, is directly proportionate to local mischief; that it is diminished by those measures which remove or palliate local mischief: yet that, in some few cases, there is a degree of cachexy apparently disproportionate to the local disease. This, in my search after positive results, is the best conclusion I can come to. Certes, within this year, I have seen a man dying of cancer of the stomach, whose life was slowly drained away by inanition; and, when it is considered that the only support for four months was given in the shape of enemata, it does not seem that the cachexy was of a very mortiferous sort. At an early period of my studies, I was struck with observing that cancerous patients were not by any means infallibly marked with visible cachexia; and this in a part of the country where a yellow waxy hue of the features, emaciation, bloodless lips, and other signs of impoverished blood, are so common in the peasant women after forty, that, as I pointed out to a very intelligent surgeon, one half of the women past maturity whom we met might sit for portraits of the so-called "characteristic aspect of malignant cachexia."

9. *Resistance to Treatment*. Passing over this characteristic, that no medicine exists capable of causing a cancerous growth to wither, it may be remarked that the same is equally true of other growths, except those fibro-plastic growths connected with common inflammation, or with syphilis or scrofula, some glandular tumours, and a few vascular. But it is a very curious circumstance, the morbid deposits which we have most power over, are precisely those which resemble cancer the most in their cell constitution, and in their infiltrating properties.

* Lectures II, 153; also Catalogue of the St. Bartholomew's Hospital Museum. For particulars of the cases referred to, see Paget, Lectures; Warren on Tumours; Hughes Bennett on Cancer and Canceroid; Hannover, Epithelioma; Catalogues of the Museums of St. Bartholomew's and of the Royal College of Surgeons.

10. *Infiltrating Mode of Growth.* On this, as a practical diagnostic sign, too much stress can hardly be laid; as a philosophical ground of classification, none at all. I allude to the infiltrating properties of cancer as contradistinguished for the circumscribed nature of other growths. So much importance has been attached to this by an eminent pathologist, that it enters into his very definition of cancer. But, on stricter inquiry, it will be found that infiltration, like many other properties, is accidental or occasional; that all cancers do not infiltrate, but may be circumscribed, even to a late period of their existence, which is particularly the case with soft cancer: and secondly, that other growths do infiltrate. The common fibroplastic or inflammatory exudation infiltrates all tissues; so does tubercle notoriously. And lest it may be alleged that there is a difference between the mode of infiltration in these cases, I may state that I have made this the subject of special examination, and have found that whether muscle, for instance, be infiltrated with fibroplastic, or cancerous matter, the process is identical. The muscle, to the naked eye, looks pale and fatty; the fibrillæ are found to be losing their clear markings, and to be infiltrated with oil near the effusion, whilst in the very seat they are separated and broken up, in the one case by cancer, in the other by fibroplastic cells and nuclei, and by much unformed matter; by the increase of which the fibrillæ at last disappear.* When, therefore, we hear of the infiltrating properties of cancer; of its being substituted for other tissues, or of other tissues being converted into it, we may ask how, in kind, this infiltration, substitution, and conversion, differs from that which goes on in the tissues around a spot of common inflammation; from the prolonged action of which, as we well know, all tissues whatever lose their identity, and become converted into a puriform fluid in acute, or gelatinous mass in chronic inflammation.

11. *Softening.* This process has heretofore even been enumerated amongst the defining marks of cancer, and almost as a speciality. It was formerly stated that the difference between cancer and other morbid growths consisted in its being unable to maintain its vitality beyond a certain period; after which it softened and underwent a process of ulceration; the older portions perishing, as newer portions were being deposited.

But we find as a matter of fact, that the kind of softening which is most usual in cancer, is that which is met with in all other tissues natural and morbid, and which is commonly known by the term fatty degeneration. A cancer in this condition exhibits to the naked eye, spots, streaks, and patches of softish yellow matter; on examining which, the cancer cells are found either shrivelled, or filled with oil globules, or broken down into an amorphous mass of granules.

But this softening from fatty degeneration is common to all other growths without exception. For instance, Mr. Haynes Walton lately sent me a tumour which he had removed from the nose of a young man, quite unadherent to the skin and periosteum, of five years duration; it was composed of spherical masses of cartilage: some clean, firm, and pellucid; others almost liquid; others soft, yellow, and cheesy; the last were found to be mixed with granular masses, oil globules, and cholesterine. There is no morbid deposit, or scarce any, in which similar changes may not be found; but there is one, in which it is so early and so constant, that it has been considered a speciality apart. I need hardly say that I refer to the so-called yellow, cheesy tubercle of the lung; which, heretofore regarded as a definite primary morbid product, must now be considered only as a degraded condition of some preexisting material; and truly we want some new name for the product, of which the cheesy stuff is a degeneration, or else, if the original matter be still called tubercle, we want a name which shall express that cheesy degenerate condition which, as I insist, is no more peculiar to tubercle than it is to cancer.

But there is another kind of softening which may affect cancer; viz., the liquefaction of the intercellular structure,

which converts what was a solid mass or sponge, with cells in its interstices, into a milky liquid with cells floating independently. Here springs up a whole crop of pathological analogies. The liquefaction of the fibrillary constituent of an ordinary sthenic inflammatory effusion constitutes common pus; that of other deposits constitutes *pseudo-pus*; and it may be said that there are as many kinds of pseudo-pus, or puriform fluid, as there are of effusions.

The nature and alliances of these kinds of softening will be illustrated by the case, of which the following is an abstract. For permission to observe the patient and quote the case, I am indebted to my friend Mr. Henry Lee, under whose care the patient was in the Lock Hospital.

CASE. M. C., a girl, aged 21, was received into the Lock for great enlargement of the labia, with warty growths, consequences of repeated gonorrhœa and syphilis. Mr. Lee removed a large mass, by incision, from the right labium; from the wound he hooked out, with the handle of the scalpel, considerable quantities of soft and rotten tissue; on examination of the excised mass, it was found infiltrated with epithelium, and large portions of it completely softened down. The wound healed. Bright's disease of kidneys and dropsy supervened. Death occurred from pneumonia, and sloughing of the groins and labia. On *post mortem* examination, several lymphatic glands in the posterior mediastinum were in a state of liquefaction, as well as the superficial glands in the right groin, and the sloughing tissues. When I say liquefied, I mean softened into a pseudo-puriform fluid, not in a state of fatty degeneration.* This case proves that large masses of tissue may be in a state of complete rottenness from degeneration, and yet cause neither abscess nor ulceration.

12. *Ulceration* is the twelfth alleged characteristic of cancer. But although it is perfectly true, as Lebert says, that hard cancer of the breast and stomach do usually ulcerate, yet this is not true of cancer in general; and when ulceration does occur, it is rather as a mechanical result of distension or of infiltration of the skin, than an essential property of the cancer itself. Tubercular deposits are more prone both to softening and to ulceration. But there are three affections often confounded with cancer, in which ulceration is the special mortiferous element. These are epithelioma; and those deposits in the skin, or mucous membrane, on which there has supervened that most intractable ulceration, known as the *corroding ulcer* of Sir C. M. Clarke; the *lupus* of various authors; the *esthiomène* of Huguier. There is the superficial lupus which produces wide spreading, shallow ulcers on the face, or on the female genitals. There is the exudent lupus or *esthiomène perforant*, which, in the face, usually attacks an old mole, or some new tubercular elevation, filled with cacoplastic material; and on the female genitals usually affects parts that have been infiltrated with similar deposit. In the face it may destroy everything before it, to the base of the skull; in the female genitals it may perforate the vagina, bladder, rectum, and lay open the peritoneum, or even cause, by contiguous irritation, a fatal peritonitis, if life is not worn out first by pain and suffering; but yet this truly malignant affection has nothing of cancer but its local inveteracy; it does not affect the lymphatics, nor appear in any other part but that first attacked. Again, in cases of epithelial disease, corroding ulceration may supervene, and the lymphatics may be infiltrated; but the disease kills by its effects on the first attacked spot; and does not kill by secondary deposit or diffusion as cancer does.

13. *Infiltration of the Lymphatics.* This characteristic of malignancy is confined to cancer, epithelioma, tubercle, and cacoplastic ulcerations, including the syphilitic.

14. *Heterologousness, or Heteromorphosity of Structure.* Of this supposed characteristic of cancer, I shall only say that they are two admirable Greek words, and serve like many other things said respecting cancer, to keep up a sort of romantic feeling, injurious to true practical know-

* See a drawing at p. 24 of the Surgeon's Vade Mecum. Sixth edition.

* I must take some other opportunity of publishing some remarks on pseudo-pus, puriform fluid, etc., which space does not allow me to introduce here.

ledge. That the cancer cell is not quite like anything else may be admitted; but so are some cartilage cells unlike anything normally found in the adult body.

As an accidental accompaniment of cancerous deposit, I am lastly bound to mention inflammation or hyperæmia. As in various processes plastic effusion may be or not accompanied by this condition, so may or may not cancer. The following case may be an illustration.

CASE. M. B., aged 40; soft cancer of skin of chest supervening on mole; enlarged axillary glands; excision; cure; diminution of glands; severe neuralgic pain; incipient repullulation of cancer *in situ*; relief to neuralgia by cauterizing the newly sprouting warts; fatigue just before menstrual period; sickness, abdominal tenderness and signs of hepatitis; jaundice; sudden enormous swelling of liver; inflammatory symptoms subside; slow death by inanition, from cancer of liver.

Having thus gone through the alleged characteristics of malignancy, we find, on summing them up, that cancer is the only malady which possesses them all; that epithelioma, the Greek elephantiasis, lupus, and tuberculosis, come the nearest to it; that the glandular, fibrous, cartilaginous, and fibroplastic usually display only four or five; yet that whilst there are exceptional cases, which prove the possibility of a cure of cancer, so there are conversely exceptional cases which prove that tumours, usually innocent, may destroy life, in the same way in which cancer does.

Therefore I argue that, the vital characteristics of these growths being variable, and the structure constant, the latter alone can be taken as a basis of classification; and that, since cancer is, as a rule, the only *malignant* disease, using that word in the sense of incurable, it were better, when cancer is spoken of, to call it cancer; because, if the term malignant be applied to any other disease, it occasions confusion and mischief; it may lead to the belief that a disease is cancer, when it is not; and that it is incurable, when perhaps persevering treatment might be successful.

A good instance in illustration falls under my notice even whilst I am revising this paper. Within these few days, I have seen, in consultation with my friend Mr. Hunt, a man, aged 60, with an immense ulcer, which has destroyed the right half of the lower lip, and great part of the right cheek, laying bare the lower jaw-bone. It began thirty years ago, as a little induration, covered with a thin scab, which became a foul ulcer, but, after a long time, healed. Again it broke out, and healed. On breaking out again, it was cut out by Mr. Bransby Cooper, and was well for a time. It reappeared, however; and the patient, amongst a multiplicity of medical advisers, before he came under Mr. Hunt's care, met with one physician who told him that it did not signify; and with a surgeon, who said it was "malignant", and ought not to be touched. There is, however, no sign of cancer about it: the ulcerated lip, at its edge, is as supple and thin as possible, and the only induration is in the periosteum at the edge of the denuded bone. I cannot help thinking that the case might have turned out more fortunately, had the case been more perseveringly followed up. But, in truth, the word malignant, applied to a disease, is like the *Græcum est, non potest legi*, of the mediæval ecclesiastics; it is an excuse for non-interference; it appeals to the imagination, invests disease with mystical supernatural qualities. Thus the practitioner, instead of treating his patient, lulls himself to sleep with dreams of heteromorphosity.

But since, under the term malignant, have been grouped diseases palpably different, which nevertheless have all been condemned as hopelessly incurable (thus, even in a work published in 1853, cancer, epithelioma, and corroding ulcer of the female genitals, are all styled malignant, or cancerous and incurable), one practical benefit resulting from the disuse of this term will be greater care in discriminating the various species of disease, and in assigning to each its most appropriate treatment.

Thus, of the corroding lupus, it seems now a well established fact, that efficient excision or cauterisation may be followed by absolute cure. In the case of the late Pope

Gregory XVI, an ulcer of this kind was eradicated from the face by the arsenical paste, and there was no return during the eight remaining years of his life. In the corroding ulcer of the female genitals, too, thorough excision or cauterisation have effected permanent cures.

In the case of the epithelioma, and of warty growths resembling it, which are liable to become the seats of this affection, there can be no doubt of the propriety of excision as early and freely as possible.

In the case of cancer, the general practice of the profession seems, so far as regards extirpation, as sound in principle as the present state of knowledge permits it to be. Regarding the treatment of cases not capable of extirpation, I have reason to know that the vague term malignant, and the idea of death through cachexia, operate most unfavourably, by inducing the surgeon to neglect palliation or treatment; but if the opinion were acted on, which I believe to be the just one, that cancer, as a rule, destroys life as other diseases do, by its local effects, then the surgeon would feel that every particle of skin he can save from excoriation, every portion of the foul and irritable ulcer that he can cleanse or soothe, will be so much taken from one palpable cause of death. I know of one case in particular, in which the more than commonly assiduous use of common means, especially blackwash and bismuth, was of immense service in prolonging life.

As to general treatment, much may be hoped from the persevering use of means to neutralise pain and exhaustion. The neuralgic pains, in the case last related, were immensely soothed by ether and warm negus, more than by opium, though this last, with chloroform, is unhappily the sheet anchor.

At present, all treatment of cancer is palliative, and directed against local manifestations and their results. But, when we consider that, ten years ago, before Hughes Bennett taught us the use of cod-liver oil, consumption was almost regarded in the same light, we surely need not yet despair of finding some substance which may destroy and eliminate what is noxious, or supply what is deficient, and so bring this intractable disease within the proper sphere of therapeutics. That there is a potentiality of cure, is shown by the degeneration of actual cancers; that real cures may have happened, cannot be denied; but, before any fact can be held as certain, or can be estimated statistically, a reform of nomenclature and classification, and the disuse of that most noxious word "malignant", are essential.

Curzon Street, January, 1854.

DRY CUPPING IN LABOUR.

By A. J. MANSON, Esq.

CASE. I was called on the morning of Jan. 23, 1852, at 7 o'clock to attend Mrs. Tocher, parish of Forgue, aged 23, of full habit, in labour of her second child. The pains, which were of a violent and distressing nature, were referred to the sacrum, and described as "going up, rather than bearing down", or as "being on herself rather than on the child". I found the os uteri about the size of a shilling, tense and undilatable. The vagina was hot, dry, and quickly adhering to the finger, on the removal of which exquisite pain was produced.

The head of the child presented with the occiput to the right sacro-iliac synchondrosis. I was told, by the midwife in attendance, that the patient's state had not materially altered since she was called at 1 o'clock of the previous morning, except that the pains had become, if possible, more distressing. She had administered castor oil and emollient enemata, which acted well, and subsequently opiate enemata, yet these measures were followed with but slight temporary relief. I bled her, although in the absence of other indications for so doing, I had not much faith in its efficacy as a relaxing agent in tedious and painful dilatation of the os uteri. I may here mention that from the first her pulse was soft and natural, her skin cool, and her tongue clean and moist. I then put her under the influence of tartar