

The nature and treatment of cancer : being the address in surgery read before the twenty-fifth meeting of the British Medical Association, held at Nottingham, July...1857 / by George Southam.

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THE
NATURE AND TREATMENT
OF
CANCER:

BEING THE

ADDRESS IN SURGERY

READ BEFORE THE TWENTY-FIFTH MEETING OF THE
BRITISH MEDICAL ASSOCIATION,

HELD AT NOTTINGHAM, JULY 28TH, 29TH, & 30TH, 1857.

BY

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Surgeon to the Manchester Royal Infirmary.

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PREFATORY REMARKS.

IT was my intention to have deferred the publication of this Essay, which is reprinted from the *British Medical Journal*, until I had entered more into detail on several points which could only be briefly alluded to in an address. But at the general request of those who heard it, I have been induced to print it in its original form, hoping at some future period to have an opportunity of extending my remarks on the subject.

G. S.

MANCHESTER, *January*, 1858.

EXPLANATORY REMARKS

It will be observed that the following is the
first table is printed from the British Museum
and contains some new and original papers which
only the British Museum is in the position to
supply. It is also the only one which has been
referred to in the report of the Committee on the
subject of the printing of the report.

Printed by the British Museum Press

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ADDRESS.

IT has been in full reliance upon the kind indulgence of this enlightened and influential assembly, that I have ventured to undertake the responsible duty of delivering the Annual Address in Surgery, and to occupy a place to-day which has on former occasions been filled by some of the most distinguished members of the profession. I feel still greater diffidence in following these gentlemen, because the address is not intended, as formerly, to be a detailed review of the various contributions of the previous year to Surgical Science (the improved state of our periodical literature having superseded this course), but a critical inquiry into some special department of surgical knowledge and practice.

To my mind there appears no subject better suited for this occasion than that of Cancer, not only on account of its practical and speculative character, but because it has engaged a large share of the attention, both of surgeons and pathologists, during the last few years. To allude to the whole of this question within the limits of an essay would be impossible; my remarks will necessarily, therefore, be of a general

character, and be directed chiefly to those points which lead to the most correct principles of treatment. With this view, I shall call your attention to—

- I. The Origin and Nature of the Disease.
- II. The Circumstances which modify its Growth and Duration.
- III. The Influence of Treatment in eradicating or palliating it.

I. ORIGIN AND NATURE OF THE DISEASE.

What is Cancer? In the first place, we must decide what affections are included under the term Cancer—a question which, in the present day, may appear somewhat singular. Yet this it is necessary to do, not because recent investigations have not thrown considerable light on the subject, but because some surgeons and pathologists have sought to give undue prominence to one or two particular signs, valuable, no doubt, in connection with others, in determining the true nature of morbid growths, but of themselves insufficient as diagnostic indications. Thus, at one time the *pathologist* maintained that in heterologous and homologous growths might be discovered the distinguishing features between carcinomatous and innocent tumours; at another, that their characteristic signs were to be found in their mode of growth; whilst of late years many have fixed the only true test in the presence or absence of a particular form of cell. In like manner, the *surgeon* thought that he had observed a specific indication of the disease in one or more of the leading symptoms, each having at various times had a certain degree of prominence assigned to it.

Another source of complication has arisen in the variety of names given to the different forms of morbid growths—every

new contributor to our knowledge on the subject having generally added some new term to our already overburdened nomenclature.

Pathologists are doubtless entitled to the fullest merit for their investigations; but it must be admitted that these patient labourers in the cause of Medical Science have not as yet succeeded in giving us any special sign by which the two forms of growth may be distinguished. It is only, therefore, by comparing the leading peculiarities which both clinical observation and pathological research have revealed as characteristic of each, that at present we can arrive at any satisfactory conclusions.

Without entering into a formal description of Carcinoma, I may briefly state that the term includes all growths formed of, or having incorporated with them, an abnormal organised material, which infiltrates itself into the tissues in which it is deposited, increasing and multiplying itself in other parts of the body, generally returning after removal, prone to ulcerate, and, in its disintegration, destroying the surrounding textures; of constitutional origin, and attended with impairment of the general health, ending eventually in the destruction of life.

These symptoms do not *all* present themselves at the same time, except in the latter stages, but vary in their number and character at different periods of the disease. Thus, the constitutional symptoms usually do not develop themselves until the functions have been extensively interfered with; and in the early stage, the deposit, instead of being infiltrated into the surrounding structures, often forms a distinct tumour, which condition it may retain, especially if seated in bone, throughout the entire course of the disease, provided the general infection is intense enough to destroy life in a comparatively brief period.

The recurrence of the tumour after removal, either in its original seat or in other parts of the body, is also not peculiar

to carcinomatous growths; for occasionally cystic, cartilaginous, erectile, adipose, and other innocent tumours, follow the same course; their return, however, leading to no injurious reaction on the general system. It is, then, in the tendency of the growths to multiply themselves in the different textures of the body, to return after removal, and to present during some stage of the affection symptoms indicating constitutional vice, with its almost invariably fatal nature, that we discover the leading characteristics of Cancer.

Whether the local and constitutional conditions are present *ab initio*, is a question respecting which a difference of opinion exists amongst those who have made Cancer their particular study; but both clinical inquiry and recent researches into the anatomy of the morbid deposit lead us to believe that its primary seat is in the system at large. Amongst those who advocate its local origin may be mentioned Velpeau;* and if his statements could be relied on, the question might still remain open for investigation. But his remarks on the curative results of extirpation are so completely at variance with the experience of other surgeons, alike in this country, France, and Germany, that we are led to the conclusion that many of the cases reported by him as cured would have been considered by others as innocent growths.

It is true that the removal of the local disease is often followed by improvement in the patient's general health; that the emaciated and debilitated are sometimes seen to regain their strength, flesh, and natural complexion; and that in favourable cases some advantage in the duration of life is gained—results from which some infer that the presence of the local disease is of itself injurious to the system, by exciting a toxic influence on the same. Such a view might be admitted if the improvement were of a permanent, and not, as it usually is, of a very temporary character, appearing rather to spring

* *Diseases of Breast*, Sydenham Society's edition, pp. 446, 473, 752.

from that mental relief which naturally follows the eradication of the most striking feature of the disease.

The absence of symptoms either preceding or coincident with the early signs of cancerous growths indicating constitutional derangement, is often advanced as a proof that the general system is not primarily the seat of the disease; but this argument falls to the ground in scrofula and syphilis, whose constitutional character is never doubted — diseases which, it is well known, frequently present themselves for a considerable period as local affections, without the manifestation of any constitutional disturbance.

It must be confessed, that as yet we are ignorant of any of the signs of the pre-existence of the cancerous diathesis; but it is clearly peculiar to certain constitutions, for it would be impossible to explain on other grounds how one woman may, from a blow on the breast, have a cancerous growth developed, while fifty others exposed to the same accident escape; how decayed or broken teeth so rarely give rise to cancer of the tongue, though these are generally admitted as its exciting cause; how uterine cancer is not more frequent in prostitutes than in those where the uterine system is less exposed to excitement; or why it should appear no oftener in the maternal than in the virgin breast or uterus.

Then what constitutes the element of this predisposition to cancer? At one time, it was thought the morbid matter existed preformed in the blood, because its presence had been detected in the veins. But it is only in connexion with deposits in some part of the body that it has been found;* and consequently it may be inferred that its entrance into the circulatory system is by absorption. Indeed, it can scarcely be supposed that blood holding cancerous matter in suspension could perform its healthy nutritive functions, as

* Langtsaff, *Med.-Chir. Trans.*, vol. viii., p. 286; Velpeau, *Rev. Médicale*, 1825, p. 367; Carswell's *Pathological Anatomy*.

it frequently does for years after the removal of scirrhus tumours, or in those cases where the disease remains stationary for a considerable period.

It has been stated that, in persons predisposed to cancer, the blood contains a superabundance of albumen or fibrine; but, beyond this fact, organic and minute chemistry has added nothing to our knowledge on this subject. Nor do the experiments of inoculating animals with cancerous matter lead to the supposition that the material exists preformed in the blood, for the majority of cases have been failures; and, in the few instances where it is said to have succeeded, the disease has been purely local,* deposits in other parts of the body having been found in only two instances out of a large number of experiments;† and this occurred in dogs, which might possibly have been previously infected, as cancer is not an uncommon affection in these animals. Neither does the hereditary tendency to the disease, which appears to exert its influence in at least one-fifth of the cases, support this view;‡ for it affords no proof that the cancerous material passes with the germ, but merely that it conveys with it a tendency to the production of those conditions which may ultimately lead to its development, just as the germ may convey with it other peculiarities of the parent. But, though the essential element of cancer does not exist preformed in the blood, our knowledge

* Dr. Watson's and Dr. Copland's (*Dict. Pract. Med.*, vol. iii.) cases of cancer being transmitted from wife to husband show the same result, even admitting there was no predisposition to the disease in both parties.

† Langenbeck, Schmidt's *Jahrbücher*, vol. xxv., p. 104; Velpeau, *op. cit.*, p. 444.

‡ Paget found, out of 254 cases of cancer, 60, or 23·6 per cent., had relatives of the same or former generations with cancerous or other tumours. (*Medical Times and Gazette*, 1857, p. 191.) Velpeau says more than one-third of the cases he has met with presented this feature. (*Diseases of Breast*, p. 439.) Lebert found it in only 14 out of 202 cases. (*Traité des Maladies Cancéreuses*, Paris, 1851.)

of healthy and diseased nutrition tends to show that the morbid material first appears in its rudimental state in this fluid, from perversion of some part of the nutritive process. Its further development is influenced by nutrition generally; and, as this function requires several conditions for its healthy performance, especially a due supply of healthy blood, a certain amount of nervous force, and a natural state of the proper elements of the part, so we may expect that it is through more or less derangement of each of these that the disease becomes fully formed. No doubt it has its principal source in the blood, the other conditions being also implicated, but not perhaps to the same degree. Indeed, if we except cystic formations originating in obstructed ducts, the chief distinction between carcinomatous and innocent tumours, as regards their origin, appears to depend on the extent to which all the essentials to nutrition are affected. If the local conditions, such as the nervous influence and the proper elements of the part, be alone involved, the growth will be of an innocent nature, and its structure resemble that of the part in which it originated; but if the material from which the disease is formed be secreted from cancerous blood, the growth will be malignant; and in proportion to the *extent* of the disease in the blood will the characters of the morbid deposit differ from the natural structures of the part, the highest degree of malignancy being characterised by heterologous deposit, the lowest by only a slight deviation from the healthy tissues, as seen in the recurring fibroid and myeloid tumour of Paget, the fibro-nucleated of Bennett, the fibroplastic of Lebert, or the albuminous sarcoma of Gluge—growths which these pathologists regard as innocent, from the similarity of their cells to those found in some of the embryo tissues, or in lymph and granulations, though their clinical history places them, in many instances, in the category of malignant tumours.

The conditions, therefore, essential to the production of cancer, are partly constitutional and partly local; the constitutional leading to the development of the cancerous element in the blood, by interference with the functions which preserve this fluid in its healthy state; the local separating the morbid material thus produced, and transforming it into cancerous deposit, which replaces, or becomes incorporated with, the proper textures of the part. Neither of these conditions *alone* can develop the disease. A blow or injury cannot of itself produce it; nor can perverted nutrition of a part from any other cause, unless the cancerous element exist in the system. But when this element is in excess, it is sufficient of itself to cause the local affection; as, for instance, in disseminated cancer: indeed, from the course this variety takes, it would appear that injury is not so frequently the exciting cause as is generally supposed, the disease not necessarily following injuries in persons so affected.

As regards the tissues which may be affected by cancer, it is obvious that it may be deposited wherever nutrition is in progress; and, consequently, no organised texture is exempt from its ravages.

It is now generally acknowledged that its earliest condition is that of a blastema or fluid, which Virchow* and Vogel† describe as consisting of a firm, compact, amorphous substance, similar to coagulated fibrine, sometimes containing molecular granules of modified protein or fat—characters not materially differing from the blastema of the natural tissues and other formations. In this blastema, cells are developed, supposed by Lebert, Robin, Hannover, Paget, Druitt, and others, to be of a specific nature, frequently, no doubt, presenting appearances which differ from those of the healthy tissues; the cell-wall and its nuclei, nucleoli, and granules, being usually larger. They are also more varied in form, in some

* *Archiv.*, B. 1, viii.

+ *Path. Anat.*, p. 565.

cases being round or oval, in others caudate or elongated. The cell-wall is extremely thin and pale, and, when submitted to the action of dilute acetic acid, is so transparent as to display the nucleus and its nucleoli distinctly. In the blastema, granules are also found, as well as numerous nuclei and nucleoli, destitute of any distinct cell-wall. The cells are said to be endowed with amazing reproductive powers, each being supposed to produce, either by fissure or from its nuclei, a second; the granules which the cells and blastema contain also becoming nucleoli, and ultimately parent cells. A fibrous tissue or stroma may also be developed from the blastema, in some cases forming the principal portion of the deposit. It is as yet undetermined whether this stroma is formed directly from the blastema, or from the cells; possibly the latter is the transition stage. Nor does it present any peculiarities by which it can be distinguished from condensed or indurated areolar tissue of other parts, except, perhaps, in the arrangements of its filaments; consequently, it is supposed by some not to be a new formation. But it is difficult to comprehend how it should constitute the chief portion of some varieties of cancer (scirrhus), without regarding it in this light: indeed, it would seem that the cell is still capable of undergoing further development—a view which is confirmed by this form of deposit being usually characteristic of malignant tumours of slow growth; whilst the cellular variety is peculiar to those of rapid formation, probably from the developmental power being destroyed, in consequence of the blood being more highly impregnated with the disease.

As regards the speciality of the cancer-cell, it is questionable how far this can be admitted. Compare it with the transitional epithelia of the different membranes of the body, or many of the gland-cells, or with the fibro-plastic cells of some innocent tumours,—and there will appear numerous instances of similarity, to prove this mode of diagnosing malignant

growths to be most unsatisfactory and delusive. Indeed, its most experienced advocates have given numerous proofs of their inability to apply this test to practice. I need only refer to the works of Nélaton* and Velpeau† to show that tumours, which run their course and terminate in precisely the same way as cancer, have, under the scrutinising examination of Lebert and Robin, been found destitute of the specific cell; whilst M. Mandl, another experienced histologist, asserts that he has met with the same form of cells in healthy lung. Further, in osteoid and fibrous cancer, there is a general absence of the so-called specific cells, or they are so few in number as often not to be discernible.

There appears, then, no reason to regard the cells found in cancerous growths as other than the ordinary ones formed for the development of healthy tissue, which have taken on an abnormal character, in consequence of the blastema derived from the blood for the nutrition of the part being in a diseased state. Their subsequent development is under some specific influence, which in cancer, as in other morbid growths of constitutional origin, exerts its effects in various degrees, according to its interference with the vital powers. Thus, the blastema of tubercle may be said to be almost destitute of vitality, and therefore incapable of development; and either degenerates into imperfect pus, or undergoes some chemical conversion. But cancerous blastema, being more highly organised, may be transformed into caudate or fibro-plastic cells, with their nuclei and granules; and these may merely reproduce others similar to themselves, or they may go beyond this, and manifest themselves as imperfectly formed fibrous tissues—the cancerous stroma. The new formation in either case has, however, only a *temporary existence*; for, after having arrived at a certain degree of perfection, it almost invariably degenerates.

* *Clin. Surg.*, Philad., 1855, p. 457.

+ *Loc. cit.*, p. 21.

On the other hand, in the absence of these specific influences, as in the ordinary effused lymph of inflammation or of healthy granulations, the cell is endowed with the power of progressive development, passing from the fibro-plastic cell into filamentous tissue, which finally assumes and *retains* all the characters of the healthy elementary structures in which its blastema was originally generated.

But, though we can ascribe no special features to the cells found in cancer, the microscope has furnished us with much valuable information respecting the nature of tumours generally. Whilst it has shown that the primary elements of all morbid growths do not materially differ from those of the normal tissues, it has also shown that these constituents vary in the degree of their development, in their mode of arrangement, and in their relative proportion to each other; that, in innocent tumours, the difference is slight, whilst in malignant ones it is more marked; the higher degrees of malignancy being characterised by a general want of order in the distribution both of their primary elements and the more perfect structures entering into their composition; which appearances, when accompanied by the presence of an opaque milky or cream-like fluid, yielded by the deposit when submitted to pressure, may perhaps be regarded as the most characteristic pathological signs of cancer.*

The microscope, likewise, has enabled us to arrange the various forms of the disease into three groups, according to the preponderance of their primary elements. One group is marked by an excess of blastema, constituting gelatiniform or colloid cancer; another, by an excess of cells, forming cephaloma, medullary or soft cancer; a third, by fibrous tissue—scirrhus, petrous or hard cancer. These peculiarities

* Cruveilhier first pointed out this sign. It is often necessary to wait a few hours after the removal of the tumour before the fluid can be detected.

may occur separately, or they may all be present in different parts of the body at the same time, or in the same tumour, each form either remaining distinct, or passing so imperceptibly into the other that it is sometimes difficult to decide to which particular group the disease belongs. The other varieties met with are merely modifications of these, arising from some of the constituents of the body, more or less altered in structure and quantity, being incorporated with them, or from degeneration of the cancerous deposit.

Thus, in hæmatoid cancer—*fungus hæmatodes*—there is an excess of blood, either free or enclosed in vessels; in melanosis, a superabundance of colouring matter, or pigment contained within cells; in osteoid cancer—the *spina ventosa* of the older surgeons—of osseous tissue; and in cancroïd or epithelial cancer, an excess of epithelial and other cells; whilst, from the degeneration of the morbid material, it may become converted into calcareous matter; or fat-globules may be infiltrated through the deposit, producing lardaceous or reticular cancer; or atrophy may ensue, causing the peculiar cicatriform contractions* sometimes observed in senile cancer.

By the same method of investigation, important information has been obtained respecting the manner in which the morbid material is deposited in the various tissues of the body. It is well known that its tendency is to infiltrate or diffuse itself amongst the different tissues; but the mode of extension, and the effect it produces on the original textures, have only recently been satisfactorily explained, and mainly through the exertions of Virchow.† He has shown that the local changes are not limited to the parts which are the seat of the deposit, but that the surrounding structures, which appear to the naked eye perfectly sound, are also involved. These, when examined with the microscope, are found to be infiltrated

* Wedl's *Pathology*, Syd. edition, p. 535.

† *British and Foreign Med.-Chir. Review*, 1855, p. 391.

with innumerable small cells, gradually increasing in size, and collecting in larger and more numerous groups the nearer they approach the swelling, and, in advanced stages of the affection, sometimes penetrating to a considerable distance into the surrounding parts. The cells and granules extend themselves chiefly along the areolar tissue, and ultimately into the tissue itself, and even into the nerves and coats of the blood-vessels, the normal nutrition of which being interfered with, atrophy of these structures ensues, and their place is supplied with true cancerous deposit. There appears to be, therefore, no transformation of the natural structures into cancer. Either they are absorbed, or they become incorporated with the disease, where they may remain as healthy tissue, provided the blastema is not so completely impregnated with cancerous material as to deprive it of all power of regenerating the original structures.

I have alluded to certain fibro-plastic tumours which present during their progress several of the clinical signs of carcinoma, but which pathologists consider to be innocent growths, because they do not agree in their minute anatomical characters with cancer. For a similar reason the terms "cancroid" and "epithelioma" have been applied to a group of diseases affecting structures covered by epithelia, which have usually been considered carcinomatous. But it is only in the form of cells which enter into their composition that any ground exists for considering them as distinct affections; for they possess, though in a less marked degree, all the other peculiarities of malignancy. The tessellated and scaly cells of "cancroid" growths appear to be epithelia arrested or altered in their growth by disease, just as the cells of other forms of cancer are formed from the diseased state of the cells which should enter into the composition of other healthy structures. In all other respects they resemble carcinoma, infiltrating themselves into the tissues, reappearing after removal, taking

on ulcerated action, and ultimately destroying life through the general infection of the system. It is true, they manifest their effects on the system more slowly than cancer of other parts, and that their local changes are also more protracted; but is there nothing in the condition of the skin and mucous surfaces to account for these peculiarities? Do we not find that several other diseases of these parts are extremely slow in their progress—that lepra, psoriasis, and lupus, may affect an extensive surface of the skin for years; that suppuration and superficial ulcers of mucous membranes may continue for a length of time, without impairing the general health? The entire skin, as an excretory organ, performs functions almost as important as any emunctory of the body; but a large portion of it may remain inactive without causing any serious derangement to the health. Not so the other organs, which are so limited in size that any interruption to their functions soon leads to marked derangement of the system.

Cancroid growths certainly bear removal better than cancer generally; but is not this due to their chronic character? And their disposition to return at the original seat, or in its immediate vicinity, which some adduce in proof of their local origin, is entirely in accordance with what follows the removal of other malignant tumours, extirpated under similar circumstances. Thus, when bone or the breast is the seat of cancer, if the diseased part only be removed, the affection almost invariably returns in the portion that has been left.

Nor is their tendency to reappear only in the situation of the original disease so general as some have supposed. So long as the system is only slightly affected, they may confine themselves to a particular locality; but when the constitution shows marked contamination, secondary deposits will be frequently found in other parts. In this respect, they follow the same course as cancer of bone or cellular tissue, both of which generally attack only analogous tissues and parts in the

immediate vicinity of the original disease, until the general infection of the system becomes complete, when they extend their ravages to other structures and localities.

But it has been asserted that cancroid and epithelioma not only differ essentially in their primary elements from other forms of cancer, but, says Nélaton, "they never in their progress produce that profound alteration of the organism known as the cancerous cachexia."* This statement is evidently not borne out by clinical observation. Within the last few months, three cases have come under my own notice disproving it. In one, the patient had suffered from cancer of the nipple for upwards of ten years, and has had marked cachexia and sallow countenance for several months past. The same symptoms appeared in another person, from whose lip, twelve months previously, I had removed an epithelial cancer; and also in a man who had been suffering from the same disease for upwards of four years. I have seen two other cases bearing on this question; one of a female with scirrhus mamma, from whom, five years previously to its development, I removed a cancerous ulcer from the cheek; in the other, there was epithelial cancer of the anus, coexisting with scirrhus of the prostate. Rokitansky, Velpeau, and Paget, have also recorded similar cases.

Further, these affections agree in their minute anatomical characters with carcinomatous growths, portions of their tessellated scales and cells being irregularly dispersed through the proper tissues of the skin, mucous membranes, or other parts covered by epithelia, replacing or variously changing their natural structures; and according as the deposit is situated in an equal degree in all the tissues entering into the composition of these parts, or is in excess in the papillæ and epidermis, or in the subintegumental tissues, so the disease will present variable characters, of which the ordinary cancer

* *Clinical Surgery*, p. 471.

of the lower lip may be regarded as the type of the first form; cauliflower excrescence and villous cancer, of the second, or the papillary and epidermoid infiltrations; and the deep seated flat or rounded tubercle, which gives origin to rodent ulcer, of the last. Indeed, the distinction between innocent and malignant structures, as regards their minute anatomical characters, can nowhere be better studied than in epitheliomatous growths; for, in the common warty, papillary, and condylomatous tumours, where the enlargement, whether from abnormal increase of the epithelium, epidermis, or papilla, is simply the result of hypertrophy, or from infiltration of the parts with inflammatory products, the different structures, instead of presenting a confused arrangement, preserve their natural relation to each other; the epithelial deposit, the scales of which are apparently unchanged by disease, consequently not lying within, but upon, their surface.*

I can only very briefly allude to the other kinds of doubtful growths in connection with that important subject, *the degeneration of innocent tumours*. It was formerly considered that all innocent growths were extremely prone to become cancerous; but for some years past, pathologists have taught that if a growth be malignant, it must have been so from its commencement, and that a perfectly innocent one never becomes cancerous. This view is undoubtedly correct in the majority of cases, but instances occasionally occur where it is not verified. Take for example the most simple form of growths.

Sir Astley Cooper's experience led him to infer that a fatty tumour may sometimes take on malignant action. Brodie inclines also to the same opinion, and, in support of it, gives the particulars of a case which came under his own observation.† Simple cysts may become cancerous, but perhaps

* See Paget, *Medical Gazette*, vol. xxiii., and *loc. cit.*, vol. ii., p. 420.

† *Lectures on Pathology and Surgery*, 1846, p. 282.

less frequently than is generally supposed; for the fungosities which are found in their interior are more frequently the result of inflammatory action than of any constitutional cause. It is in the ovaries they are met with most frequently; and, when accompanied by cachectic symptoms, their cancerous nature seems to be confirmed. But the cachexia more probably arises from imperfect nutrition, caused by pressure of the tumour on the surrounding parts, than from any general infection of the system. Cysts, however, do become the seat of cancer; a well-marked case of this kind came under my notice three years ago, where a simple cyst, which had existed some years ago in the mamma, became cancerous, as well as the surrounding structures; and there is now amongst the out-patients at the Manchester Infirmary a female, under the care of Mr. F. Heath, where a malignant tumour of the face, attended with the usual constitutional symptoms, originated in a simple cyst, which had existed for twenty-eight years. Cartilaginous tumours are well known to contain occasionally cancerous material; and warty growths of the skin are said to be frequently the earliest evidences of epithelial cancer. It must also be admitted that several of the fibro-plastic tumours to which I have alluded, are either innocent growths which have subsequently assumed a malignant character, or that pathological data are too imperfect to enable us to distinguish between the two diseases in their earliest stages.

On the other hand, the two varieties of tumours are sometimes found in the same person, quite unconnected with each other. Thus, females with fibroid tumours of the uterus are occasionally found to be affected with cancer of the os and cervix. Chronic mammary tumour may occur with cancer of the same part, each disease remaining distinct from the other, of which Mr. Paget has recorded three well-marked instances. Warty growths of the skin I have frequently known to have remained quiescent in persons suffering from cancer in their

immediate vicinity. Still it must be admitted that innocent tumours may sometimes become cancerous, but not from transformation of their structure, the morbid material being incorporated with it as it is with the other tissues of the body. They, however, seem less liable to its ravages than the healthy structures; and the cancerous diathesis, though it may in no way have contributed to their original formation, must be first developed before they can become affected.

II. CIRCUMSTANCES WHICH MODIFY THE GROWTH AND DURATION OF CANCER.

We have seen that there are three varieties of the disease, all identical in structure, but differing from each other according to the preponderance of one or other of the primary elements. In some instances the distinctions are well marked, and remain so during the course of the affection; in others, one form may run into the other, either from the commencement, or during any period of its progress. Generally, marked contamination of the system causes the local disease to assume the cerebriform variety, which may be regarded as the highest degree of malignancy, being the most rapid in its progress; and where it does not take this form from the commencement, it usually presents itself to some extent in the advanced stages, either in connexion with the original growth, or, as a secondary deposit, in other parts. Fibrous cancer, on the other hand, may exist for years with an apparently healthy state of the system, being of slower growth, softening and becoming encephaloid only as the general infection of the system increases. From Mr. Paget's tables, it would appear that the average duration of life from the patient's first *observation* of the disease in cephaloma is rather more than two years, whilst in scirrhus it slightly exceeds four.* We

* *Loc. cit.*, pp. 344, 406.

are not so familiar with the history of colloid, but it would seem to occupy an intermediate place between the two other varieties.

The degree of contamination of the system, then, frequently determines the character of the local disease; it also influences its growth, sometimes appearing for a time almost stationary in the earlier stages, but in its more advanced form increasing with great rapidity.

Age has also its influence. Whilst scirrhus and colloid are rarely observed except in adults, cephaloma, though met with at all ages, is almost the only form peculiar to infancy and childhood. Certain periods of life are more liable to the disease than others, for it occurs more frequently between 40 and 50 than between 50 and 60;* and this remark is applicable to all the forms of cancer. Dr. Walshe has pointed out another important feature, viz., that the disposition to cancer increases with age. This he ascertained by comparing the number of deaths by cancer in proportion to the number of persons living, as given in the Registrar-General's tables, which show that "the mortality from cancer goes on steadily increasing with each successive decade until the eightieth year."† Mr. Paget has arrived at the same conclusion by comparing "the ages at which cancers were first observed by the patients, or ascertained by their attendants."‡ Further, the progress of the disease is slower in the old than in the young, and often assumes the character of an acute affection in the latter, whilst in advanced age it is frequently chronic. Indeed, a variety of scirrhus sometimes occurs in the breast of elderly females, of extremely slow growth, attended only with a slight degree of pain, little disposed to ulcerate, but causing atrophy of the

* Velpeau, *loc. cit.*, p. 435; Birkett, *Diseases of the Breast*, p. 218; Lever, *Med.-Chir. Trans.*, vol. xxii.

† *Cancer: its Nature and Treatment*, 1846.

‡ *Loc. cit.*, p. 545.

gland, hence termed atrophic cancer, which, if left to itself, will often extend over several years, or even the whole of the patient's life, without causing much inconvenience or swelling of the neighbouring glands.*

The seat of the disease is in some degree affected by age. During childhood it is usually met with in the eye, brain, extremities of bones, lymphatic system, and cellular membrane; in the middle period of life, say from 35 to 50, the uterus, mamma, testis, and skin, are its most frequent seat; next in order come the stomach, liver, and intestines. In old age, all tissues appear equally liable to its ravages.

But the structure and growth of the cancerous mass appear to be influenced more by the *situation and nature of the texture* in which it is originally deposited, than by any other circumstance, except perhaps the constitutional infection from which it originates.

As regards *situation*, we find scirrhus occurs in the mamma or its immediate vicinity in 95 cases out of 100; cephaloma is met with most frequently in the eye, testis, bone, and cellular tissue; and colloid in the abdominal viscera and peritoneum; whilst the modifications of each may frequently be traced to the development and incorporation of new structures within them similar to those in which they are deposited. Thus, when cancerous material is found in or in the vicinity of bone, we usually find osteoid processes developed in it; when its seat is the liver, cells resembling hepatic epithelial cells are generally present in its structure; melanotic deposit is found in cancer of the eye; fat abounds in cancer of parts profusely supplied with this substance; and we have seen that epithelia occur in large quantity in cancer of the skin or mucous membranes. In each case, however, the new material is always more or less abnormal, the well-known physiological law, by which new structures formed for the regeneration of

* See Appendix, Case I.

lost parts invariably assume the characters of the neighbouring tissue, being still in operation, though in a less perfect degree than in health.

The seat of the disease very decidedly affects its growth. It may be stated as a general rule, that it progresses with the greatest rapidity in those parts where nutrition is the most active, as seen in cancer of the liver and kidney, sometimes running its course in those organs in a few weeks or months; whilst in the skin, bone, and cellular tissue, it often extends over several years.

From the tendency of the deposit to infiltrate itself, it is often difficult to watch the influence of *particular tissues* on its growth. There are some parts, however, where it may be observed. Take, for example, cancer of the rectum. Two very different forms of the disease are met with in this part; in one, it usually destroys life in two or three years; in the other, it will often continue for several. In the first, the disease affects from the commencement both the mucous membrane, submucous tissue, and adjacent structures; the morbid material is generally of the scirrhus character, producing the well-known form of stricture peculiar to cancer of this part, and gradually closing the passage, unless ulceration ensues, which for a time prolongs the life of the patient. In the other form, the disease at first appears to be limited to the mucous membrane, which, on examination, feels nodulated like the surface of a cauliflower—at first tolerably firm, hard, and movable, but, as it increases and fills up the rectal cavity, becoming softer, and readily breaking down under the finger, being in structure not unlike the cauliflower excrescence of the uterus, or villous cancer, of which it may be regarded as an example. Provided the diseased mass breaks down, or is removed, the patient may live for years. Eventually, however, the submucous tissue and surrounding parts become implicated, when the further progress of the disease is

identical with that of ordinary scirrhus. In one instance which came under my care, the patient lived between eight and nine years from the first observation of the disease; and another is still living where it has existed at least for ten years.*

Cancer of the breast affords another illustration. It is well known that the disease may originate in the gland, in the surrounding cellular tissue, or in the nipple and skin. Cancer commencing in the gland, I need scarcely remark, usually runs its course in a few years; but when the other parts form its original seat, its progress is much slower. In five cases of scirrhus occurring in females between 40 and 50 years of age, commencing in the cellular tissue at a sufficient distance from the mamma to show that it was not implicated (at least, not until the advanced stages), the average duration of life was rather more than seven years from the first detection of the disease. It is still more protracted when it originates in the nipple or skin. I have at present a patient in whom the disease commenced ten years ago as a hard tumour in the areola, with a thickened and brawny state of the surrounding integuments, both of which eventually ulcerated. The bright florid colour of the skin which occasionally precedes its induration, and has given rise to the popular term of "rose cancer," is also present in this case. The breast itself does not appear to be affected, except from atrophy; and the affection has passed through its various stages so slowly that it is only within the last few months that the constitutional symptoms have presented themselves.

It would form an interesting subject of inquiry to ascertain the circumstances which lead the disease to attack particular localities. By some the cause is attributed to depressed nutrition of the part; by others, the morbid material in the blood is supposed to possess characters peculiar to each variety of

* See Appendix, Case II.

the disease. To the latter of these views it may be objected, that all forms of the disease may be present in the same person, and even in the same tumour, which clearly shows that they must all have one common origin.

There are still one or two circumstances which influence the growth of cancer, to which I should refer. It sometimes happens that, owing to some improvement in the condition of the blood, the progressive increase of the disease is for a time suspended, or it may be temporarily superseded by the presence of another affection. Thus, the development of tubercle may arrest its progress; and, on the other hand, cancer may prevent the development of tubercle; consequently, it is not uncommon to find the remains of tubercles in the lungs of persons dying from cancer.

On some such principle, pregnancy sometimes arrests its progress. An unmarried female had a cancerous breast removed in her thirty-seventh year. She married in a few months afterwards, and during the next eight years had four children. Not the slightest indication of any return of the disease manifested itself until nine months after the birth of the last child: relapse then occurred, which terminated fatally in fourteen months.* A similar case is recorded by Brodie. Writing in 1846, he says—"So long since as 1832, I removed a breast affected with scirrhus; and the lady is still in good health—at least, was so last year. Since the operation, she has married, and had children."† And the patient to whom I have referred, with cancer of the nipple, has had several children during the ten years that the disease has existed. But, with these exceptions, the affection may be said to be constantly on the increase throughout its entire course; its progress, however, being almost invariably slower in the earlier than in the advanced stages. Taking the average duration of life from its commencement to its termination, in

* See Appendix, Case III.

† Brodie, *Path. Observations*, p. 200.

the breast, at four years,* it will be nearly three in its growth, and from twelve to eighteen months in its decay.

III. TREATMENT OF CANCER.

We may, I think, conclude that, if recent investigations have failed to discover any specific sign by which carcinomatous may be distinguished from innocent growths, they have at least satisfactorily proved that cancer is from its commencement a disease of the entire system; though, beyond the development of the tumour, the indications of its being so may not present themselves until the more advanced stages. If, therefore, we are to hope to cure the malady, it must be by directing our remedies as much to the removal of the constitutional as of the local affection. And here the question arises—Is cancer curable?

If we can place any reliance on the statements of our most experienced surgeons, the reply must be in the affirmative. Such a favourable result is, however, regarded as of comparatively rare occurrence, and, when said to have taken place, some have suspected there must have been an error in the diagnosis; but there are cases of cure recorded by men of such undoubted veracity and experience, that we are scarcely justified in admitting such an inference. Sir Astley Cooper, who did not take a very favourable view of extirpation, considered that nine or ten out of the hundred cases of scirrhus mammæ he operated on were cured;† and Brodie mentions three where the patients were in good health, one for fourteen, another for thirteen, and the third for six years after the operation.‡ South removed one in 1836, and the person remained well in 1847.§ A patient of mine is now in good

* Sir A. Cooper's *Lectures*, p. 351.

† Chelius' *System of Surgery*, by South, vol. ii., p. 796.

‡ *Loc. cit.*, p. 200.

§ South, *Chelius*, vol. ii., p. 796.

health, where the morbid mass was extirpated in 1847; and Velpeau asserts that some of his are still living, whose cures date back so far as twenty-seven, twenty, fifteen, and ten years.* But it may be said that these were not cases of cancer. I will, therefore, direct your attention to some less open to the objection, in which, though the disease returned after removal, the relapse did not take place for several years, the recovery being complete in the interval.

In the appendix to this essay, I have given the particulars of four cases† which have come under my own notice, where there were complete recoveries for nine, ten, nineteen, and twenty-two years, respectively. Callaway operated on a woman whose life was thus prolonged for twenty-two years; Bransby Cooper, on another patient who remained well for eleven and a half years.‡ Mr. Mitchell Henry and Mr. Shaw have recorded two cases occurring in the same family, where there was no relapse in one for ten, in the other for eleven years, although there existed a strong hereditary predisposition to the disease;§ and from Mr. Paget's tables it appears that, out of forty-one cases operated on, eight lived between four and six years, two between six and eight, and two between eight and twenty years.||

We have still another class of cases bearing on this question, viz., those where the disease becomes latent, and remains so for a considerable period, although the tumour has not been removed. Sir A. Cooper testifies to its existence for more than seventeen and twenty-two years; and it is not unusual to meet with senile and atrophic cancers which have been stationary for ten or fifteen years.¶ These examples, which might be easily multiplied, it must be borne in mind, do not include any cases of epithelial cancer—the most favourable

* Velpeau, *loc. cit.*, p. 22.

+ Appendix, Cases III., IV., V., and VI.

† Chelius' *Surgery*, vol. ii.

§ Velpeau *On the Breast*; and *Lancet*, 1856.

|| *Loc. cit.*, vol. ii., p. 346.

¶ Appendix, Case I.

form of the disease for treatment—but embrace only instances of scirrhus mammæ. They are, however, sufficient to prove—

1. That cancer is occasionally cured.
2. That after the removal of the tumour, the progress of the disease may be so completely suspended as to leave the patient apparently free from it for several years.
3. That the disease may become latent for a considerable period, even where the tumour has not been extirpated.

The unfavourable nature of the affection precludes us from expecting these results to be of very frequent occurrence. In the acute or highly malignant forms they perhaps never take place; but in those of slower growth, and where some of the conditions which I have alluded to as retarding their progress are present, we may reasonably hope, by judicious treatment, sometimes to succeed, if not in eradicating the malady, at least in prolonging the patient's life, either by producing temporary freedom from it, or by rendering it latent for a time.

It is of the highest importance that the remedial measures to be resorted to should, if possible, resolve the local disease through the system. Accordingly, every remedy which has been found to exert any influence in causing the absorption of other abnormal deposits, has been tried, but hitherto little or no evidence of any benefit has been obtained. Instances are sometimes met with where the tumour has been removed by absorption, either spontaneously, or perhaps through the influence of treatment. They are, however, of such rare occurrence, that cancerous deposit is considered, under ordinary circumstances, not to be capable of undergoing absorption. Its removal can, therefore, only be effected either by the knife, by caustics, or by the ligature, or by the newly-invented instrument, the *écraseur*. Even these means are regarded by many as of doubtful efficacy; and certainly, when they are undertaken without due discrimination, they do not appear to increase the chances of life, but rather to hasten a fatal termination.

In determining the influence which the removal of the local affection exerts over the constitutional elements of the disease, we are compelled to restrict our inquiries to the consideration of cases of extirpation by the knife, the information we possess concerning the other plans being too imperfect for the purpose. Numerous statistical tables have been prepared on this subject, from which various results have been deduced. Their general tenor leads to the inference that the removal of the tumour very slightly, if at all, increases the duration of life. But, in the course of my investigations, I have had reason to doubt the accuracy of these conclusions, the data from which they have been taken not being sufficiently exact. My limits preclude me from entering fully into this subject; I will, therefore, only call your attention to the statistics of Dr. Macfarlane and Mr. Paget, these being the most frequently referred to, as proving the unfavourable nature of extirpation.

Dr. Macfarlane collected 118 cases of cancer of the breast, which had been extirpated with the knife. Of these, 86 were communicated to him through friends; the remaining 32 were cases in which he had operated himself. As the details of the 86 cases are very imperfect, I need not refer to them, but will take his own 32 operations, which occurred in individuals whose ages varied from 42 to 59 years, in all of whom the disease reappeared within three years, the mean period of relapse being something less than eight months and a week.* Dr. Walshe, who is generally opposed to extirpation, in speaking of these operations, says they "were executed under the most favourable circumstances;"† but on reference to Dr. Macfarlane's essay, I find that, in 20 of the 32 cases "the glands of the axilla were more or less affected"—conditions which would have deterred *many* surgeons from resorting to the operation at all.

* *Med. Gazette*, vol. xxii., p. 417.

† *Loc. cit.*, p. 243.

Of 139 cases, records of which Mr. Paget made or collected, and watched to their conclusions, he found that, in 75 cases not operated on, the average duration of life from the first observation of the disease was forty-eight months; whilst, in the remaining 64 who submitted to operation, it was little more than fifty-two months, showing a slight advantage in favour of extirpation.* No details of these cases are given; but, from some remarks respecting the influence which enlarged axillary glands exert on the return of the disease, it appears that, of 30 operations, they were present in 10.† It may therefore be inferred that his tables include both favourable and unfavourable cases. I think, also, we may conclude that extirpation was undertaken in some of them merely to give temporary relief from the pain and offensive exhausting discharges which sometimes occur, rather than with any expectation of prolonging life for any lengthened period.

Amongst the records of upwards of 150 cases, almost all of which I had opportunities of examining, I have been enabled to select 42 of relapsed cancer. Any statistical tables, however, prepared from them, in reference to the average period of relapse after extirpation, would be incomplete, because they do not include all the cases that have come under my notice, the records of some only having been preserved on account of their possessing some features of interest; but from the following analysis of them it will be seen that, under certain conditions, patients are decidedly benefited by extirpation. Taking the average duration of life from the first detection of the disease in those *not* operated on, at four years, I think it may be inferred that, if the patient remain in perfect health and free from any return of the growth for three years after operation, it has added to the duration of life. Twenty-five cases exceeded this period, five of which lived for ten, twelve, twenty-seven, forty-five, and fourteen years,

* *Lancet*, vol. lxx., p. 62.

† *Surgical Pathology*, vol. ii., p. 350.

respectively, after the removal of the tumour, the last mentioned being still alive. Symptoms indicative of the malignant cachexia do not appear to have been present in any of the 25 at the time of operation. Of the local signs, 5 had retraction of the nipple; but adhesion of the tumour to the skin or the deep seated structures, or enlarged glands, were absent in all. The morbid growth, which, as far as could be ascertained, was of the scirrhus form, was situated in the substance of the breast in 10; on its side, but connected with it, in 10; and at a short distance from it in 5. In none did the growth exceed that of an ordinary egg. In 15, the disease was removed within a few weeks of its discovery; in the remaining 10, which include the five cases where the tumour was apparently unconnected with the breast, it had existed for periods varying from twelve months to five years. None of the patients seem to have noticed any rapid increase in the tumour immediately preceding the operation. Their ages varied from 37 to 56; and there was decided hereditary predisposition to the disease in 3; in 4 it was doubtful. The entire gland was excised in 15 cases, a portion of it only in 5; in the remaining 5 it was not interfered with. As regards the 17 in which relapse took place within three years, 14 presented either local or general indications of an infected system, besides the existence of the tumour. They were absent in the remaining 3. The disease was said to have existed only a few weeks in 5; from six to twelve months in 7; and from one to four years in the rest. The tumour was increasing at the time of operation in 14; rapidly so in 6, 2 of these being cephaloma. It appears to have been stationary in 3 only. It was situated in the substance of the breast in 10; at its side, but connected with it, in 7. The entire breast was removed in 7 only.

There is still another argument in favour of extirpation, viz., that, when the local disease reappears, it is not generally attended with such formidable suffering as when left to pursue

its own course; and occasionally, when recurrent cancers are removed, the second recurrences ensue more slowly than the first. Mr. Paget has recorded three examples, one in which the first recurrence was after twenty-four months, the second after sixty; another of first recurrence in twelve, and the second in eighty-four months; and a third of first recurrence in two, the second in twenty-four months.*

It must, however, be admitted that, whilst the severity of the local malady is mitigated, the constitutional affection often becomes more marked; on the return of the disease, the growth pursuing its course in the advanced stage with great rapidity, doubtless on account of the system being more completely contaminated.

We may take it for granted, then, that the excision of the local tumour is decidedly advantageous in the general treatment of cancer. Before stating the circumstances which should guide us in adopting this course, it may be well to inquire whether the other means are more effectual for the purpose or not.

Escharotics have long been used, especially for the removal of epithelial cancer; and occasionally with success, these affections being the most favourable for any plan of treatment, on account of their chronic character. They have, therefore, acquired considerable popularity with those who treat all the varieties of the disease on one principle, or whose want of surgical skill renders them incapable of using the knife. In some cases, where excision cannot be resorted to with safety, their utility is acknowledged; but it is in cancer of deep seated structures, and in parts where we can make our election between the two different modes of treatment, that we have to determine the relative merits of each. Unfortunately, there are no reliable statistics which show the effects of caustics; those of Canquoin, who asserted that he

* *Loc. cit.*, p. 348.

cured 82 per cent. with the chloride of zinc, and of Landolfi, who professes to have cured 3,000 out of 4,000 cases with his paste, having been proved to be fallacious. Most hospital surgeons are opposed to their use, except in the cases already referred to; their objections being based on repeated trials both in public and private practice, and on witnessing their injurious effects in those who have been the unfortunate victims of some "celebrated cancer-curer." I have collected the particulars of seventeen cases, taken indiscriminately, treated by these celebrities. In three only were the patients temporarily cured, relapse taking place at the end of fourteen years in one, and in the twelfth and eighteenth month in the others. Of the remaining fourteen, two died from sloughing and hæmorrhage within a few weeks, and in twelve the disease was converted into a permanently open sore.

Mr. Aston Key is said to have fairly tested the treatment in nearly twenty cases, all of which terminated with the same result as if the knife had been used; and Landolfi treated, before a French commission, nine cases, two of which died; in four, the disease was aggravated; and in three, cicatrisation took place, but the disease reappeared. Not one of the nine was cured. A committee was also appointed at Vienna, to watch the effects of his treatment; yet, in six cases selected by himself, "he only cured one; and that was an innocent tumour, a partial hypertrophy of the mamma, for which he destroyed the whole breast quite unnecessarily, and produced a large unsound cicatrix.*

* Spencer Wells, *Medical Times and Gazette*, July, 1857.

The practice of making free incisions into the tumour, and inserting caustics in the wounds, as originally adopted by Mr. Justamond, in 1780, and recently revived by Dr. Fell, is scarcely more satisfactory, as shown by the following extract from the *Report of the Surgical Staff of the Middlesex Hospital, of Cases treated by Dr. Fell in that Institution*, and published since the delivery of this address:—"With regard to the numerical results, hitherto observed, in respect to the aggravation and recurrence of the disease—twenty-one of

Even if it could be shown that the two plans of removal were equally successful, when we consider that the tedious nature of the caustic process, its excessive and protracted pain, and in occult tumour the great probability of its conversion into a permanently open and offensive ulcer, which must necessarily exhaust the patient and hasten death, far counterbalance the immediate hazards of excision, which is dangerous only from hæmorrhage or erysipelas—events of rare occurrence, and which may even follow the caustic treatment—it appears that, in deep-seated cancers, the advantages are decidedly in favour of the knife, especially as the patient may be made insensible to pain by the administration of chloroform.

But I need not further pursue the caustic treatment (Mr. Langston Parker having so ably discussed it in his address last year) beyond a passing allusion to the latest novelty in cancerous therapeutics, every year usually bringing to light some new specific for this affection. The most recent discovery is that of a root, the virtues of which have been long known to the "mystery man" of the North American Indians, by whom it is considered as a "sacred and great medicine;" and

our cases appeared to have been adapted for the use of the knife; one of them was aggravated by the introduction of the paste. . . . In two of the cases, disease appeared behind the pectoral muscle, while still under treatment. The tumour was extirpated in ten patients; but in three of them cancerous tubercles formed in the adjoining skin; and a fourth has returned to the hospital after an absence of three months since the wound healed, with a fresh tumour in the substance of the breast. One of the patients was sent home for a few weeks, it being doubtful if any disease remained or not. The remainder are still under treatment." (page 45.)

It appears therefore that thirteen only of the cases were completed, of which but five remained well at the end of the six months.

It is also stated that "the time occupied in the complete extirpation of a tumour by the incisions, is generally longer than when caustics are used in the ordinary way;" (page 48.) and the pain caused by the treatment, is described as having been very severe in several of the reported cases.

with just reason, for we are told that with them it effectually eradicates this distressing malady. But the blessings of civilisation, it seems, are not without their evils even in the action of remedies; for this remarkable drug, so powerful on man in his savage state, is almost innocuous in his civilised condition; for then it is necessary to call in the aid of a no less potent agent than the chloride of zinc, and this not in any infinitesimal quantity, the proportion being larger than that of the Indian specific itself. It is unnecessary, on such an occasion as this, to dwell at length on the delusion; indeed, it would have been unworthy of notice, had not the medical staff of a metropolitan hospital in some measure sanctioned the remedy. Had these gentlemen used a little more caution, and first required proof of the superior powers of the vegetable, unaided by any other remedy, which its advocate asserts it possesses—a statement he has not yet substantiated—they would not have placed themselves in the unenviable position of having had to witness the trial of a nostrum for six months which had no new remedial properties.

But, if we are not able to chronicle any advance in medical therapeutics, the surgeon has been provided with an instrument, through the ingenuity of M. Chassaignac, termed the *écraseur*, by which in a few minutes are removed tumours that formerly required either the ligature or the still more tedious and painful application of escharotics. In cancer of the tongue, its use will probably supersede all other plans; and where the diseased growth is highly vascular, or occurs in weak and debilitated persons, where the loss of a few ounces of blood is of serious moment, it will be found equally beneficial.

Nor must I omit to mention the application of ice and salt, for the production of extreme cold, which, when used for the relief of pain produced by caustics, will be found a valuable addition to surgical therapeutics.

It is scarcely necessary to allude to pressure, which was at one time recommended for the dispersion of the local tumour, the beneficial results which its advocates anticipated not having been realised.

As regards, then, operative interference in the treatment of cancer, we are justified, I think, in drawing the following conclusions:—

1. Combined with constitutional treatment, it may be undertaken with the prospect of curing the patient, or of temporarily arresting the disease, when the tumour is of recent formation or of slow growth, and of moderate size, but movable and easily defined; where the symptoms of general infection of the system have not developed themselves, and pain is absent or only slight. Where these conditions exist, the influence which the age of the patient, the character and seat of the deposit, and the extent of inherited liability to the disease, may exert on its duration, must also be considered.

2. Under less favourable circumstances, it may be resorted to as a palliative, either as a primary or secondary operation, to give temporary relief from severe pain, or from exhausting sanious and offensive discharges, or from mental suffering, or from hæmorrhage which may be attended with risk to life.

3. All operative interference is inadmissible for curative purposes where the tumour is of rapid growth, or, having been almost stationary for years, has suddenly become active; where it is adherent to the skin or neighbouring structures; where there is glandular enlargement, or secondary deposit of any kind; where there is marked cachexia, sallow countenance, and severe pain; or where the patient is advanced in life, and the affection of the atrophic or senile form; inasmuch as it cannot be undertaken without imminent fear of aggravating the disease. In such cases it is still more objectionable where the growth is so large as to render extirpation dangerous,

either from the extent of wound, or from its encroachment on important organs, cavities, or vessels.

4. As regards the mode of removal, excision is the least painful, and should be adopted in all cases where it is practicable, especially in deep-seated occult cancers. Escharotics are preferable in epithelial growths, where the knife cannot be safely used; and also in ulcerated cancers of an extensive and superficial character. The *écraseur* or ligature is chiefly applicable to cancer of the tongue, to highly vascular growths, or where the disease occurs in persons whose vital powers are so enfeebled that the loss of a small quantity of blood would endanger life or retard recovery.

5. Whatever plan be selected, it is essential to success that, besides the growth itself, a considerable portion of the surrounding apparently healthy structures be removed; and any gland, bone, or organ, containing the disease, if practicable, be completely extirpated.

6. If any of these operative procedures be insufficient alone, they may with advantage be sometimes combined.

But the removal of the local affection will be of little avail, apart from a well directed plan of constitutional treatment. I need not dwell on the numerous remedies which have at different times been recommended, all of which have hitherto failed. Indeed, considering that we have to contend with an altered condition of the blood and an impaired state of the constitutional and vital powers, it does not seem likely that a specific for the disease will ever be met with in any particular drug; these conditions naturally suggesting that it will more probably be found in such a system of treatment as will embrace the judicious combination of medical with dietetic and hygienic means.

Accordingly, the preparations of iron, iodine, arsenic, and sarsaparilla, either alone or combined, according to the peculiarities of the case, and administered at intervals of three or

four months duration,—the constant use of a highly nutritious non-stimulating diet, with a moderate allowance of light wine, such as claret and hock,—frequent change of air, sometimes to the seaside, at others to mineral springs, and attention to the secretions and excretions of the body,—seem to be the measures best adapted to check the progress of the disease. Not only does this course of treatment promote the processes of sanguification and nutrition, but it diverts the patient's attention from the complaint, which, it is well known, materially influences its progress.

Did time permit, I could relate several instances where a steady perseverance in the constitutional plan of treatment thus briefly sketched has enabled patients to live in comparative comfort for several years; and, by this treatment, combined with the judicious removal of the local disease, I believe we may occasionally succeed either in completely eradicating the complaint, or in giving to the patient such an interval of health and hope as will soothe the gloomy path of life through which those suffering from cancer are usually doomed to pass.

In conclusion, if I have questioned the propriety of admitting as established some of the views recently promulgated respecting this formidable malady, I am far from denying that the investigations now in progress are likely to lead to satisfactory results. We are manifestly on the eve of some valuable discovery respecting the nature and treatment of morbid growths generally, but we may fail in our object by seeking to establish facts from imperfect data. The old maxim, "*Festina lentè*," appears peculiarly applicable to discoveries in practical medicine; for, unlike the exact sciences, it is so mixed up with doubt and perplexity, that it almost lacks the accuracy necessary to give it the hoped-for precision. When, therefore, statements are advanced at variance with those fundamental principles of observation

and experience which our ancestors have laid down, both the old and new facts should be submitted to the most rigid investigation; for, whilst any discrepancy exists, there must be inaccuracy in either one or the other. By this course we shall protect ourselves from broaching doctrines which may possibly lead to confusion; at the same time, we shall be retesting the accuracy of those which have hitherto been our guides in the treatment of that particular disease to which I have this day directed your attention.

and attention which our ancestors have paid down from
 the first day when they were first introduced to the world
 and to the present day, with the same steady and un-
 changing spirit, and in the same manner. By this course
 of study, we have been enabled to acquire a knowledge
 of the most useful and necessary parts of science, which
 is the only way to become a useful member of society.
 In the study of the sciences, we have been enabled to
 acquire a knowledge of the most useful and necessary
 parts of science, which is the only way to become a
 useful member of society.

APPENDIX.

CASE I. *Atrophic Cancer of Breast.*—Mary H., aged 60, married, had no children, was admitted into the Manchester Royal Infirmary, July 1857, under the care of Mr. Ransome. Sixteen years ago she perceived a hard tumour, about the size of a small marble, in the left breast; it increased in size, but so slowly, that ten or eleven years after its first appearance, it was not larger than an ordinary sized walnut. She then noticed that the nipple was drawn in, and that the substance of the breast had diminished in size. This decrease has continued, and no vestige of the breast now remains, the side of the chest being perfectly flat. The appearance is peculiar. A red surface, resembling a cicatrix, with a few superficial ulcerated patches of small size, occupies the site of the breast. In the centre, the remains of the nipple can be seen, in the form of a small red tubercle, of about the size of a pea. Several fissures radiate from it over the surface, which is more or less puckered. Some indurated glands can be felt in the axilla; and the left arm is œdematous and painful, which is the chief cause of her present discomfort.

From the period she first perceived the disease, has had pain in the part at intervals; and until within the last few years, she has enjoyed good health. No treatment beyond the application of plasters to remove the pain has been adopted.

The catamenia ceased at 48; and she has only noticed progressive loss of flesh and strength during the last two years.

CASE II. *Epithelial Cancer of Rectum, of twelve years duration, treated by Escharotics.*—Mrs. P., aged 35, married, having had two children, came under my care in 1847. She had been suffering

from an affection of the rectum for upwards of twelve months, which caused a burning sensation in the part, pain in defæcation, and the discharge at intervals of blood and pus. On examination, there was nothing unnatural about the anus; but on introducing the finger into the rectum, its cavity was found to be distended by a cauliflower-like excrescence, which appeared to spring principally from the posterior surface. It was very friable, readily breaking down under the pressure of the finger. There were also several irregular indurations in other parts of the rectum. The disease did not appear to extend to the surrounding parts, the rectum being to a certain extent movable. There was a fulness in the left iliac region, which disappeared after the bowels had been freely emptied by purgatives. As the excrescence could be readily broken down with the finger, it was removed several times, which gave considerable relief to her sufferings. But, the induration increasing, and threatening to permanently obstruct the bowel, some caustic potash was applied to its surface, by means of an instrument I had constructed for the purpose,* which caused portions of it to slough and keep the passage free. This operation has been repeated at intervals ever since, and has afforded considerable relief.

Though the disease has existed for twelve years, the patient is still able to attend to her household duties, her general health not having suffered much from the complaint. The medical treatment has consisted in the administration of the iodide of iron at intervals for two or three months at a time, the occasional use of morphine to relieve pain, the regular administration of mild purgatives, and attention to diet, which has been composed of light non-stimulating nutritious food.

CASE III. *Scirrhus of Breast: Extirpation: No Return of the Disease for nine years.*—Ann W., aged 37 years, was admitted into the Manchester Royal Infirmary in 1836, suffering from a tumour of the left breast, which she had only noticed a few weeks previously.

* This *porte caustique* was made by Messrs. Wood, surgical instrument makers, of Manchester; and is so constructed that potassa fusa may be applied to morbid growths in the rectum, vagina, or throat, without injury to the surrounding healthy structures.

It was hard, of about the size of a small orange, and situated in the substance of the organ, to the right of the nipple, which was slightly retracted. The breast was movable, and the tumour free from adhesions to the skin. The entire breast was excised by the late Mr. Ransome, and a section of it showed that the growth had the usual appearances of scirrhus. The patient recovered in a few weeks from the operation, and married about eight months afterwards. During the next eight years, she enjoyed excellent health, and had four children, all of whom she nursed. About nine months after the birth of the last child, the disease reappeared in the cicatrix, and caused death in about fourteen months.

CASE IV. *Scirrhus of Breast: Extirpated: No Return of Disease for upwards of ten years.* John Leigh, aged 62, was admitted into the Manchester Royal Infirmary in 1855. Twelve years previously he had been a patient of the institution for a tumour of the left mamma, which was removed by Mr. Robert Thorpe. The disease was situated below the nipple, about the size of a hen's egg, movable, but not painful. After removal, it was found to present the usual appearances of scirrhus. He continued in good health until within the last six or nine months. He has now a large fungoid growth, hard at its base, but movable; it is painful, and appears to be rapidly enlarging, not having been noticed before the last six months, when it first appeared as a hard tubercle in the cicatrix. Within the last few months he has lost flesh, and his countenance is becoming sallow.

The growth was removed, but the disease reappeared before cicatrization was complete.

CASE V. *Schirrhus of Breast: Extirpated: No Return of Disease for nineteen years.*—Miss T., unmarried, in the year 1832 first noticed a tumour in the left breast, for which she placed herself under the care of Mr. Thorpe and Mr. Ainsworth, surgeons to the Royal Infirmary. They recommended its removal, to which she submitted about six months after having first detected it. The entire breast was extirpated; and, on examination, the tumour was found to be about the size of a small hen's egg, embedded in the substance of the breast. Mr. Thorpe informed me that it presented all the

characters of scirrhus. At the time of the operation, she was in her thirty-eighth year, and in good health. She had suffered no inconvenience from the tumour, but it had caused slight retraction of the nipple. There was no return of the disease for nineteen years, when a number of small tumours began to appear in different parts of the body. She first perceived them in the cicatrix and its vicinity. She came under my care about twelve months after their appearance, when they had extended over the body. Some were situated in the skin, others in the cellular tissue. They varied in size from that of a millet-seed to a large filbert. They were hard, and those in the skin were similar to the tubercles often met with in connexion with recurrent cancer of the breast. Some ulcerated, the edges of the ulcers being hard and indurated. With their appearance, her general health began to decline; and she died very much emaciated, in her sixty-second year. She was continually under medical treatment during the last five years of her life, and appeared to derive great benefit from the occasional use of the iodides of arsenic and iron, combined with generous diet and frequent change of air.

No *post mortem* examination was permitted, beyond the removal of a few of the tumours. On examination, they presented the ordinary characters of scirrhus, cancerous juice exuding from them on pressure, which, under the microscope, appeared to consist principally of tessellated scales and cells similar to those found in epithelial cancer. Two of the larger tumours, situated in the cellular tissue, contained some cerebriiform matter, in which nucleated cells were discovered.

CASE VI. *Scirrhus of Breast: Extirpated: No Return of the Disease for twenty-two years.*—Mrs. C., married, had no children, first noticed the disease when in her fortieth year. The tumour was situated in the substance of the breast, on the outside of the nipple, and a short distance from it. It was about the size of a small hen's egg, movable, and free from pain. A few weeks after its discovery, the tumour, with the half of the breast in which it was situated, was extirpated by Drs. Hull and Wood, of Manchester, the nipple being left. The wound healed in a few weeks, and she remained free from any return of the disease for upwards of twenty

years. About twenty-three years after the operation, her maid discovered a dimple in the breast, near to the nipple. The parts surrounding it were hard, but only over a small space. The hardness gradually increased; at length the nipple began to retract. No material change took place for about four years. A tubercle then appeared on the surface of the dimple; and the surrounding skin contracted, giving to the part the appearance of a cicatrix. The tumour now became adherent to the deep seated parts; and at times she had severe paroxysms of pain in it, to relieve which anodyne plaisters were frequently applied. The disease remained stationary until about her seventy-fifth year, when the tubercle began to ulcerate. The ulcerative progress was extremely slow, the part not requiring the dressings to be changed oftener than once a week for a considerable period. As the ulceration extended, the breast became harder, and the discharge greater; but still the dressings were not changed oftener than every second or third day, until the last two years of her life; it then required dressing daily, the ulceration having extended to the size of the palm of the hand. The sore, the edges of which were much indurated, now occasionally bled; but the hæmorrhage was easily checked by lint and pressure. The countenance only exhibited the usual appearances of the cancerous cachexia during the three or four years which preceded her death, which took place in her eighty-fifth year, in 1850.

The constitutional treatment consisted in the use of a generous diet, with a moderate allowance of wine; and medicine was only administered when the secretions became disordered. She travelled during several months in the year, and every means which could divert her mind from the disease were resorted to. The particulars of the early history of this case I obtained from the late Messrs. W. J. Wilson and Barker, of Manchester, who attended her for several years, both of whom informed me that Drs. Hull and Wood entertained no doubt of the original tumour being cancerous.





