cephalic sensations at the onset of the attack of giddiness seem to be of the same general nature. It was described as a "clutch" in the case of a single woman of 29, in whom the aural nature of the vertigo was less certain than in the cases I have previously described, since there was no deafness. But the patient had persistent tinnitus in the left ear, and such tinnitus means irritation of some of the labyrinthine structures, which, however trifling, may have a disturbing effect on the centres out of proportion to its intrinsic degree, and may be greater in the part of the labyrinth concerned with equilibrium. The patient had brief attacks of giddiness, in which the ground seemed heaving up and down, and each began with a sudden momentary sensation of a "clutch" in the head. Later, this clutching sensation occurred when going off to sleep, and was followed by palpitation of the heart, the tinnitus became much louder, pulsating like a steam engine at work, and she wondered that other people did not hear it. Sometimes it changed for a short time to a loud continuous hiss, compared to an engine blowing off steam. Strange to say, her hearing continued perfect, but there must have been definite labyrinthine irritation, sufficient to make it probable that the other symptoms had the same origin. This would not have been suggested by her nocturnal sensation, which, considered alone, bore a striking resemblance to an attack of minor epilepsy.

NEURASTHENIA: ITS NATURE AND TREATMENT.

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THE NEURASTHENIC CONDITION.

THE importance of this subject at the present time arises on the one hand from the fact that the condition of things known by the rather unsatisfactory name of "neurasthenia" is very greatly on the increase through all ranks of society, and on the other because instruction respecting it forms no part of the curriculum of the medical student, nor of the training of the nurse. Year by year cases of neurotic illness assume even larger proportions in the work of the general practitioner, and his inability to deal with them successfully is both a disadvantage to himself and the occasion of much avoidable pain, discomfort, and protracted invalidism in his patients.

By a curious and unfortunate misconception "neurasthenia," and in a tenfold greater degree "hysteria," have come to be regarded as terms of opprobrium, as though their victims were, as such, a kind of moral delinquents wilfully hugging maladies of a more or less imaginary character, which a mere fiat of their own might abolish if it so pleased them. It is to be hoped that in the light of fuller knowledge and more discriminating judgement of conditions this hurtful misconception will before long take its way into the limbo of other time-honoured but exploded prejudices.

Neurasthenia, as it comes under the doctor's notice, shows itself physically in a wide variety of ways, of which one of the commonest is general malnutrition, often leading to great emaciation. There may be indications of numerous forms of illness for which on examination no physical basis can be discovered—dyspepsia and vomiting without disease of the stomach; cardiac symptoms, even anginal in character, with a perfectly sound heart; paralysis or spinal pain, with reflexes intact; altered secretions from organs in a normal state. Or, again, there may be no local disturbances, but only general debility and depression—a state in which the patient can do nothing so well as formerly, and finds every little exertion a trouble; and often enough this is accompanied by a feeling of insecurity and self-distrust—a dread of facing life and its demands.

This condition of things may have been brought on by a sudden shock—some fright or distress—though in such a case it usually does not appear at once but after an interval of incubation. But very much oftener it is the upshot of a long, gradual deterioration in health due to some steady cause of wear and tear. The important point to grasp and keep in mind firmly is that the physical state is *secondary*. The originating cause is always to be

sought for in the patient's mental life and history. So markedly is neurasthenia a disorder or disease of the mind that the gravest cases—such, for instance, as those in which the patient is subject to one fixed idea, often most difficult to dislodge—reach a border-line where they cannot with certainty be distinguished from the still more unfortunate persons who must be definitely handed over to the alienist. These, however, are extreme cases, and are, happily, not numerous; and, in the great majority of instances, it is comparatively easy to decide whether a given patient is or is not likely to respond to the treatment appropriate to neurasthenia and to be successfully treated.

But at present the neurasthenic patient complaining of some definite local pain or disturbance runs two opposite risks at the hands of an inexperienced practitioner: Either the pain and other symptoms may be taken to indicate the existence of some recognized physical disease for which the patient is in consequence treated by the ordinary recognized methods; or the doctor, finding no physical grounds for the symptoms, concludes, and perhaps gives his patient to understand, that there is nothing really the matter and nothing to be done. On the contrary, there is something really wrong, only it is not what the patient thinks, and has to be combated by means quite other than those directed to the cure of organic diseases.

This point has to be specially emphasized, that neurasthenia is essentially an affection of the *mind*; and that in consequence of its prevalence we medical men are in fact called upon to treat—perhaps more frequently than any other class of ailments—mental disease, and that often at a stage when as mere functional disturbance it is fully amenable to treatment. This fact becomes all the more striking and worthy of attention when we think that not one out of a hundred medical men knows anything of even the elements of psychology, and most doctors are consequently unable to explain to patient and friends intelligibly, and in a fashion suited to their requirements, the nature of the disturbed or perverted function. Such an attempt at explanation is often made, but only too often the result is disastrous alike to the patient's feelings and the doctor's reputation. Frequently it ends in the patient's going off to consult another doctor, either because the language employed is capable of bearing another interpretation than the one intended, or because it cannot carry conviction when the necessary tact and confidence begotten of knowledge are lacking. How often have I been consulted by a patient glibly dubbed a "neurotic," who informed me that the doctor said there was nothing the matter, and on my rejoinder that I was sure Dr. So-and-So could not have meant that, has replied, "Well, if he did not say so he implied it." Neurasthenia must be regarded as a real disease, something to be diagnosed and treated. The diagnosis may not be easy; but it can be made, after an honest and searching inquiry the aim of which is to exclude organic disease, and then when made it must be adhered to with courage, and the proper line of treatment adopted.

Where, then, are we to look for some central explanation of the protean variety of symptoms exhibited by different neurasthenic patients—some master-key to fit locks of apparently such varied patterns?

Let us consider very shortly our ideal of a normal, healthy human being, of sound mind in sound body, and possibly it will help us to find out where and how the neurotic patient breaks away from the normal. We recognize that health is wholeness, and that the whole being is one whose personality functions—that is, feels, thinks, acts—through and by the aid of an enormously complex organism in which, as in a well-governed State, each minutest part has its assigned work to perform in harmony with all the rest. Little by little, through the continuous efforts of myriad generations, has this organism been evolved to its present stage in which, through tiny acts countless times repeated, much that must at first have been achieved with difficulty is now, as it were, so registered in the structure as to go forward automatically—that is, without conscious attention or effort on the part of the present head of the State. Intelligence marks every step, and is still in control, but now it is intelligence so drilled and educated as to carry on its business without continual supervision from the conscious will; it works, as we say, subconsciously. So the reflex movements follow their

appropriate stimulus without a hitch; the instincts and appetites recur and are satisfied, receiving each their due, and not more than their due, attention; the emotions lend their impetus; thought guides; will controls and executes; and the watchword of the whole is harmony, balance, proportion.

Again, neglecting for a moment the marvellous psychophysical organism which is the instrument of all conscious life, let us consider from another point of view the constitution of the reasonable self as known to us in experience. Here, again, we have unity in difference, for self-consciousness unites two elements distinguishable in thought, but inseparable in experience, subject, and object, the "ego" which feels, thinks, wills; and the environment which is absorbed in feeling, knowledge, action, and is itself interpreted and remodelled in the process. These are the raw material, and out of their blending there emerges the creation of individual character. The baby at the outset is no more than a potential person, with no consciousness either of himself or of anything other than himself; consciousness of self comes only by the discovery of something not himself, and afterwards develops concurrently with his expanding acquaintance with his surroundings. In a few years we see that he is becoming what hearth and home make him; the love and care he receives are the making of his own affections; his knowledge is of things he sees; his language is the language of the people about him—his thoughts are their thoughts. Later still he is an equally faithful index to the nature of his school, his college, or his work-bench; and in his full maturity just so much of the world, or the universe, to which he gains access and can absorb—in a word, just so much as he can internalize—constitutes *his very self*. He epitomizes and reproduces in a new combination peculiar to himself those elements of the great not-self for which he has affinity. For the finite creature must and does select from the overpowering complex object that to which he can respond—that with which his nature as subject proves capable of amalgamation—and his character as revealed to his fellows is revealed by the selection he makes.

When once this constitution of the self is fairly apprehended, the inspiring thought follows at once that within limits it is open to all of us to become the selves we would wish to be. We may do it by the exercise of steady choice in our objects of feeling and thought; these forthwith become the springs of our action, and in all three capacities are made one with the self by the double movement which at once transmutes objects into the self and transforms the self into their likeness.

Infinite grades of character naturally emerge from this process, according to the degree of access that any individual has to that which is beyond himself and to the possibilities of response with which the "ego" starts on its career. The important matter is that each self in its own grade, in its own measure and degree, should be as fully rounded out, as well-proportioned as possible.

And this consideration brings us back to our neurasthenic patients. Is it not plain that what ails them is a loss of balance and proportion in their mental lives? Some idea or group of ideas assumes abnormal and undue importance, overmasters the central will, and leads to a break-up in the harmonious working of the hierarchy of centres governing both conscious and subconscious life. It is to be noticed that all the causes leading to neurasthenia are of a *narrowing* nature. People do not become neurotic by even hard-working devotion to large and generous ideals; personal business worries with men, personal domestic worries and friction with women, account for a large number of cases. Starved or wounded affections, personal griefs or losses, sudden shocks, chronic fears and anxieties, all of them have a contracting effect on the personality, tend to keep the thoughts in one groove, on one set of ideas or objects, and that a narrow one. When to this is added some derangement of the physical system still further contraction follows. The patient's attention is now demanded by bodily sensations which are good servants but bad masters, and which become more and more insubordinate the more they are humoured. Unless the process can be arrested a weary course of nervous invalidism sets in, exhausting both to patient and friends. A patient in this condition is like a person living always in one small room with the blinds down—self-centred and miserable.

In this state of things the conscious will has become weak or altogether defective. According to modern psychological doctrine, the function of the will is to select out of a number of feelings and ideas at any given moment presented in consciousness that one which, under the circumstances, is favoured, thus giving it prominence in attention to the exclusion (inhibition) of all others. The will thus regarded always involves conscious choice, and is practically a *direction of attention with consent of the personality* to this or that feeling or idea. But when one idea is allowed to absorb more than its due share of attention, and by degrees to become, as we say, a "fixed idea" monopolizing consciousness, the habit of selection is lost, the true will slips into abeyance, its power weakened or lost for want of exercise, and a usurper reigns in its stead. Instead of choosing its own objects of attention, the mind is unwillingly dominated by some notion that has taken possession, and becomes gradually narrowed down to its limits.

Nothing is more remarkable than the contrast in its effect upon health between voluntary concentration of attention upon some object and involuntary submission to some idea or succession of ideas that has happened to come in and prevail. In the first case a marked improvement in vitality takes place, under the influence of which all the organs function with increased vigour; in the second case vitality rapidly diminishes and functional troubles multiply. It almost seems as though the effort of will made some additional draft upon an environment of what we call "vital force," veiling our ignorance under the phrase; but whatever the explanation may be the fact is indisputable. A well-observed example of it is the way in which old men rapidly run down on retiring from accustomed work that has kept their mental powers in steady exercise. And in recovery from neurasthenia an opposite effect often takes place; the distressing feeling of fatigue or exhaustion from which the patient commonly suffers is a symptom that frequently disappears rapidly from the moment when the blinds are drawn up, the mental horizon broadened, and the central government in the personality is restored to its proper place. If this happy change is to take place, it is necessary that the will should be awakened and stimulated to direct the mind towards some fresh and wholesome object, and not to spend itself even in fighting or trying to control the disturbed functions, which may generally be trusted to correct themselves when deprived of their exaggerated importance.

ILLUSTRATION AND TREATMENT.

In illustration of some points mentioned in the preceding very brief sketch of the psychology of the neurasthenic condition a few cases may be given shortly as typical of countless others, and one in somewhat greater detail:

Mrs. C., aged 40. Has one son, and ascribes her illness to his illness some months previously; he was restless at nights and she lost her sleep. Very depressed, sleeps badly, appetite poor. Has always been nervous, and had a bad attack of nerves twelve years earlier, in which she was depressed and sleepless for some months. She acknowledges that she cannot interest herself in anything outside her own case.

Mr. R., aged 30. Business man, with very marked family history of nervous tendency; inclined to take whisky to excess; a very hard worker, anxious to succeed in business, often worked all night or took only one hour's sleep in the twenty-four; thought he could do without sleep. Lost the power of expressing himself in writing, could not spell simple words correctly, would even forget his own name when signing a cheque. Began to take alcohol to procure sleep. Complains of restlessness; cannot concentrate on a business problem; sleeps very little; disposed to be excitable; has feeling of pressure and discomfort in top of head, aggravated by mental work.

Miss K., aged 39. Always been highly strung, particularly in the direction of irritability and quick temper. Has quarrelled with several members of her family. Has been unduly taxed through a family rupture which led to her living alone. Very depressed, extremely irritable, very easily tired, complains of intense longing for rest, awakens in the night and fancies she hears bells ringing. She says she is only kept from suicide by her religion, but at the same time talks in a very bitter way about her relatives.

N.B.—Neurasthenics very rarely commit suicide.

Mrs. H., aged 55. Has suffered for three years from attacks of pain in the chest across region of heart and down left arm, accompanied by palpitation and choking feeling; lost power of

left arm; attacks worse at night when in bed; is very nervous; fears her heart is diseased; lies in bed dreading recurrence of attacks. There is in fact no heart disease; it is a case of pseudo-angina, and a good example of the effect of morbid suggestion on a timid mind dominated by the fear of death. This lady had unfortunately been told by two doctors that her heart was diseased.

Mr. R., aged 37. Business man; has been nervous and restless for some 12 or 13 months. Four or five months ago sold his shop, and has since brooded over this transaction. Thinks he will never be able to start another business—that he has ruined himself by his folly in parting with his business. Talks of nothing else; cannot sleep; complains of beating in the temples, which he says keeps him awake. His friends fear he will “go out of his mind” on account of his perpetual worry over the shop. Very depressed at times.

The following case gives a vivid picture of the slave's life to which a man may be reduced by a prolonged series of symptoms arising from nervous disturbances over-regarded by himself, misunderstood and further emphasized by his friends.

The patient is a young clerk of 25, with a family history of nervous tendencies and a personal history of poor self-controlling powers. Thin and apathetic-looking, he is depressed yet intense in his manner, detailing his symptoms with an evident strong desire to convince his interrogator of their reality. His illness began suddenly about four years ago with a sense of tightness in the abdomen and fullness in the stomach, feeling “blown out.” This was quickly followed by violent pain in the right lumbar or right iliac region, and he was treated for seven weeks for appendicitis. During this time he had a dull, aching pain in the right lumbar region, and felt he must draw up his right leg in order to get rid of something which he thought was glued to the inside of his stomach. He was then advised by two doctors to have his appendix removed, but he refused. He still felt what he called a “full sort of sticking sensation” in the same place, “as if something were glued there,” and this has remained with him. He has also been subject to attacks of faintness, with palpitation and a feeling that he could not get his breath; for these he took hot whisky whenever he could get it. In standing, he keeps his right foot off the ground, because he has more of the “sticky” feeling when his right leg supports him. He always has a feeling of weight at his heart, as though there were a lump there, and often has palpitation.

Lately, he says, his worst symptom has been a feeling that he ought to have his bowels moved, and cannot do so. This makes him feel “as if he did not know where to put himself.” It causes him to take deep breaths, and he has to continue doing so, and at the same time he keeps rising rhythmically in bed to make room for the contents of the abdomen, and rid himself of the “sticky” sensation. *He has been doing this all day long for about three months!*

For over three years past the patient has had a rumbling and sense of movement in the abdomen, worst after meals, which makes him think something ought to come away, so he would sit for hours at a time straining and trying without success to have his bowels moved, and latterly has spent most of his time doing this. This gives him a despairing feeling; he tosses about all night, and only sleeps when exhausted. His abdominal troubles so occupy his mind that he is quite unable to concentrate his attention on anything else, the tight feeling and the bowels allowing him no peace.

About four months ago, after some opening medicine, patient passed a “white piece of slimy stuff” (mucus) which he took to the doctor, who told him that it was a piece of the lining membrane of the bowel. This gave him a shock, and since then he has been a good deal worse, his stomach having caused him special trouble. Now and then he passes more of the same material, and always carefully looks for any that may be there.

Patient is unable to have his meals in comfort because he “can't chew” for any length of time, and declares that his food, instead of going down, seems to be rising up from the abdomen. When this feeling is at its worst, he relieves his uneasiness by moving his teeth up and down. At intervals he has “trembling fits” in which his arms and legs feel numb with sensation of pins and needles in them, as though he were having an electric shock, which makes him feel very weak; his teeth chatter, and he is compelled to grip something till the fit passes off. He becomes weary and exhausted, and grows dazed. He has noticed that these fits are worst when his bowels have not been moved for some time, and he has taken opening medicine; and he puts them down to the action of the medicine, thinking it “produces substances that fill his abdomen,” and of which he cannot rid himself. Talking and reading exhaust him, and make him take short coughs and gasp for breath; and latterly he describes an “airy sensation” in his arms and legs, “as if they were not there,” and also feels “light-headed, as if he were going up in the air.”

TREATMENT.

The first and foremost counsel as regards treatment is at all hazards to avoid treating neurotic symptoms as though organic disease were present. To administer drugs and

perform operations manifestly can never remedy what is not there to be remedied; and even if no positive physical harm is done—as may only too easily happen—the invariable effect is to fix more securely in the patient's mind an idea of illness that it should be the physician's first aim to dislodge. Some patients are easily reassured and begin at once to improve on learning that their fears of heart or lung or stomach disease are groundless; others are discouraged, feeling that they would rather hear of some definite lesion that could be dealt with and perhaps definitely cured, than continue to be neither well nor ill, which seems to them the alternative, and which indeed is too often their fate in the present state of medical practice. But these will thankfully welcome a different kind of treatment specially designed to correct the nondescript condition of disordered health in which they find themselves.

When once a patient is satisfied that the doctor knows and understands the various symptoms, it is best to disregard them all and go straight for the central condition that underlies and gives rise to them in endless variety. It is well known that to Dr. Weir Mitchell of Philadelphia belongs the credit of having first devised a combination of curative measures for neurasthenia, which was afterwards enthusiastically taken up and practised in England by Dr. W. S. Playfair, and by which many successful cures have been obtained. These practitioners were chiefly struck by the malnutrition, the emaciation, and the anaemia which is so frequent an accompaniment of the brain-fag and nerve-fag in pronounced cases of neurasthenia—a state in which a vicious circle is set up, the organs being first ill-nourished through failure of the nervous control, and then in turn failing to supply the brain and nerves with good rich blood. They were sceptical as to the need or utility of mental treatment, and argued that, if proper nutrition were restored to the organs and the nervous system, the enfeebled neurasthenic conditions would disappear without more ado, and the patient would be fitted to return to the ordinary duties of life with the strength needful for meeting them. The means that Weir Mitchell laid down to attain this desirable result were: (1) Isolation away from home; (2) rest in bed throughout the treatment; (3) forced feeding; (4) regulated muscular exercise by means of massage and electricity. Both the American and the English physician insisted on the importance of using *all* these measures in combination, and were supported in their contention by many successful results; at the same time later practice has shown modifications to be advisable, and an over-rigid application of Weir Mitchell treatment to all cases alike—possibly in less intelligent hands—has also produced its failures, and even tended to bring some discredit upon the method.

In France Charcot and his followers made much use of hypnotic suggestion, though principally in cases of hysteria rather than simple neurasthenia. Liébeault and the “Nancy school” discovered and practised suggestion in the waking state, which has the great advantage of avoiding certain grave risks to health inseparable from treatment by hypnotism. But both methods have the drawback of substituting the will of another person instead of reinforcing the patient's own intelligent will and self-government; and for this reason both have been discarded by Professor J. Dejerine, now in control of the Salpêtrière, who also dispenses with massage and electricity; and although he employs rest in bed at the outset of his treatment, and over-feeding in the case of emaciated patients, relies mainly upon isolation and a form of psycho-therapeutic treatment which he designates “persuasion.” This last consists in explanations and appeals addressed to the higher reasoning faculties of his patients, and when successful, as it commonly is, has the effect of changing their views as to their own condition, and restoring them to confidence and a better degree of self-management.

It is to be observed that the one element which remains constant in the different methods of practitioners who have given special attention to this subject is that of isolation in unaccustomed surroundings. All alike testify to the uselessness, or at the very best the comparative uselessness, of attempting to treat neurasthenia in the patient's own home, even if the home should be given up to the sole occupation of patient and nurses; and, on the contrary, it has been observed that some neurasthenic

patients have recovered with no special treatment when placed in even the imperfect isolation obtainable in an ordinary hospital ward. In the Salpêtrière Professor Dejerine has secured what proves to be a really sufficient degree of isolation by giving up to neurasthenic and hysterical patients one whole ward, in which the beds are screened off from each other.

We must not, however, hastily assume that isolation is all that is generally needed. No, if the attempt to analyse the neurasthenic condition that has just been made is in any degree correct, clearly what has to be aimed at is to reverse the narrowing process; first to get rid of the harassing notion of diseased organs; then to leave behind the over-insistent ideas of personal trouble and distress that have held sway; to draw up the darkening blinds, let daylight in and look further afield upon life; to cultivate a self of larger scope. We may surmise that the special virtue of isolation in unwonted surroundings lies in the fact that nothing else so quickly and completely breaks the domination of habitual ideas and makes way for others furnishing a better adjustment to life. Of course, physical means will not be neglected in cases where protracted nervous illness has rendered them necessary or advisable: rest in bed (reduced as the patient recovers strength and vitality), overfeeding in cases of emaciation, exercise of the muscles by massage and electricity—all these will have their value recognized as useful accessories; but systematic treatment should be elastic and differently adapted to meet the needs of different temperaments and circumstances in patients, no two of whom are ever quite alike. What we want to secure is a central will, reassured, instructed, strengthened, and set free from worrying trammels to play its proper part as director-general of the personality.

It must be added that the chances of treating neurasthenic cases successfully as part of an ordinary general practice are not very good. The need for treating them away from home and with the aid of carefully chosen nurses, the objections to routine treatment, above all the superlative importance of obtaining the patient's entire confidence, and the incalculable influence of the physician's personality in this respect—all point to the advantages of specialist treatment for this kind of illness. Constant experience is as valuable to the physician in dealing with neurosis as constant practice is to the surgeon who undertakes the more critical kind of operations. Tact, sympathy, firmness, resource, and infinite patience are called for and must be kept bright with use. Therefore the practitioner who does not find in himself any particular aptitude or interest in dealing with neurotic patients would be well advised to commend them to a specialist; on the other hand, a doctor who discovers that such patients will spontaneously confide in him and confess private troubles and even faults, in their longing for advice and relief, has a large sphere of helpfulness open to him if he chooses to take possession.

ON CANCER.

By SIR SAMUEL WILKS, BART., M.D., F.R.S.

As I have always been much interested in the subject of cancer, I read the *BRITISH MEDICAL JOURNAL* of May 26th, giving an account of the work done by the Cancer Research Fund, with especial pleasure, and also your leader containing such an admirable summary of the present state of our knowledge and the problems for the future. My pleasure was naturally increased by the personal satisfaction which I experienced on seeing that the conclusions arrived at were so closely allied to the doctrines which I had for many years taught in my own school. These doctrines were not vague opinions arising from a non-acceptance of the prevailing views, nor hypothetical ones invented to take their place, but substantial and legitimate conclusions based on a large number of facts and on a long study of the subject. The views which I expressed were first published in the *Guy's Hospital Reports* for the year 1857—nearly half a century ago—in a paper on New Growths from Bone, and this was developed into a longer one in the next number of the *Reports* on Cancer and Malignancy.

At that time the microscope was coming into use and its value was considered very great, by enabling us to

distinguish between malignant and benign growths. This proved to be true, as it rendered it possible to see in any particular growth a mass of cells and in another nothing but fibres. The first was cancer and malignant, being associated with all the clinical facts of the disease, whilst the other was innocent. These cells were supposed to be typical of cancer, being large, rounded cells with a large oval nucleus, and contained in a matrix. These characteristics combined with the history of the case were sufficient to decide its cancerous nature. It was a different question, however, to ascertain whether these cells showed any peculiarity of form or structure, and so after spending much time at this work, I came to the conclusion that they showed no special characters which could differentiate them as cancer cells from all others; I was thus placed in opposition to the current opinion of the day. I believed I had satisfactorily proved my position, for when I placed some healthy tissues under the microscope, and more particularly lymph taken from inflamed joints, and submitted them to competent observers as new growths, they were generally pronounced to be cancer if they showed a large nuclear cell. This was always the case if I gave any suggestion as to possible malignancy.

I came, therefore, to the conclusion that cancer cells had no characteristics distinctive enough to allow them to be marked off from others; indeed, they were no more in most instances than the ordinary embryonic cells. The belief at that time was that cancer was the outward and visible sign of a malignant disease arising from some unknown cause in the system. This seemed to be very evident when the disease returned after it had been removed; if it did not do so it showed that the original growth was not cancer. So there was a good deal of circular reasoning on the subject.

It was thought also that there was a malignant aspect due to a special kind of cachexia. This illusory notion I got rid of whilst a student, for I soon saw a middle-aged, healthy-looking woman apply at the hospital in consequence of her having found, whilst dressing that morning, a lump in her breast. This the assistant surgeon pronounced to be scirrhus. And then again, when an incident occurred of an opposite kind. This was the case of a man with long-standing jaundice, which at last had made his face dark green, or almost black. The very experienced physician, although he could find no tumour in the abdomen, pronounced the case to be undoubted cancer owing to the patient's malignant appearance and his great emaciation. After his death no trace of cancer could be found, but the common bile duct was obliterated in consequence apparently of ulceration caused by a gall stone.

I should say that the physiological doctrine of growth then taught was that of Schwann and Schleiden. It was that the blood nourished the body by exuding a fluid which was called the blastema; in this fluid granules shortly appeared; these subsequently formed themselves into nuclei, and around them the cell-wall grew. Out of this cytoblastema all the tissues of the body arose or were regenerated, the cell being converted in one case into a nerve fibre and in another case into a muscular fibre, and so on with all the tissues. My theory of cancer was that if these cells did not do their duty and follow their destination so as to produce natural tissue, but continued to increase in number without developing, they formed a mass or tumour, and to this the name of cancer was given. They corresponded in form to the cells of malignant growths, and therefore the latter were nothing more than masses of embryonic cells. It was a purposeless growth, and therefore might in contradistinction to benignant correctly be styled malignant. The cells were usually contained in a newly-formed matrix with a good supply of blood vessels. If the new material showed any attempt to grow, then the cell might become elongated until a simple fibre was formed. In this way I made a scale beginning with the cancer or simple cell growth, and so passing on with its development until I reached the simplest and most innocent pure fibrous tumour.

In my papers I discussed another important feature of new growths which made them totally unlike what is seen in specific diseases, and that is that they differed according to the part of the body in which they grew. In the case of any ordinary well-known virus, as that of measles or small-pox, or even that of tubercle, the effects are uniform