An oration delivered before the Medical Society of London on its ninetieth anniversary, March 7, 1863 / by S.O. Habershon.

with the author's compliments

14

AN ORATION

DELIVERED BEFORE

THE MEDICAL SOCIETY OF LONDON

ON ITS

NINETIETH ANNIVERSARY, MARCH 7, 1863.

BY

S. O. HABERSHON, M.D., LOND.,

FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS;

SENIOR ASSISTANT PHYSICIAN TO, AND LECTURER ON MATERIA MEDICA AND THERAPEUTICS AT GUY'S HOSPITAL.

PRINTED BY REQUEST.

LONDON:
PRINTED BY GEORGE HUNT, 32, DUKE STREET,
MANCHESTER SQUARE.
1863.

AN ORATION

DELIVERED BEFORE THE

MEDICAL SOCIETY OF LONDON

ON ITS

Ninetieth Anniversary, March, 7th, 1863,

BY

S. O. HABERSHON, M.D., Lond.,

FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS;

SENIOR ASSISTANT PHYSICIAN TO, AND LECTURER ON MATERIA MEDICA AND THERAPEUTICS AT GUY'S HOSPITAL.

PRINTED BY REQUEST.

LONDON:

PRINTED BY GEORGE HUNT, 32, DUKE STREET,

MANCHESTER SQUARE.

1863.

AN ORATION,

ETC.

As with an individual, so with a community, it is oftentimes difficult to retrace steps in knowledge, and almost impossible to place ourselves in the mental condition of those who have not had the advantages of the light of modern science. A being who has become deprived of sight is very differently situated as regards his thoughts and conceptions from one who has never enjoyed sight at all. So with the first meetings of the Medical Society nearly 100 years ago, when the desire for mutual sympathy and help in the labour and study of a noble and arduous profession led kindred minds to meet together; *then*, modern science was in its infancy; and it is no easy matter to realize the disadvantages of those who lived at that time. Dr. Stephen Hales, who had begun a new era in the study of gases, had been recently, at the almost patriarchal age of 84, consigned to his resting place at Teddington; Black was *then* at Glasgow at work on latent heat; Cullen was at Edinburgh; the theory of Phlogiston given forth by Stahl still survived; Priestley had just published his observations on different kinds of air—in 1774 he discovered oxygen—and not long before Bergman had sent forth to the world his essay on the investigation of truth; Franklin had just put to the test his bold hypothesis; Cavendish had separated Hydrogen in 1766; Scheele, Chlorine in 1774; the book of nature was seen to be an open book, and the mind of

man with new energy began to explore its truth. But, let us remember, that it was before Galvani had observed that muscular movements were produced by an electric current; before Sir Humphrey Davy, or Wollaston, or Dr. Henry, or Dr. Dalton had even commenced their researches. It was *then* that the Medical Society of London was formed; as in the twilight of a northern winter before the rising of the sun, there is an excitement, for life seems to be beginning anew; so, in the latter part of the last century, the philosophic mind saw the dawning of truth, and the way was prepared for Sir Humphrey Davy and for Faraday, for Dalton and for Graham, for Liebig and his disciples.

The medical profession, ever ready to advance, did not hesitate to follow in the train, and to obey the call to explore the truth of science; but, it were well, if it had been as willing as kindred sciences to leave behind it, the trammels of a by-gone age; and if with more of the spirit of honest research it had investigated the truth before it.

Since that age of enquiry began, the Medical Society of London has sped on its way, and it has favoured the progress of Medical Science; it had a small beginning; but, there was life in it. It has struggled on, and it has survived many rough winters. Its chief dangers have been from within; at one time in the spirit of the middle age, it sought to compel its members to contribute communications under the penalty of a fine; nay, it would even fine those members who did not come to hear the communications of others, rather than make it a privilege, an advantage, a desired boon to be allowed to come, and to be numbered amongst its fellows. But, although much of its time was wasted, and some of its labours would now excite a smile of pity, as when a letter read by Dr. Lettsom, "on the good effects of lizards taken fresh, in the treatment of cancerous and venereal diseases," received the thanks of the Society; still, progress was encouraged and

investigation stimulated in no ordinary degree. Each year subjects the most diverse have been discussed, friendly intercourse has been promoted, the spread of science has been advanced; but, scarcely can we over-estimate the effects of the advancement of collateral sciences in affecting our own immediate sphere of labour.

The enumeration of the papers which have been read during the past year will recal to the minds of those who heard them, their excellence and intrinsic worth; many of them are communications of great practical value. A long series of presidential names stretching far back into the past are ever before us, and the Society is justly proud of those who have stood foremost in its ranks; and he whose name is this year added to the chain, who has presided over our meetings and guided our discussions, stands second to none in the ability and talent as well as in the courtesy and kindly feeling which he has ever displayed; and to the talented Lettsomian Lecturers of the past year, on Hygiene, and on the surgical diseases of children, our best thanks are tendered. During the year the following papers have been presented to the Society: —

Mr. Gay, On Intestinal Obstruction by Invagination.
Dr. Ainstie, On the Treatment of Epilepsy.
Dr. Thudichum, on Azoturia.
Mr. De Meric, on Syphilitic Metritis.
Dr. Habershon, on some cases of Typhus Fever.
Dr. Richardson, on the Antiseptic Properties of Ammonia.
Dr. Cockle, on Valvular Disease of the right side of the Heart, and on Aneurismal Tumours involving the Neck.
Dr. Cotton, on the Therapeutics of Consumption.
Dr. Thudichum, on the Treatment of Dropsies.
Mr. Henry Smith, on the Treatment of Hæmorrhoidal Tumour and Prolapsus.
Dr. Gibb, on the application of the Laryngoscope.
Mr. Hancock, on Chopart's operation and excision of the Ancle Joint.
Dr. Richardson, on Alcoholic Phthisis.

Mr. W. C. Calthrop, on Spontaneous Closure of the Axillary Artery after a Gun Shot wound.

Dr. Routh, on the Treatment of Prolapsus Uteri.

Ten new fellows have been added, and one of our Honorary Fellows has been removed from our number by death; Sir Benjamin Brodie has ceased from his labours. As a Philosopher and as a Surgeon he was one of the brightest ornaments and most accomplished members of our profession; he has left a great and honoured name, but his thoughts will live, and his deeds will be long remembered by us.

Each year the science of Chemistry modifies still further physiological, as well as pathological theories. That force, which was formerly regarded as something quite external to ourselves, is now known to be an essential element in the working of our organization. Hidden chemical changes take place, and nervous energy is manifested; a moment's cessation of the supply, and mental workings cease too. Every muscular action is the resultant of chemical change. The knowledge of the transfusion of gases has thrown new light upon the function of respiration; and the laws which regulate the evolution of heat are found to exist within the living frame, as well as beyond it. Chemistry has given to us a clearer knowledge of the character of effete principles, and of the means by which they are evolved; and many of the processes for the solution and assimilation of food, which were regarded as the result of an incomprehensible vital power, are now explained by the operation of physical laws. This same science has gone still further in shewing that elemental differences in the composition of the blood determine an equally definite train of symptoms; and, whilst it has unfolded physiological science, it has improved remedial agents; it has thrown light upon diseased processes, and it has discovered such vegetable principles as quinine and morphia, and many others, to combat and to modify morbid actions. In these therapeutical inves-

tigations the threshold has only been reached; some of the rubbish has been cleared away; the door has been opened, and as it opens wider, it invites the inquirer to enter and to explore.

With patient research our forefathers studied anatomy, but with all the energy and talent of Meckel and of Glisson, of Haller and of Harvey; with all the keen scrutiny and untiring industry of Hunter and Sir A. Cooper the microscope has revealed the structure of organs and tissues both in health and disease in a manner that was never dreamt of before. A long list of patient observers, of profound thinkers, of laborious students in this fascinating work, have searched into living forms wherever they may exist, to find how far the truth of vegetable growth and its modifications, and of animal life in all its wondrous adaptations can reflect new light on the more complex changes of higher organism. They have added fact to fact, truth to truth, and by sure steps they have made progress. It is true, that some with hasty generalizations may have misinterpreted, and tried to bind nature's doings by laws not her own; but even then, the error has oftentimes led to deeper search, and fuller truth has been evolved. Thus, one has taught that a living cell growth is the origin of all other structures, whilst another has regarded the cell as having already fulfilled its function, and as useless as "the empty shell on the sea shore"; still the enquiry and the opposing sentiments have led to increased and to further investigation.

And when we estimate the reflex influence of the revealed facts of natural philosophy, as the investigations of Graham on the diffusion of gases and of fluids, the laws of electricity and galvanism as shown by Faraday and by Matteuci, the correlation of physical forces as explained by Grove and Carpenter, all brought to bear upon the study of living function, and the phenomena of disease, we find that the circle of physiological and pathological science widens whilst

it deepens, and becomes established on a surer basis; and further still, not only does each year lead to more accurate and profound observations, but the very means of making and of correcting those observations are increased. What the stethoscope has done for diseases of the heart and lungs, the ophthalmoscope is doing for diseases of the eye, and the laryngoscope for those of the larynx.

No discovery of modern science has had greater influence upon medical progress, than the demonstration that *natural forces are constantly in operation in the living organism.*

Heat has the same tendency to promote expansion, and to favour elemental changes in organic structures, as in solid metals; and, during the whole term of life, this force exerts its influence. If heat be greatly reduced below the normal standard, life is destroyed; and during life a wonderful equality is maintained in higher animals. One of the great purposes to which the supply of aliment is applied, is to develope the heat of the body; and oftentimes the incapacity to uphold the proper temperature is the immediate cause of death. The changes of state from gaseous to liquid, and from liquid to solid in the human body, are accompanied by manifestations of sensible heat, or heat is rendered latent. As the seed lies dormant until heat brings into operation those affections of its component matter which result in development and growth, so it is a necessary agent in the nutrition and growth of higher animal organisms. It has been shewn that the rays of light and heat falling upon the leaf of a plant are not lost, but as it has been said are "fixed" in the growth; the force is transformed or redirected in the chemical changes which ensue, and in which the inspired carbonic acid is decomposed, and pure oxygen evolved; and in the lower forms of animal life the withdrawal of heat leads to corresponding diminution of life; till life in its simplest forms becomes quiescent and silent. How wide the

contrast between the frozen shores within the arctic circle, where on account of the lowness of the temperature animal and vegetable life are at their minimum, and the luxuriant vegetation and the almost countless forms of animal species in a tropical forest!

Again, the force of gravitation exerts its power equally within the human frame as beyond it; the corporeal fluids obey the laws of hydrostatics; the heart is truly a force pump, and it is often of great moment whether it have to propel a long or a short column of fluid—a question indeed sometimes of life or death; the valves of the veins, and the symptoms, as well as the curative treatment of disease, testify to the same truth in many familiar instances. The attraction which leads to the phenomena of endosmosis and exosmosis is in continual operation in the absorption of nutriment, as well as in the removal of effete principles. Not less are polar forces manifested; Matteuci and Emil du Bois Raymond have shewn how in living muscle currents of electricity (to use ordinary phraseology) are developed, and in this branch of study we are only on the threshold. Nerve power is not electricity—it is not galvanism; but many phenomena shew that these forces are closely allied. The torpedo from a structure composed of nerve elements can give a powerful electric shock; and when we know more fully the explanation of the structure of the nerve ganglia, of the Pacinian bodies, of the reason why in the sympathetic ganglia the nerve cells should be so surrounded with coil on coil as it were, of nucleated structure; when it is explained why in some structures as in the stomach, there should be such wonderful dichotomous division of nerves, as if an afferent and an efferent branch everywhere completed the circuit; when these and other facts are made clear, then the alliance of these polar forces will be found to be a very intimate one. Faraday has shown that living bodies have a relation with magnetism,

that they are diamagnetic; and everywhere and in everything, we find these forces or affections of matter are interwoven and interlinked; one disappearing to give place as it were to the unfolding of another; oftentimes antagonistic, but always counterbalanced; apparently inflexible, but in wonderful harmony.

But of all these agencies none is more general and more evident than that expressed by the term chemical action. The function which each living structure is adapted to perform is the resultant of change of a chemical character, and may be measured in degree by the amount of new product evolved. In the exercise of the brain structure the phosphato-oleaginous compounds are decomposed; in muscular contraction the elementary composition is rearranged and kreatin and kreatinine, are probably produced; in respiration oxygen is absorbed and carbonic acid evolved; and in the glands in proportion as the activity of the structure is exercised is chemical force manifested. Starchy products are no sooner incorporated with the saliva of the mouth, than the elements are rearranged into sugar; the nitrogenous portions of food are dissolved and changed by the pepsine and by the secretions of the stomach; the liver is an active laboratory of transforming chemical power; and throughout the animal economy, and in every function chemical agency is at work, although everywhere checked and modified by a living and restraining bond.

Not only, however, are these forces in operation in organic life, *but they are correlated the one with the other.* The profound investigations of Grove and of Carpenter have brought out this truth in full relief; that no force is expended without corresponding result; that these forces acting under different circumstances or upon different substrata are transformed as it were the one with the other, and that they have an equivalent relationship. Thus motion becomes heat—

chemical force becomes heat—nervous power or polar force may also become heat. An electric shock may result in muscular contraction, and may excite the nerve of taste, and of smell, of sight, and hearing, in their own especial manifestations. No force is lost, but it reappears in a different form; and as a talented writer has lately shewn, "chemical force results in function—restrained chemical force in growth."*

Another fact connected in a most important manner with this subject in its relation to living beings, *is that these forces are under a restraining and modifying power.* Endosmosis takes place very differently through living and through dead membranes; as soon as putrefactive changes commence, or in other words, as soon as unrestrained chemical force is in operation, the ordinary laws of endosmotic action are subverted. This modifying power some have termed vital force, nature, power of organization, life; others, with a fear lest a name should be made a cloak for ignorance, but still feeling that there is a power which needs a name, designate it "the resistance of chemical force," "a tendency," and the like, which only amounts to the fact, that in living organizations there is a power, call it what we may, that restrains and modifies the forces that are in operation in external nature, and which results in the development of animal and vegetable structure; and the subsequent changes in these structures under the influence of exciting forces produce the manifestation of their characteristic functions.

A *fourth fact* is, that *these forces in a living and healthy organism are equally adjusted* as they are called forth in the separate parts of the frame. The function of one part rightly performed reacts beneficially upon every other; and the circle of the functions of the living organs are so counterbalanced, so work in unison, that they mutually tend to a common and harmonious result. The function of the brain, or of the

* Hinton.

lungs, or of the heart, or of the liver, may be studied alone, for each is separate in its action; but the healthy exercise of each one is necessary for the right performance of the functions of the rest. Shortness of breath may arise from disease of the lungs, or of the heart, or from a perverted state of the nervous system. All are united, all act in unison, all revolve in their appointed sphere, but in harmony. As a revolving machine of many parts, but each acting in concert, so that with noiseless play the balance of steady and equable motion is maintained.

But how easily is this balance disturbed; how soon is the nicely-adjusted motion thrown into vibration, hurried on by irregular movements, or delayed in its wonted course! So it is in disease; and in death, the wheel of life stops. In disease, there may be irregularity in the action of these concentaneous forces, without the destruction of force; a disturbance of healthy equilibrium, rather than absolute loss, and health is only restored when the harmony of action is re-established.

If the blood, for instance, be deprived of its right composition, the harmony of healthy action is at once lost; the introduction of an almost imperceptible portion of the poison of small-pox induces violent action, with a definite train of symptoms, and if life be prolonged the organism is for ever changed. It may be, that the absorption of foreign particles by the lungs or by other means induces changes in the blood closely allied to fermentative action, favouring and inducing change, although the particles themselves are unchanged; the contagious emanations of some diseases may be of this kind. The miasm of marshy districts, the poison as of the cobra, may perhaps in this way disturb the balance of organic forces, and undermine or destroy life.

An impediment to the performance of any important function reflects an injury upon the whole body; living action

disturbed in one part reacts upon the whole; and it is in this way that local changes have such a manifest influence upon the whole organism. One portion of the living circuit is impaired, and the energy of the whole is checked. But not only will a local change affect the whole body; the converse is also true: enfeebled general power modifies every local manifestation. That which is a trifling wound to one, may be a fatal injury to another. If the strength be reduced; if reparative power be enfeebled, every action is modified, effusions are changed, and degeneration of tissues is facilitated. A diseased product which in one state may indicate considerable organizable power, in another may be unorganizable; that which in the former is of a fibrinous character and passes with greater or less rapidity into fibrous tissues, in the latter is corpuscular, and soon becomes purulent. The fracture of a limb in a man of strength with healthy blood will soon unite, and be as strong as at first; but if the patient be the subject of scurvy, or if vegetables and fruits be withheld, no reparative action will take place, but it may even be, that an old union becomes separate.

That the *natural forces do thus operate* in living beings, that they are *thus correlated*, that they are *restrained* by *another hidden power or life*, and that however the separate portions and organs exert these forces in an individual manner there is *harmonious working during health*, are generally acknowledged and established truths; but from these other thoughts suggest themselves.

And 1st, That the stability of life may be measured by the *strength of the whole* of the essential organs, or by the *weakness of one*. It is a law of mechanics, that a chain can only have the strength of its weakest point; that if one link be defective the power of every other link is of no avail; if at any point it be unequal to the strength required and break, the stored up power in every other part cannot prevent the mischief;

and a similar law may be applied to the living body as it concerns its essential functions. The course of many diseases, and their fatal issue testify to this truth. It is not very unusual for a man in middle life to have all the external appearances of health—he may be ruddy and robust, his muscular power may be well developed—his mind may possess its wonted energy—he may be able to take the supplies of nutriment which active exertion demands, and the waste may be more than counterbalanced, there may even be a surplus in store—every function may be vigorously executed, and the chain of living action have the semblance of strength—to the superficial observer it might seem likely to continue; but a link in this strong chain is weak, and the whole chain can only be measured in strength by this weakest point. The three small valves which protect the orifice of the aorta are all this while defective; but the muscle of the left side of the heart is increased in power, and for a time, it may be for years, there is no manifestation of disease, no shortness of breath, no impediment to the full enjoyment of life. Then in a moment the heart becomes overburdened, the left ventricle is unable to empty itself, it cannot contract, nor propel its contents; the heart ceases to beat, and life is extinct. The strong man is in a moment laid low, the muscular frame is of no avail, the vigorous lungs so well able to oxidize the blood are useless, the nervous system is perfect and active, the digestive and nutritive functions are in healthy operation; but, one link in the chain is broken and life ceases. It had been of no use to store up aliment, to nourish the muscle, to develope the frame, that were like adding some massive links to a chain containing one which was feeble and ready to break; and we shall find it as true of man's organism as of a lifeless chain, life is measured by the strength of the *whole* of the essential organs, or by the weakness of one.

To take another instance, a sudden shock to the nervous system, or the impression from serious injury, soon stops, or reduces the force of life to its lowest degree. How intense and sudden the collapse which follows perforation into the peritoneal cavity! The shock to the sympathetic nervous system is manifest in the sunken eye, the death like countenance, the coldness of the skin, the failing pulse, and life may soon cease, although every other function be vigorously performed. And wherever we find that one essential organ is at fault, it is our wisdom to spare it from any unusual strain; and worse than useless to strengthen every other part, if by so doing additional danger is incurred and additional strain put upon the weak part.

A *second fact is, that in proportion to the number of parts essential in their functional activity to the continuance of life so are the causes of disturbance multiplied.* In other words, in proportion to the length of the chain is the danger of any link giving way. In some of the lowest forms of animal life it would seem as if every part of the organism were capable of performing all the functions necessary for life—mere vegetative growth—so that division into numerous parts does not destroy, but leads rather to the multiplication of living things; the chain has, as it were, but one link. Not so in man, more complex than any other being, and more susceptible of change, his organism is rendered sensible of other disturbing forces. His living body is also the tenement of a living soul; and as if a hundred strings spread out from each link of his chain of life he is doubly alive, and is brought into sympathy with a world of thought and of higher aspirations. The most gifted animals of the brute creation have their instincts, their emotions, their passions, and their fears, so has man; and in them, as in him, though to a far less degree, these emotional centres are active in promoting or in retarding life; but man only has a living soul;

and if we overlook this in regarding man we forget the nature of his being. Some in our profession think, or seem to think, that they have only to do with man as an animal—only to treat that which he has in common with the "beasts that perish;" but ever and anon the influence of a living soul is manifested; and whilst they timidly shrink from the soul of man as if that were a part with which they have nothing to do, the truth is forced upon them that they too have a ministry of healing to the man, not to his body alone.

Again, thirdly, the diminished energy in any essential function reacts upon the whole organism. The chain of living action may be compared to the analysing battery of the chemical philosopher; not only does complete cessation, as by breaking connection, in one essential part, stop the whole under ordinary circumstances; but retardation in one part checks the general action also. To quote from Daniell in his description of the dissected battery, "any obstruction, however, of whatever kind, it must be remembered, reacts upon the whole chain of affinities, and inequality cannot possibly exist in different portions of the current." In the living organism each essential structure may be compared in its general connection to the separate cells of this dissected battery; and retardation of living action in one part checks the whole circuit. Whilst we are very far from regarding disease as merely a local action, we believe that local changes which prevent the healthy performance of any essential function react upon the whole frame. We have only to point to some of the diseases of the heart, such as obstruction of the mitral valve, to show how from local disease there, the action of the lungs, the power of the nutritive absorption, the energy of the nervous system, are all embarrassed. So again with chronic ulcer of the stomach, a proper supply of nutriment cannot be received, and the countenance becomes pallid, the heart's action is enfeebled, dyspnœa is easily induced, the

muscular strength is diminished, the mind is irritable, and the whole power becomes exhausted. When every function is healthily performed, there may be an increase in the vigour and strength of life; and on the contrary lessened power takes place in converse circumstances. Impairment of the digestive functions and eliminative apparatus may thus induce general feebleness, and a state closely allied to, if not identical with struma. This feebleness may be congenital, or it may be produced by exhausting causes. The mutual reaction of one organ upon another does not, however, in the least militate against the compensating action which we find structures possess in relation with each other; thus the cutaneous surface assists the pulmonary in its action, and again the renal secretion compensates for a diminished transpiration from the skin.

Fourthly. Not only is it the case that lessened function in one part reacts upon the whole organism, *but if a second essential function be impeded in its action the injury is more than doubled.* Again, to borrow the simile of the dissected battery, the same author tells us, that by retarding the process in one cell by substituting a platinum for a zinc plate the electromotor power will be reduced one third in every cell; and if a second cell be equally retarded the reduction will be to more than one tenth of the original force. Our bodies are certainly not galvanic batteries, but they may be compared to them, as centres of force acting in unison to produce one result. If in our physical frame two organic functions be primarily involved, the power is more than diminished one half; happily for us, when one organ is seriously involved, others appear to possess a certain immunity; but terribly painful instances are sometimes presented to us, of a second organ essential to life becoming implicated by new and serious diseased action. It is the experience of every surgeon; and several months ago, during a fearful outbreak of

typhus, we witnessed the effect upon those already affected with organic disease; the prostration at once became extreme, and in three or four days life ceased.

Fifthly. The same correlation of forces which pertains to health, also exists in disease; and this fact may serve perhaps to explain some of the ordinary symptoms of disease.

An impediment to the transmission of galvanic or electric force manifests heat, or even intense light; an impediment to the easy action of a revolving wheel by increased friction induces heat; motion may be transformed into heat; and it may be that *that* interference with healthy action in the living organism which is especially recognised by a sensation of heat with disturbed function of the part is more allied to this impeded force, than to that which would be characterized by increased oxidation, namely combustion. The division of the sympathetic nerve in the neck induces heat on that side. In the so-called inflammation of a part the healthy function is checked, there is diminished chemical action, nutrition is hindered. In pneumonia there is diminished, *not* increased, action in the lungs, although the breathing is hurried to compensate for the loss; less oxygen is absorbed, and less carbonic acid transpired; the blood is less freely depurated; the healthy action of the lung is impeded, new changes are set up, effusions take place, and the whole balance of function is disturbed. That which is generally called inflammation is more allied to impeded action than to increased action; it resembles disturbed force more than increased velocity of force; it is perhaps more allied to the impediment in the transmission of a galvanic current, when a portion of small wire is interposed, by which intense heat may be produced, and even gunpowder inflamed, than to the oxidation of ordinary combustion. It is true, we think, that increased action often closely resembles that which the chemist regards as inflammation; when the brain is actively engaged in thought, and

more speedy changes ensue, which may be measured by the evolved products; again, when by greatly increased exertion, as by running, there is a larger quantity of air inspired, and fuller chemical changes take place in the lungs, the process is more like chemical inflammation, than when the action of the lung is impeded, although there may be hurried breathing to supply the deficiency, and increased heat and effused products as indicative of the disturbance. When the stomach and digestive organs dissolve and assimilate nutriment, when activity pervades every part, when the forces of chemical and living action are working in excess there is greater likeness to physical inflammation, than when the action is checked altogether, although there may be pain, and heat, and effusions. The muscle of the arm is most truly inflamed when its action is most vigorous, when healthy changes are most rapid, when the largest supply of nutrient blood is brought to it, and of effete material taken from it. Great labour has been bestowed in unfolding the phenomena of this process, called inflammation; the circulation is at first accelerated, then in the part immediately affected the capillaries become distended, the blood moves more slowly, or is altogether checked; although, the circulation in the limb and in the general system may be excited. Effusions take place, of serum, and of fibrin; molecules and corpuscles become developed; and these effused products may rapidly change. With these signs there are generally also heat, and pain, and swelling of the affected organ. The blood itself is modified, it is said to cool more rapidly, its fibrin is increased, but its red corpuscles diminished; its white corpuscles are also increased, not only in the vessels of the part, but also in the general circulating fluid; and we have sometimes seen minute capillaries entirely occluded by these corpuscles.

In this morbid process we have a different manifestation of force from that which takes place during health. In health

there is rapid motion of living fluid, chemical changes from the exercise of healthy function, and nutrition taking place in normal growth. In the diseased process, there is retarded motion in the affected part, growth is checked, healthy function is impaired or destroyed and its chemical action diminished, the molecular state is altered; in health force is, as it has been said, stored up in the growth of the part, in disease there is likewise correlation of the same forces, but in a different manner. Is this so-called inflammation of tissues oxidation, or is it something very different? The phenomena of the process may be rightly observed, but the hypothesis founded upon the observed facts may be erroneous. Fibrin is said to be a deutoxide of protein; the fibrin in the blood is increased during so-called inflammation, therefore the process is regarded as one of oxidation. But chemists can detect no atomic difference in the composition of albumen and fibrin; and the observation of Dr. Gairdner that fibrin is increased in the blood when an animal is made to inspire oxygen, is no proof of such a statement. The argument may be stated thus: heat is the ordinary accompaniment of chemical inflammation and oxidation; heat is manifest during the morbid process bearing the same name; therefore the processes are identical.

The heat in the latter case has been attributed to increased vascular action, but in the part actually diseased most observers agree that the circulation is checked or greatly retarded. Rapid abnormal cell-growth is not oxidation, nor is it increased functional activity. Whether this important morbid process be really true inflammation or not; and, we think, *it is not*, there *is* a correlation of those same forces which are operative in health.

Sixthly. The manifest symptoms of disease are proportionate to the suddenness of the change and the previous power of life. Thus if a person in strong health be suddenly deprived of

the use of one lung, there is most urgent dyspnœa, and distress is at once produced; but it is no very unfrequent thing to find a patient living and apparently enjoying comfortable health with only one lung in operation; the action of the other has been slowly taken away, and the balance of functional activity being maintained in other parts, no immediate distress ensues. It would be at once fatal to reduce the action of the heart of a strong and powerful man to that which can very well impel the blood onwards in another accustomed to this diminished power. It is in this way that a wrong estimate may be taken of the possible duration of life. A machine evenly adjusted may move on for a prolonged period even though it move slowly and feebly, whilst it may soon be brought to a stand if violently disturbed, though its power be greater. Pleuritic effusion may take place slowly so as to compress the lung completely, but *so* slowly that the patient may have had no pain, no shortness of breath, and in fact be unconscious that anything is wrong with him. Seven or eight years ago a patient under my care had pneumothorax, followed by fluid effusion, thus rendering one lung useless. There was at first urgent dyspnœa, but after a time the other lung became accustomed to the work, readjustment took place, and although that lung has never regained its power, still he has since led an active life in the streets of London, exposed to all the inclemencies and changes of weather.

Seventhly. Whether we compare the body in health to a revolving well adjusted machine, or to one having forces nicely balanced for the carrying out of one object, the *treatment* of disease resolves itself either into *that of diminishing directly the impediment to healthy action, or of seeking to restore the balance of function by diminishing the energy of general power.*

Thus we have two modes adopted in the treatment of

disease. By general depletion, by remedies which diminish the power of the heart, as sedatives, antimony, and the like, by agents which increase degenerative changes and lessen general vital power, as mercury in its full action, the whole living machine works more slowly, and the disturbance, whatever it may be, is less violent; just as in a revolving wheel, if the revolutions be slow, a force throwing it into vibratory movement will produce less disturbance, but whilst the vibration may be less violent, the normal revolution will sooner be altogether stopped; thus it has sometimes been declared that the disease was cured, but the patient died; the convulsion or the spasm ceased, but life ceased also. In some instances it is wise, however, thus to diminish power. A strong hale man receives a fracture of the ribs, a splintered extremity is driven into the lung, blood is being rapidly effused into the tissue of the organ, an essential structure in the full exercise of its functional power is suddenly and most seriously damaged, and the surgeon may regard it as most important for the future safety to diminish the whole energy of the system, and to lessen the actual quantity of blood brought to the heart and forced into the lung. On the contrary, if a similar method be employed in an instance of acute disease of the lung arising from ordinary exciting causes, and especially if there be deficient nutritive power, the impediment to the respiratory function may under this treatment be less perceptible in the general symptoms, less dyspnœa, and less heat of skin may be observable, because the balance of the functions is brought into nearer adjustment, but the removal of the malady in the lung is not facilitated. Very frequently by this treatment the disease in the lung would rapidly increase, and in other instances the restoration to health would be thereby rendered an exceedingly slow process.

But there is another plan beside that of thus depressing

the whole vital power and energy—there is another and generally a safer method in these cases of restoring the harmony of functional activity, namely by diminishing the necessity for the exercise of the lung, by lessening the "besoin de respirer," by setting the excretory organs of the abdomen into full work to relieve the lung, by favouring the respiratory action of the skin, and by maintaining rest as far as possible; in this way health may oftentimes be soon restored to its wonted state.

In acute peritonitis, one plan of treatment consists in depletion and in the free administration of calomel, &c.; the pain and the shock which mark the severity of the disturbance being in this way best counteracted according to the experience of some; the other method would lessen the shock to the suddenly prostrate vaso-motor nerve by the free use of opium, by perfect rest, by the avoidance of anything likely to increase the action of the part.

The tendency of medical opinions is now towards the latter method, rather than to the former. We desire to restore the balance of healthy function by lessening the impediment in any affected part, rather than by energetic measures to diminish the living power of the whole organism; for in proportion as the resisting power to chemical force is withdrawn, the affinities of ordinary chemical action more freely manifest themselves.

Numerous illustrations might be given, from affections of the brain, as well as of the heart and other structures, but these must suffice. Still how often is it said "If I had thought, that there had been *inflammation*, I should have used such and such measures"! the mischief being regarded as a state of excessive, rather than of perverted action.

Far be it from us to regard the wondrous microcosm of our bodies, beautifully adapted for us, nicely adjusted, fitted for our senses to receive their impressions, for the mind to think,

and for the will to execute its mandates, merely as a galvanic machine, or a chemical laboratory, or as an aggregate of them; but we believe that there is ample evidence, that in every part and in all the functions of life, the same forces which operate external to us are in active energy within, that in the operation of these forces life is manifested, that these living actions are the result of fixed laws, and that diseased actions are, as it were, the disturbances of the normal adjustment of these forces, rather than the introduction of anything foreign to us. That whilst it is perfectly true, that irritating entozoa, whether on the surface or within us, may set up new action, they do not constitute the disease. A poison, whether it be of arsenic or small pox, marsh miasm or syphilis, may induce fatal changes; still it is not in themselves, but in the action which they induce that the danger lies.

The conditions which surround the body, and the circumstances in which man is placed, modify the actions within, either favouring the performance of healthy function or interfering with it; and in the science of Hygiene these subjects have received elucidation. Thus the individual has social relationships, and I may also say responsibilities; the will of man may spread disease, or he may be the means of staying the pestilence. There is a strange interweaving of the physical and the moral; and we may as easily refuse to obey the law of gravitation, as to disentangle ourselves from the responsibilities in which we are placed. Health and disease, crime and vice, physical and moral laws, cross and link together. The father of a family is responsible for much in the health of his children; and whilst we recognise the existence of laws, the infraction of which entails suffering, disease, and death, there is no greater necessity to ignore the personal acting of the Great Father of us all, than to deny the headship of the father of every family. The acting of general laws does not compel us to rush into pantheistic ideas of

a general living nature, nor to thrust from us the knowledge of a personal God, as if He had no relation with us except through inexorable laws, nor any individual concern for us; as if man were a mere machine, and the Creator the callous observer of his destiny. Ours is a Christlike profession, and the more *noble* the more that it is Christlike. It is a ministry to the sick, and oftentimes those who practise it may be truly said not to seek their own; their once benevolent purposes may be misunderstood, and be at length almost demanded as a right; but its nobility does not depend on empty flattery, nor on high sounding praise. Our profession originates in the desire to mitigate disease and pain, to do this it searches for truth; and in these things it has true pleasures and abiding rewards. To raise the profession, to advance truth, to benefit our suffering fellow men, to promote sympathy and oneness among its members, have ever been the objects of the Medical Society of London; and, may its efforts be more than ever effective for good.

Second Edition, considerably enlarged, with plates, 8vo., cloth, 14s.

ON

DISEASES OF THE ABDOMEN, STOMACH,

AND

OTHER PARTS OF THE ALIMENTARY CANAL,

By S. O. HABERSHON, M.D., F.R.C.P.,

Senior Assistant Physician to, and Lecturer on Materia Medica and Therapeutics to Guy's Hospital.

"The practitioner will find it a very valuable work of reference."—*Medical Times and Gazette.*

"A long life with much practice, or a shorter one with the observation of a vastly concentrated mass of facts, could alone furnish the matériel of this work . . . . . We recommend Dr. Habershon's treatise as a valuable repertory of clinical experience of very trustworthy character. . . . . An elaborate chapter on Peritonitis has been appended to this edition, making the work complete in every particular."—*The Lancet.*

"A work in which the systematic and the clinical elements are happily blended."—*British Medical Journal.*

"We can recommend this book most cordially as a trustworthy guide on the management of abdominal diseases."—*Medical Circular.*

"The work of Dr. Habershon treats of the diseases of the alimentary canal throughout its entire extent. In this respect it resembles that of Dr. Abercrombie, and on perusal it will be found to resemble it in the mode in which the subjects are discussed. In comparing this work to that of Dr. Abercrombie, we have already stamped it with a mark of high approbation."—*Dublin Quarterly Journal.*

"Its style will bear favourable comparison with that of almost any work in the literature of our profession. Every page bears evidence of the most careful revision . . . . The former edition was illustrated by a record of 163 cases; the number of cases related in the present edition amounts to 235. There are few chapters which have not partaken more or less in this enrichment."—*Medico-Chirurgical Review.*

"This volume is the result of hard and honest bedside work."—*Half-Yearly Abstract of Medicine.*

By the same Author.

ON THE INJURIOUS EFFECTS OF MERCURY IN THE TREATMENT OF DISEASE.

Post 8vo., cloth, 3s. 6d.

"We would recommend practitioners to study this little work, and so test by their own experience the conclusions of the author."—*Brit. Med. Journal.*

"The abuse of mercury in the treatment of disease is well and forcibly expounded by Dr. Habershon in a little book that we strenuously recommend to the perusal and consideration of all believers in that drug."—*Medico-Chirurgical Review.*

"To every class of medical men this short treatise will be most interesting and suggestive. To the younger members of our profession we would recommend a careful study of the cases reported in this treatise."—*Medical Times and Gazette.*

LONDON: JOHN CHURCHILL, NEW BURLINGTON STREET.