ABSTRACT OF

The Hunterian Oration

ON

SOME PRINCIPLES IN THE TREATMENT OF CHRONIC DISEASE.

Delivered before the Hunterian Society on Feb. 9th, 1910,

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MR. PRESIDENT AND GENTLEMEN,—It has been my lot for the greater part of my professional life to be brought into contact with certain classes of chronic disorders. In their origin many streams of causation are intermingled. In their clinical history they present many forms and many phases. They vary with age and sex and inheritance. The treatment also of these conditions is equally wide and various in character. In chronic disease assistance is not unnaturally sought, not only within the borders of professional art, but from whatever source appears to hold out a prospect of relief. And it has seemed to me that it might be useful to attempt to define some at least of the principles of medical treatment, and to trace their beneficent operation in a group of chronic disorders. I make no reference to local diseases, or to the diseases of the early or evolutionary period of life. All chronic diseases—indeed, disease of every kind—may be said to begin locally, a truth that was long ago pointed out by Broussais. Our present concern is with their later or constitutional phases. Undoubtedly the same principles of treatment are applicable to early life and to local disease, but I refer now to some general maladies of the middle and later periods of life, which are—to use an expression that we owe to Dr. Hughlings Jackson—diseases, not of evolution, but of dissolution. It is now happily realised that disease is only a modification of normal action and structure. From the normal decay of living forms we may distinguish it, in that disease is premature and partial, wanting in balance, and accompanied by disturbing reactions, whilst the normal process of dissolution is general and nicely proportioned, and tranquil.

SCIENCE AND ART IN MEDICINE.

The history of medicine is strewn with the wrecks of many doctrines and many systems. One after the other they have dominated the mind of men for generations and hindered progress by a fallacious aspect of finality. What wonder, then, that when the way of scientific inquiry was fully opened there should be an aversion to the very name of system in medicine. Attention, long wasted on speculations, was then turned to observation and experiment—physical, chemical, anatomical, and physiological—and as a result of a patient study of Nature there has been since Hunter's time a marvellous accumulation of data, not only with reference to the living organism, but to its environment. Every year the energy of observation and research in medicine increases the raw material of knowledge. Data are now constantly multiplied and magnified to such an extent that a word of warning may perhaps be needed. The mere accumulation of facts and figures serves no useful purpose. A fact to be fruitful must have something added to it. Hunter and Darwin were not only observers but interpreters of nature. Men are apt to think they follow them by piling new facts together, as the ancients heaped stones over the graves of their chiefs. Burdensome multitudinous mountains of unrelated facts may even conceal the truth that really concerns us. Therefore, whilst rejecting final systems, let us also beware of the finality of facts. They are only the raw material with which the scientific imagination builds up hypotheses and goes from step to step in the ascertainment of principles. Darwin's work was as fruitful in principles as in data. He says of himself almost regretfully that his mind became "a kind of machine for grinding general laws out of large collections of facts." I would urge that this process is especially needful in the advancement of medicine. More particularly in this period, cut adrift from the doctrines of the past, may we well pause to consider the principles upon which we are working. They are in part provisional, they are far from final.

It should not be forgotten that medical treatment is an art, resting not alone upon the accepted principles of the time, but upon a much wider and more uncertain basis. Practices sometimes survive when the ideas that gave them origin have long been extinct. If the basis of art be wide, to a grotesque and exaggerated degree in popular medicine, it is also wide in professional practice. Remedies and methods are employed that rest upon a similar uncertain and ill-defined foundation. Sometimes in default of principles, and sometimes in their despite, we are content to accept the sanctions of custom and tradition, to found ourselves upon the authority of great masters, who in their turn rested upon dogmas that have withered in the light of better knowledge. Some of our most valued remedies were held to be supernatural, and come from the days of plant worship. It is stated in the Rig Veda that as Ahriman had created 10,000 diseases, so Ormuzd gave mankind the same number of healing plants.

Opium, castor oil, scilla, galbanum, scammony, tragacanth, oak galls, male fern, and elaterium are recommended to us by Theophrastus in the third century B.C., and many or all of these were probably used by Hippocrates. It is interesting to notice that stramonium and aloes, which were also used by the Greeks, were among the drugs recommended many centuries afterwards to our King Alfred by Helias, Patriarch of Jerusalem. Some valuable remedies, such as Indian hemp (b'hanga or haschish), tamarind, and asafœtida, must have been used in the East from a remote antiquity, and are mentioned in the ancient Sanskrit writings; rhubarb is described in a Chinese herbal of 2790 B.C., written by the Emperor physician of the day; the use of gamboge and camphor came from the same country; colocynth was familiar to the ancient Greeks and Romans, whilst senna, cubebs, and probably nux vomica were introduced by the Arabian physicians into Europe. For other drugs we are indebted to the more recent experience of primitive tribes. We have calumba from the forests of East Africa, kino from West Africa, buchu from the Hottentots at the Cape of Good Hope, lobelia and podophyllum from the aborigines of North America, ipecacuanha and pareira brava from Brazil, jalap from Mexico, quassia and guaiacum from the West Indies, and sarsaparilla, copaiba, and cinchona from the slopes of the Andes or the tropical parts of South America.[1] The same process of the reinforcement of the healing art continues to our own time, for have we not eucalyptus from the aborigines of Australia and coca from the mountaineers of Peru? And only gradually and after many years is the empirical use of our remedies substantiated and explained by scientific inquiry. A similar observation applies with even greater force to dietetic treatment, and the use of waters and baths, to physical treatment and regimen, and mental therapeutics. These are at present regulated far more by custom and authority and experience than by exact scientific analysis.

In these days the scientific method has opened up so many provinces of knowledge that there is a pardonable haste to make it the touchstone of all truth, in medicine and elsewhere, and to discredit every opinion and practice that has not a clearly ascertained rational basis. A moment's reflection upon the history of medical science and medical art, their true relations and scope, suffices to show that this is as yet an impossible claim. There can, of course, be no discords in true knowledge, but there is no finality. The mind must always receive whatever comes to it authorised by sufficient evidence and reject whatever is shown to be incompatible with ascertained fact. Art is called upon to occupy a field co-extensive with life, far too great for science to define as yet. It is a proud justification of our art that again and again after many centuries science in a later time has established and confirmed its methods upon a rational and permanent basis. In medicine practice has always been in advance of theory, but they are one in object and must ultimately be in full accord.

The example of the man whom we celebrate to-night illustrates the union of science and art in one person. John Hunter is first of all a naturalist, quick as a sensitive plate to receive and record the authentic impressions of nature; then an experimentalist, putting questions and loyally abiding the answers; then a theorist, using a trained

imagination to classify and coördinate his data; lastly, a medical artist—a practitioner—furnished with the best available methods, whether drawn from the general experience or founded upon scientific inquiry. In spite of Hunter's dislike of systems and his pretended abhorrence of definitions the *growth of principles*—shall we say the orderly crystallisation of knowledge?—was always going on in his mind and gave simplicity and distinction to his teaching. Therefore in the endeavour to examine some of the principles now underlying the daily treatment of disease in the twentieth century it cannot be said that we are wandering from the Hunterian tradition.

TREATMENT OF CHRONIC DISEASE: ILLUSTRATIVE CASES.

It has been well stated by Wilks that "disease is slow," that it is by nature gradual and chronic, that so-called "acute diseases" are but accidental events in its course or at its close.[2] The distinction between acute and chronic, though somewhat artificial, is, however, more valid from the therapeutic point of view. As regards acute diseases, we are all now pretty much agreed upon the principles of treatment. We recognise that for the acute phase of disease there is a limited course and a natural process of recovery with wide variations in individual cases. Our aim is, therefore, in the first place to remove the impediments to recovery, to place the patient in the best place for recovery, to relieve pain, and to mitigate dangerous reaction.[3] These are familiar principles, but they involve not only accurate knowledge of the natural process, but also from time to time active interposition in the conduct of the case. It may, however, be described as *indirect* or *adjuvant* treatment, taking the form sometimes of "masterly inactivity," and sometimes of active interference.

We have, secondly, the *specific* or directly curative treatment of acute disease. Specific treatment is to-day the most important weapon of therapeutics. The principle upon which it relies is the counteraction of specific poison and the production of immunity. At present limited in range to a few maladies, such as small-pox, diphtheria, dysentery, tetanus, snake-bite, hydrophobia, enteric fever, &c., the operation of this principle, once so much derided, is probably destined to cover the whole field of diseases owning a specific origin, whether in the acute or chronic phase. It is interesting to notice that Hunter said, "It is more than probable that most diseases have some specific quality." Obviously the problem of treatment becomes by so much the simpler when this factor of causation has been ascertained. With regard to most chronic affections, their treatment is difficult, because our knowledge of their causation is imperfect. The following history illustrates a not uncommon malady in the middle period of life and the methods of treatment that were employed to overcome it.

CASE 1.—A lady, of gouty family, contracted what was described as "blood poisoning" at 36 years of age. It began acutely with gastro-enteric disturbance, and continued for two years in the form of recurring diarrhœa. There were much loss of weight (6 stones in 12 months) and prolonged nervous prostration. Failing benefit from drugs, recourse was had to hydropathic treatment. Later she went for three seasons to Kissingen, with marked relief to the intestinal catarrh. For many years the symptoms recurred at intervals, especially after an attack of influenza at 46 years of age. At this time the skin was dry and inactive, with much mucoid subcutaneous deposit, the peripheral circulation was very defective, and there was a troublesome liability to what she termed "internal chills." Any considerable fatigue, whether physical or mental, brought on attacks of insomnia, with palpitation and distressing restlessness. The heart and kidneys appeared to be healthy. Two years later (æt. 49) after a course of peat baths at Strathpeffer the condition of habitual chilliness gave place to a sense of heat, with profuse and frequent perspirations. In this condition the heart's action became rapid and the abdominal aorta was dilated, throbbing, and tender to touch. The sense of pulsation throughout the body was distressing, with mental and physical restlessness. Absence from home in a cool and bracing air and a course of salt baths at 90° F. were prescribed, with much relief to the vaso-motor disturbance. At this time the late Dr. Sansom regarded the case as one of Graves's disease, although the thyroid gland was smaller than ordinary and there was no exophthalmos, which subsequently developed, but only to a slight extent. As the summer came on it was found necessary to reduce the temperature of the baths, and in July the patient lay daily for two hours in salt water at 88°. She then went for four months to the north of Scotland, and cold needle baths did much to restore normal vaso-motor tone. From the ages of 49 to 55 years the patient had many attacks of profuse and offensive diarrhœa, sometimes with a little mucus but more often without. In one attack, which lasted for 40 hours, 20 pints of an offensive brown fluid were passed by the bowel and the patient lost 10 pounds of weight in two days. Before these attacks there was generally a "heat wave" for perhaps two weeks, the heart's action was rapid and galloping, and there was a sense of general fulness and distress. The attack brought marked relief to these symptoms, and the pulse usually became slow and slightly irregular with an increase of blood pressure to 150 or 160. In the colder months of the year she remained fairly well, but in the summer and autumn always sought the cooler climates of the north—in Norway or the Shetlands, or Strathpeffer, where she took brine baths at 10° or 13° below blood heat. The keen air of northern latitudes made her, to use her own words, "alive in every fibre," but in some places hindered sleep, whilst in other localities, such as Leadhills (1300 feet) in the south of Scotland, she could sleep soundly. The catamenia ceased at 55, after which she enjoyed very good health for 18 months, accompanied by a new and favourable development—viz., localised gouty deposits in the neighbourhood of the joints. Again two years later she is still liable to vaso-motor attacks in a much slighter degree, usually brought on by over-fatigue. These are always controlled by a course of effervescing or salt baths, and judicious rest and change of climate.

The middle age was regarded by Hunter himself as the epoch *par excellence* of nervous disorders. The growth of civilisation during the century that has elapsed since his time does not seem to have lessened the strain upon the nerve centres in middle life. No doubt in most cases the definite breakdown at 48 or 50 is preceded by some years in which disorder of function is sufficiently obvious and could be readily dealt with. The toxic element, as in the case that has been cited, is often a prominent factor. Toxic disease suggests a microbial origin, and therefore a specific treatment. To specific treatment we rightly look, if not to supply an antidote, to restore the lost immunity to specific invasion. This guiding principle plainly emerges from recent research and experience. But we have often to deal with toxic diseases of unknown origin. Specific treatment is therefore as yet impossible. We are driven back upon a second line of defence. Our guiding principle must now be to aid elimination and to mitigate the violence of reaction.

In this case there was an extreme disturbance of circulation. I wish to emphasise the fact that toxic circulatory disturbances can often be controlled by a judicious use of baths and climates. Sedative treatment, which as we know has a valuable application to acute disease, must also be assigned an equally important place in dealing with chronic affections. The treatment of circulatory disorders has been of late too exclusively associated with one particular form of bath at one continental resort. The truth is that cooling baths of various kinds and cool climates are of the greatest value, particularly in the different degrees of vaso-motor paralysis. The case that has been related shows that it is possible by such means to control an extreme form of vaso-motor disorder during a period of ten years, and to tide over the dangerous disturbance of the climacteric epoch.

CASE 2.—This case illustrates another condition belonging to the later and middle periods of life, and presents an interesting contrast to the condition just described. Here also the circulation and vaso-motor system are involved, but in a different manner. The patient, a married woman, aged 48 years, complained of "rheumatism" in the knees of three years' duration. There were some pain and swelling with slight crepitation in both the knee-joints and in one wrist. To these local conditions there was added some general plethora, with attacks of slight vertigo. The menses were natural. A course of sulphur waters and baths was taken. Six years later (aged 54) she reported that the menses had just ceased and that the rheumatism had subsided under the previous treatment. Slight symptoms of angina pectoris were, however, now apparent. An occasional course of alkalies and a more restful life were enjoined. It was noticed that she remained fairly well while the skin acted freely in a warm

climate, in which as a rule she resided. At 57 there was a smart hæmorrhage from the rectum, at 58 transient right hemiplegia with difficulty of speech for 24 hours. This passed off, but she remained subject to vertigo, faintness, and dyspnœa, and there was a chronic condition of dryness and chilliness of the skin. For the "heart weakness" and affection of breathing she had been given many cardiac tonics without benefit. On her return to England at 59 the heart was found to be hypertrophied, the action labouring and uneasy, the peripheral vessels everywhere contracted, the head hot and flushed, and the extremities habitually cold. The blood pressure was 160 millimetres. The late Mr. Marcus Gunn reported that the retinal vessels were small and evidently sclerosed. Some partial relief had been obtained by the use of calomel, iodides, and trinitrin. I was impressed by the contrasted condition of different areas of the circulation in the patient. In the cutaneous area and extremities a long-continued vaso-motor spasm appeared to have resulted in a permanent sclerosis of the arterioles, as evidenced by the state of the retinal vessels. On the other hand, a localised loss of vaso-motor tone in other parts was indicated by the congestion of the face and head. It was obvious that this condition imposed increased labour upon the heart and threatened the integrity of the brain, and that drug treatment was of slight avail. I therefore determined on venesection, and this was repeated about twice in the year for six years, from 10 and 20, and on one occasion 24, ounces being taken. At the same time the diet was reduced and meats of all kinds were avoided. Marked and immediate relief of all the symptoms attended every venesection. There has been now (aged 68) no return of the paralytic symptoms, the health is fairly good, and the blood pressure ranges between 140 and 160 millimetres.

I give this history, extending over 20 years, as illustrating a chronic circulatory disorder with abnormalities in the distribution of the blood, in which the arterial pressure is apt to rise to a dangerous level, and in which active and repeated depletion with periods of rest appear to be the best principles of treatment. Baths and local application intended to assist the peripheral circulation are unfortunately often ill borne. The condition is aggravated in our home climates, and relieved by warm and equable temperatures. In this patient there were already signs of abnormal blood pressure at 48, it steadily increased to the climacteric at 55, after which it was accompanied by threatening symptoms. The condition of the surface circulation is undoubtedly related to abnormally high pressures, and hence, *cæteris paribus*, the relief of symptoms in warm climates. A series of observations upon arterial blood pressures in different individuals at different atmospheric temperatures would be of much interest. It would probably show in these cases a defect in the regulating power of the peripheral vaso-motor system.

It will be noticed that the effect of venesection is not at all so mechanical a matter as one might suppose, for the sedative effect on the circulation is out of proportion to the volume of blood removed. This neglected remedy finds, in my opinion, especial usefulness in the plethora which often follows the cessation of the menses, and again in later life in the sudden access of blood pressure that sometimes results from trifling disturbance of health. When these accessions of pressure are promptly relieved, cerebral hæmorrhage can often be averted even when the vessels are in an advanced condition of degeneration.

THE "INTENSIVE" TREATMENT OF CHRONIC DISEASE.

It may be confidently claimed that *sedative* and *eliminative* treatment—and especially in the form of climate and baths—have a special application to the nervous and circulatory disorders of middle life. Within the limits of climatic and balneological treatment, a great variety of these two great remedial influences are included. I am disposed to think that it would be well if the extent of these resources was more widely appreciated by the profession.

There is, however, another principle which underlies the treatment of some inherited and diathetic disorders. Many writers, like Hunter himself, have noticed that chronic diseases have sometimes been cured by acute ones. The chronic sluggish action of indefinite duration is replaced by a more intense action, that may run a short course and result in cure. Two actions cannot co-exist, and it may be better to have a brief acute action than a prolonged and chronic one. This is not a new doctrine. The principle on which it rests is undoubtedly true, and probably explains the beneficial effects of caustics, astringents, and blisters in many chronic local conditions. On this principle it is that Bacon seriously recommends "surfeits and excesses, or fasting or exercises" for persons with a chronic disease, "for," says he. "Diseases of continuance get an adventitious strength from custom, besides their material cause, so that the breaking of the custom doth leave them only to their first cause, which if it be anything weak, will fall off. ..... Besides such excesses do excite and spur nature, which therefore riseth more forcibly against the disease."[4] The rationale of this method is, by the introduction of a new influence, to modify or change the existing perturbation and to reinforce or intensify the natural reaction, which by hypothesis tends to cure. A striking modern instance of what may be called *intensive* treatment is furnished by Bier's methods for increasing the circulation of the affected part. The slow and obstinate course of disease in tissues like the cartilages scantily supplied with blood is familiar to us all. It may be noticed in passing that specific treatment is also an intensive treatment, for it establishes immunity by evoking an increased reaction in the tissues.

The experience of all spa physicians has shown that in cases of rheumatism and gout the use of waters and baths produces an initial increase of reaction, sometimes in a slight and insensible degree, but often accompanied by disturbing symptoms. Pains and stiffness are increased, joints, which perhaps had been long forgotten by the patient, become tender and swollen, and in cases of unstable equilibrium acute attacks may supervene. Such incidents are met with in the most favourable cases, and are often followed by a prolonged immunity from the symptoms.[5] Intensive treatment is one of the most valued elements in balneological practice, although it must be carefully watched and limited, and combined with an increase of elimination. Moreover, it can only safely be used where there is a fairly good dormant power of reaction. The following historic case, for which I am chiefly indebted to the account left by Sir Everard Home,[6] may illustrate the thesis that I have endeavoured to advance.

CASE 3.—John Hunter was a powerfully built man, short of stature, of a forcible and passionate nature, and—at all events in his adult age—a man of intense mental energy. In his youth he drank wine according to the custom of his time. At 20 years of age he began a life of application in London, broken later by two years spent at sea, from the ages of 33 to 35. We are told that this change enabled him to throw off an early pulmonary weakness which never afterwards troubled him. It is recorded of him that during the most active years of his life he allowed himself no relaxation or games and but little rest, taking four hours' sleep at night and one hour in the afternoon. At 40 he had his first attack of gout in the feet, which recurred in the spring of the three following years. For this established gouty habit, in spite of his own doctrine that it indicated an effort of nature to relieve an underlying disposition, he appears to have taken no treatment. The following year, at 45 years of age, the gout missed, and in its place occurred the first attack of angina pectoris. This was apparently excited, like many of his subsequent seizures, by mental disturbance. He was pulseless for three-quarters of an hour and only kept himself alive by voluntary respiration. Hunter appears after this time to have discontinued the use of alcohol and observed great spareness of living, to which, no doubt, his marvellous output of mental work may be partly attributed. For the remainder of his life he showed a peculiar intolerance of wine on the occasion of its medicinal use. This is a noteworthy, and indeed almost diagnostic, feature of many cases of gout. Four years passed, and then (aged 49) again in the spring of the year, he was seized with a severe attack of auditory vertigo, of which a minute and interesting description has been preserved. His sense perceptions were painfully heightened and curiously modified[7]; he lost his sense of dimension, position, and relative movements. In his vertigo, accompanied by sickness, objects appeared to revolve with increasing rapidity and then come to rest. The slightest movement of his head seemed like a large excursion in space. For ten days he could not raise his head from the pillow. On getting about he tried to persevere with his work, and then his friends, shocked with his feeble condition and altered appearance, compelled him to go to Bath. Here he drank the waters, remaining at the spa from September to

December, 1777, much against the grain, and then returned to London feeling, as he said, little better. It is stated, however, that on leaving Bath he continued to improve and shortly afterwards regained his health.

As an old balneologist I may here state that this is the normal and favourable experience in the treatment of gout by mineral water. John Hunter should have repeated his treatment for three or four consecutive seasons. The action of those waters which are beneficial in gout may be regarded as two-fold. In the first place they intensify the natural reaction of the tissues and so promote and restore the normal periodic local manifestations of the disease; and secondly, they assist the removal of toxic matter by increased elimination. Hence it is that under spa treatment the gouty symptoms are often aggravated in the first instance, and the good results are not declared for weeks or months. The same observation applies to many other disorders, such as chronic rheumatism and degenerative arthritis, in which treatment is intensive or perturbative in character, and may at first discourage the physician as well as the patient by provoking increased reaction in the tissues.

After this long retreat at Bath, under the intensive and eliminative action of the waters, and in a sedative climate, we hear of no further breakdown for several years. He had slight attacks of giddiness and the friendly podagra recurred now and then. But at 57 years of age, once more in April, a serious attack of angina occurred. Slight seizures continued all the summer, only relieved with the appearance of gout in the toe. That there was now an active change going on in the coats of the vessels is suggested by a note of Sir E. Home that he found some "contraction" of the arteries and tenderness along their trunks. The nervous element is indicated by attacks of polyuria. This year Hunter tried Tunbridge Wells for a short time. If, a gouty subject, he drank the waters, it is not surprising that he became worse. In September he returned to Bath, again taking the thermal waters and using hot baths and foot-baths on alternate days. It is interesting to know that for three weeks he felt no benefit, that at the beginning of the fourth week he began to improve, and after six weeks returned to London markedly better. The famous portrait by Sir Joshua Reynolds at the College of Surgeons belongs to this period. During the ensuing years his physical powers became more limited, his health precarious, and attacks of pain frequent. In spite of these warnings of progressive degenerative change Hunter continued his work and died in harness from angina pectoris at 64.

A similar story could be told of too many members of our profession—both John and William Hunter, Sydenham, and Cheselden, and in our own time Andrew Clark—gout or gouty symptoms for many years, and vascular degeneration and angina or hæmorrhage at the end, at 63, 64, or 65 years of age. Brain workers seem to be under a special liability in this regard, and many have died from Hunter's complaint in the early fifties, like George Whitfield and Arnold of Rugby. It is not improbable that King Alfred died from the same disease at 51. Is it too much to say that many such lives, lost in the full vigour of their intellectual powers, might have been saved? A reasonable curtailment of mental work, provision of congenial relaxation and sufficient hours of rest, a recourse during a portion of each year to sedative climates, and repeated and persevering use of balneological treatment,—these are measures upon which we can now confidently rely to maintain the balance of health and delay the process of dissolution, at least for a time and often for many fruitful years.

RETARDATION OF DISEASE.

It has been well said that the *retardation* of disease is a prime function of medicine.[8] After all, cures are but relative. In the intricate chemistry of the living body the processes of disease may be wholly or partially arrested. Even malignant growth may become quiescent. The problem of treatment, therefore, sometimes resolves itself into retarding a morbid process to the natural limit of life. We daily meet with chronic conditions of arrested or slowly progressive disease, with damaged organs and limited powers of resistance. Such affections are common in middle life, and in their limitations they resemble old age. The natural provision for withstanding disturbing influences (for example, the reaction to cold) has been lost—and also more or less the normal capacity for work. The treatment of such conditions is therefore mainly by way of *protection* and *adjustment*. A wise treatment should provide efficient protection against vicissitudes of temperature and other disturbing influences, and also adjust the burden or work—food, exercise, mental work—to the lowered capacity.

The effect of warmth and food in maintaining immunity against many specific invasions is a familiar fact in the history of epidemics. The same observation has been made with regard to the lower animals. Chickens are made susceptible to anthrax by exposure to cold, pigeons by starvation, and white rats by a vegetable diet.[9] A friend whose mental power is as remarkable as his physical resistance and reaction are limited by circulatory disorder writes me that the secret of health in his case is the prevention of "colds." And to avoid colds or chills he must not let down his bodily heat even for half an hour. It is fatal for even the feet to become cold, and he especially condemns linen sheets and the dressing and undressing in chilly rooms. It is obvious that in such cases much protection is requisite in our climate. To how great an extent a guarded life and suitable climatic changes can sometimes retard the processes of disease the following example may show.

CASE 4.—A frail anæmic man, aged 70 years, presented himself for treatment at Strathpeffer. He was much bent with cervical arthritis following on rheumatic fever at 45 and injury received by a fall from his horse. There was also commencing senile degenerative arthritis in the bases of the thumbs and elsewhere. The arteries were hard and tortuous, the action of the heart feeble, digestion weak and uncertain, and there was of late a liability to chills and bronchitis accompanied by pyrexia and threatened heart failure. This had kept him much indoors. It was remarkable how quickly sleep and digestive and muscular and nervous energy improved in the Scottish climate. As I have elsewhere pointed out, Strathpeffer shares with the north-eastern parts of Scotland a singular and bracing climate which makes the whole district from the Dee to Dornoch one great health resort. Over all that region there must be some special virtue in the atmosphere. No meteorological instruments are fine enough to detect and record it, but it is a quality to which living organisms at once respond. It gives an added brightness to the colouring of birds and flowers. It produces in man a feeling of exhilaration and expansion, of added capacity for exertion, increased appetite, and sounder sleep. It affords for elderly and debilitated subjects a very favourable "change of air." In this case warm douches and sulphur baths with massage were also employed. For 12 successive years he continued his yearly visits, even when he could no longer walk. The patient's condition at 78 years of age is well indicated in a brief note by Dr. Hingston Fox: "Senile degeneration, heart now failing, probably dilated atheromatous aorta, high tension, emphysema, risk of bronchitis, will he survive the winter?" After the date of that note he continued to take his month at Strathpeffer for three more seasons, enjoying the fine air and drives among the hills, and died from bronchitis at 81. This gentleman, who was a shrewd and capable observer, was fond of expressing the opinion, founded upon his own experience, that life and tolerable health could often be prolonged for many years in the case of old people if judicious recourse was had to climate and baths. The case illustrates the extent to which the use of these methods of treatment in the later years of life may allay functional disturbance, stimulate a failing heart or digestion, increase the resistance of the tissues to catarrh, and so retard and even arrest degenerative processes.[10]

PRINCIPLES OF TREATMENT.

It is a too familiar fact that disease and ailments of indeterminate causation and indefinite duration make up the greater and more formidable part of the work of the practitioner. Troublesome and insistent symptoms; a history of many failures to remove or even to relieve them; harassing limitations imposed upon the patient; consequent discouragement and the fear of worse evils—these are the features of too many forms of habitual mental and physical ill-health. What a severe test do they impose upon the skill and patience of the medical adviser! Can it be owing to some failure on our part that so many persons seek various irregular methods of treatment, which are alike only in being vaunted with absolute confidence as a panacea for their ills? And confidence, however slender its basis, has sometimes been justified. Have we not found that many habitual invalids who have been overmuch dominated by the consciousness of disease have experienced relief from the

persuasion that disease and pain have no existence? The fact suggests that it may be possible for us to believe too much in material diseases. Can it be that we, having in our art a good and valid ground of confidence, sometimes fail to appreciate it for ourselves and to evoke it in others? In comparison with our fathers we possess a far greater knowledge as to the processes of disease in the tissues. On the other hand, we have lost their confident faith in drugs. To a great extent we have disregarded not only their theories but their remedies. The excesses of polypharmacy and antiphlogistics have reacted strongly towards scepticism. In the case of disorders that run a brief course and tend to cure, good has no doubt resulted from the abandonment of "heroic" therapeutics, but in chronic disease, on the other hand, simple expectancy is doomed to failure. What canons, it may be asked, still remain to us from the practice of our forefathers? What new lights have arisen to advance our therapeutics? It is sometimes needful that we should be reminded even of familiar principles in order to recognise their validity and to apply them with confidence.

It has been sometimes alleged that medical treatment is only symptomatic or opportunist in character. That is to say, that it is content to deal with disturbances as they arise, and does not concern itself with causes. According to this theory we give stimulants for depression and narcotics for excitement, astringents for a flux and cooling remedies for a fever. Such a statement to-day falls very far short of the truth. A treatment of symptoms only requires little knowledge and is quite as often injurious as it is helpful. Our therapeutics are founded not upon symptoms but upon causes, and where we have as yet an incomplete knowledge of causes we have at least the guidance of well-tried and rational principles. Our survey has shown us that for many diseases, and their number is constantly increasing, we have already to our hand a direct *specific* and curative treatment. We have seen that specific and preventive medical treatment applies not only to acute but to chronic disorders, and we believe that it is likely to extend its scope as the knowledge of the causes of disease is increased. Furthermore, we have also recognised another and equally important branch of treatment. Unlike the direct and specific treatment, this does not at once deal with the causes of disease, but is indirect in its operation, removing the results or modifying the tissue reactions of disease. It is upon this indirect treatment that we have mainly to rely in dealing with chronic disorders. We have found its branches four in number, embodying four great principles of the greatest practical value. In the first place *eliminative* treatment removes not only the *materies morbi* but the by-products and deposits that result in so many cases from morbid processes. Secondly and thirdly, we have *sedative* and *intensive* treatment. These two are opposite in principle but often combined in action, because treatment that is sedative in one part may be intensive in another. Sedative treatment abates and minimises the reactions of disease. Since Nature in her reaction so often overshoots the mark, it is needful that we should be able to control and assuage the disturbance, and the employment of many drugs, as well as physical methods, rests upon this principle. Intensive treatment, on the other hand, stirs up and reinforces the natural reactions in chronic disease. Sometimes, in a truly specific manner or from the elective affinity of the tissues, its effects are recognised only in the disordered parts and always in the sense of rendering a chronic action more acute and therefore more susceptible of cure. Last among the indirect methods of treatment, we have the *retardatory*, which includes the principles of *protection* and *adjustment*.

Any discussion, however cursory, of the ground of our therapeutics cannot but enforce the conclusion that no narrow views are possible in medicine. We work in the boundless field of life and of nature. It may be that the increases of knowledge that come to us year by year may seem to throw into greater relief the vast extent of what we do not, and perhaps cannot, know. The advances of science may even bring us moments of discouragement and distrust. We may feel inclined to exclaim, like Lord Melbourne, "I wish I were as sure of any one thing as Tom Macaulay is of everything." Or we may in our daily work be too conscious of the obstacles that we cannot surmount, of the pressure of forces that we cannot stay. We cannot invent a new nature, in which evolution and dissolution shall be replaced by a changeless life. Mutability is of the essence of all things. "The whole creation *moves*," as the poet has said, but from that fact we may draw courage and confidence. For it *moves* according to an unchanging law, of which we are privileged to be, in our humble degree, the interpreters and ministers.

Bibliography.—1. Flückiger and Hanbury: Pharmacographia. 2. Sir S. Wilks: THE LANCET, 1885, vol. ii., p. 206. 3. Sir John Forbes: Nature and Art in the Cure of Disease, 1837. 4. Bacon: Sylva Sylvarum, ed. 1660, p. 27. 5. Touton of Wiesbaden: Practitioner, July, 1904. 6. Sir Everard Home: A Treatise on the Blood, &c., by the late John Hunter, with a short account of the Author's Life, 1794. 7. R. F. Fox: Some Uncommon Nervous Symptoms, Transactions of the Hunterian Society, 1898–99. 8. The Treatment of Chronic Disease, leading article in THE LANCET, 1880, vol. ii., p. 385. 9. W. F. Harvey: Scottish Medical and Surgical Journal, January, 1906. 10. R. F. Fox: The Value of Health Resorts in Advanced Life, Journal of Physical Therapeutics, July, 1901.

THE DIAGNOSTIC VALUE OF THE CHEMICAL ANALYSIS OF THE GASTRIC CONTENTS AFTER A TEST MEAL.[1]

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IN clinical cases presenting definite symptoms which may be referred to the stomach the importance of a careful and thorough examination of the gastric contents is becoming increasingly recognised. Several valuable papers on pathological conditions of the stomach and duodenum have recently been published, in which the routine examination of the gastric contents is urged as a valuable aid to diagnosis. Two of the most recent of these were read before the Royal Society of Medicine on March 8th, 1910, and dealt with the gastric disturbance set up by lesions of the appendix.[2] [3]

In all cases presenting persistent gastric symptoms which resist ordinary medical treatment there is no doubt that a careful investigation of the gastric contents should be made, since by this the diagnosis can be placed on a surer basis, and the correct course of treatment be more clearly indicated. It cannot be too strongly urged that in every case on which an operation is to be performed for symptoms referable to the stomach a preliminary examination of the gastric contents on chemical lines should, if possible, be made, since this will in many cases guide the surgeon not only as to the probable diganosis but will also often suggest to him the best course of procedure after the abdomen is opened, and indicate whether a gastro-enterostomy is likely to be of benefit. Of course, it is obvious that in acute perforative lesions of the stomach and duodenum of sudden onset previous investigations are quite out of the question, since immediate operation without any delay is imperative.

As will be subsequently shown, there is no doubt that the composition of the gastric contents after a test meal varies considerably, according to the pathological condition of the stomach, and a particular disease of the stomach is associated with a gastric content of a definite type.

There is no doubt that there are many gastric cases in which the fullest consideration of the clinical symptoms and physical signs does not enable a diagnosis to be made with certainty. The diagnosis may be reduced to perhaps two or three possible pathological conditions. It is in cases of this kind that an analysis of the gastric contents after a test meal is of the utmost value, since it will usually indicate which of the probable diagnoses is the correct one; and the diagnosis based on a careful clinical investigation, together with a thorough chemical investigation of the gastric contents, is rarely at fault. It must, on the other hand, be remembered that the diagnosis of a gastric case must not rest on the chemical analysis of the gastric contents alone.

The first step towards the making of a diagnosis must be a careful consideration of the clinical symptoms and physical signs, and afterwards this should be supplemented by the

[1] A paper read before the Royal Society of Medicine (Pathological Section) on March 15th, 1910.

[2] W. Soltau Fenwick: The Clinical Significance of Gastric Hypersecretion and its connexion with Latent Disease of the Appendix, THE LANCET, March 12th, 1910, p. 706.

[3] H. J. Paterson: Appendicular Gastralgia, THE LANCET, March 12th, 1910, p. 708.