THE CLIMACTERIC OF LIFE.

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THE history of every life that fulfils the average duration is one of gradual ascent from the time of birth till its fastigium is reached, and from that point one of decline until it finds its termination in death. What may have occurred in the process of events before the contact of spermatozoon with ovum started each being on an earthly career we know not, and we are equally without definite assurance of the incidents which lie in the future after the bodily machine, having reached its ultimate goal of functional activity, becomes scrapped. There is ample evidence to prove that hereditary tendencies pass far beyond the history of generations, while there is an abiding faith in the hearts of most men that the experience and discipline of life which build up the character of each individual cannot possibly terminate with the end of material existence, but must surely be destined for higher development under new conditions elsewhere. Mortal life would be unsatisfactory if, as the outcome of its activities, there were not hope of an immortal survival. The scope of the human senses is bounded by terrestrial limitations, but science is continually enlarging man's power of conquest over Nature's secrets, and progressively adding strength to the conviction that beyond the field of material endeavour there is an undiscovered country where the educative work begun here must be continued and amplified.

The climacteric period, which may be regarded as coinciding with life's full maturity, is a well recognized event in women, but it is not so generally appreciated that men go through a similar readjustment of tissues, though after a less dramatic method, and probably at a somewhat later age. The cessation of menstruation is an event in the woman's life which results from the functional death of the ovaries. It is usually accompanied by disturbance of the vasomotor and nervous systems, causing unstable health and many uncomfortable experiences. It is also a time of special liability to the development of disease, especially of such as may be regarded as the expression of hereditary tendencies that have down to this period of transition remained dormant. In men, from seven to ten years later, a similar liability to the awakening of latent proclivities exists, and there would seem to be, at that period, as in women, an upset of tissue equilibrium conducive to the establishment of pathological conditions. The immediate counterpart in man of the ovarian changes in women is probably to be found in the structural alterations which then become established in the prostate gland. In both sexes a diminution of vital margin, with lessened activity of secretory and excretory vigour, is a clinical declaration that life has crossed the summit and has entered upon the downhill period of its duration.

Acute illness occurring within the limits of this critical time is attended with more than average risk, the protective powers of the body being just then apparently less able to resist germ or toxæmic invasion. But it is to the chronic ailments met with at this period of life that most interest attaches. Though they comprise a large variety of disorders, there are certain of them that stand out conspicuously because of the frequency of their occurrence, and the claim they make for early recognition and active treatment if the remaining years of life are to continue fruitful and free from the handicap of broken health.

It is not surprising that growths of malignant type so often date their inception from this period of unstable tissue life. Their management is largely, if not entirely, surgical, and, except from the point of view of diagnosis, does not directly interest the physician. Among the many ailments that may assert themselves at the climacteric three are here selected as commonly met with in men and three as more usually encountered in women. Three examples are chosen, not because they comprise more than a fraction of the disease processes that are encountered at this period, but because, on account of their frequency, they fall within the experience of most men in active practice. They are, moreover, related to one another in such a manner as to give them a special etiological and

developmental interest. Nomenclature tempts us to regard every ailment labelled with a name as an entity. No one of them is really self-contained, but overlaps in every direction on the domain of the others.

Arterio-sclerosis, interstitial nephritis, and diabetes form a small group of ailments which often declare themselves in men between 55 and 63. Arterio-sclerosis may have set its mark upon the vessels long before this age is reached, especially when arduous work, the free use of alcohol, or syphilis has entered into the history. It is, however, now that in cases with no such antecedents the wear and tear of life begins to set its mark on the vessel walls, and is responsible for such a record as the following: A man of full habit of body, often with gouty antecedents, who has been self-indulgent in regard to food and drink, and whose life has always been busy, with very little holiday, comes complaining of morning headaches, slight shortness of breath on exertion, disturbed sleep, unwonted irritability, and mental depression, with a sense of fullness after meals, palpitation, occasional feelings of tightness in the chest, and one or two recent attacks of giddiness which have given him some alarm, and are the immediate cause of his seeking advice. He is usually florid, above the average weight, and perceptibly, though it may be only slightly, hampered in his respiration. His arteries are tortuous and hard, his tension is increased, his heart is moderately enlarged, and the second aortic sound is accentuated. His liver is often full, and is slightly tender to touch below the costal arch. His urine is loaded with urates, and may also contain a haze of albumin. Most frequently his knee-jerks are excessive, and there is other evidence that his nervous system is unstable. His mental energy is diminished. Such is the clinical outline, and here is a typical case in illustration:

CASE I.

A. R., aged 56, a short, florid, active man who has worked hard all his life as a stockbroker. There was a doubtful history of syphilis thirty years ago, but the Wassermann reaction has always been, and now is, negative. For several years he went to Kissingen for "the cure." For thirteen months his sleep had been very broken, and he had been restless and depressed. He complained of palpitation, a sense of fullness in the head, giddiness, occasional feeling of constriction in the chest, and frequency of micturition at night. On examination his heart was increased in size, the apex beat being at the nipple line in the sixth space and the right margin at the right sternal edge. The first sound was muffled and the second accentuated at the aortic cartilage. The arteries were tortuous and hard and the pulse numbered 84, with a tension of 200 mm. The urine had a density of 1020, contained a minute trace of albumin, some crystals of uric acid and oxalate of lime, and a few hyaline casts. There was some diminution in the hepatic dullness. He was under observation from time to time for about three years. During that period his symptoms varied according to the care he took in regard to diet and work. Rest and a restricted regimen always temporarily diminished the tension and improved his general condition. He had much anxiety in his business and many worries at home. He developed as time went on angina pectoris, of which he had several sharp attacks. Eventually he caught pneumonia, and after his recovery was, when last heard of some months later, decidedly better, his life being passed under conditions of much diminished strain.

When interstitial nephritis is the primary result of degenerative changes the patient presents other features. A man of middle age has recently suffered from headaches, backache, loss of weight, failure of appetite, dream-disturbed sleep, drowsiness during the day, indigestion and mental depression. Micturition has been more frequent than usual, and recently he has had occasional mild attacks of asthma, from which he never previously suffered. On examination he looks toxic and "fishy" about the eyes, sad in expression, and old for his age. His arteries may be thickened, but this is not always an obvious sign in the early stages. There is some increase of arterial tension, and there may already be a moderate enlargement of the left ventricle of the heart. The cardiac action is regular but the resting space between the second and first sounds is diminished, the second sound is accentuated, and moderate effort increases the rhythm abnormally, and may even produce a temporary soft short systolic whiff at the apex, due to relative insufficiency. As a common accompaniment of the early stages of interstitial nephritis there is evidence of commencing emphysematous changes in the lungs; the liver may still be of normal size, but an early cirrhotic process may have produced some alteration in the direction of increase or diminution of

percussion dullness. The urine is abundant, clear, of low specific gravity, and precipitates a mild haze of albumin. Hyaline and granular casts are found microscopically, and the urea content is diminished. The nervous system is unstable with many evidences of neurasthenia, and eventually the patient is irritable, suspicious, querulous, difficult to please, and altogether changed from his former self. This clinical sketch finds illustration in the following case:

CASE II.

I. C., aged 53. Never seriously ill. Six weeks before first seen he went to his doctor because of sudden faintness coming on after the exertion of several sets of tennis. He had been previously very much worried. The doctor found albumin in the water, and told him his heart was not right. On examination his arteries were tortuous and hard; the apex beat of his heart was forcible and diffused at the sixth space in the nipple line, and the second sound was accentuated. The arterial tension measured 180 mm. The urine had a density of 1008, and contained a thick haze of albumin; the urea content was only 220 gr., a few leucocytes and one or two hyaline casts were found on microscopic examination, and the average daily amount secreted was 70 oz. Three months later the apex beat of the heart was outside the nipple line, and the rhythm was slightly irregular after exertion. The second sound was still accentuated at the base, and there was a short systolic murmur at the aortic cartilage. The arterial tension now reached 220 mm. and the urea was diminished to 180 grains. After another interval of two months there was a marked increase of albumin, and retinal haemorrhages were observed. He complained now of vertigo, asthma, constant headaches, impaired digestion, and occasional sickness. He eventually died of uraemia.

When the presence of sugar in the urine declares the existence of diabetes, the story is somewhat different from either of the foregoing. Though at first the sugar may be intermittent, and therefore be more correctly described as a glycosuria, the fact of its being there even occasionally points to a disturbance of pancreatic function, which is the earliest stage in the establishment of tissue change that tends to become permanent, and must then be classified as a true diabetes, even though at this age it seldom acquires the acute phase met with in younger people. The man in middle life who has developed this fault in his metabolism comes to the doctor because of a progressive emaciation which has excited the comment of his friends and has eventually produced some concern in his own mind. He does not feel ill, but finds that he is easily tired and unfit for the amount of exertion previously habitual to him. He is somewhat thirstier than he used to be, and though he takes his food well and digests it perfectly, it fails to keep his nutrition up to its former level. His interest in the daily work of his life has lessened of late, and he has not the same grip of things for which he used to be conspicuous. The amount of urine secreted in each twenty-four hours is more or less abundant, clear, and of a persistently pale colour. He complains of muscular pains, which he attributes to rheumatism, and is from time to time waked from sleep by cramp in one or both calves. When called in the morning he welcomes his early cup of tea because of an unwonted dryness and stickiness of his mouth. On examination there is nothing in his appearance to attract special notice. He is often a man of good complexion, and, in an uncomplicated case, his organs are apparently normal. He has lost any superfluous fat he may have had, but his muscles are firm and still vigorous. The pulse is soft, small, somewhat more rapid than the average, and easily excited to greater frequency by moderate exertion. The heart is of normal diameters, but sometimes presents a muffling of the first sound. In many such cases there is a slight increase of hepatic dullness, and pressure over the epigastrium may cause uneasiness, if not actual pain. Balanitis is often a source of annoyance. The urine is pale, and of high specific gravity. Apart from a frequent excess of phosphates, the only abnormal constituent is sugar, and this varies in amount according to the severity of the disorder and the dietetic habits of the patient. In a case that has gone beyond the earlier stage there may be albumin and diacetic acid in addition. When the urine passed at the time of the interview is examined it may be of high density yet not reduce Fehling's solution, and, but for some such history as that of having been refused for life insurance some months previously because sugar had been discovered, the true nature of his ailment might be missed. A specimen taken from the whole of a twenty-four hours' secretion will often clear up any doubt, and this should never be omitted.

CASE III.

G. D., aged 58. A busy, gouty, active man, complained of disturbed digestion, palpitation, tiredness, and frequency of micturition. He lived freely, and drank a generous amount of wine every day. On examination his heart was apparently of normal size, but the first sound was muffled and short and the second sound moderately accentuated. The arterial tension measured 140 mm.; the lungs were emphysematous; the liver was enlarged to one inch below the costal arch, and was tender to touch; the reflexes were exaggerated; the urine had a density of 1032, and contained 11 gr. of sugar in each ounce. Eight months later the sugar had increased to 24 grains per ounce, but this amount diminished under diet restrictions and rest. The following year he had an attack of haematuria, due to a renal calculus, which was removed. Subsequently the sugar increased again to 16 grains, accompanied by a haze of albumin. He also developed about this time a soft diastolic aortic murmur. After another year the albumin continued as before, and the sugar varied from 5 to 20 grains to the ounce, according to the care he took as to his habits of life. After an unusually heavy day's work, and a speech delivered at a public dinner, he complained of fatigue and drowsiness, went home, and died comatose the next morning.

Here we have three instances of disease which tends to declare itself with special frequency at the time of the climacteric in men. What inter-relationship can be found between them, and what are the means best calculated to stay their progress? In the first place, each may be regarded as evidence of a breach of tissue integrity and a warning of coming disaster. A process of sclerosis is becoming established, and the tissue selected for its earliest manifestations is determined by the habits of the individual and the family tendencies he has inherited. The common causative antecedent in all three cases is strain continued almost unremittingly over upwards of forty years. Domestic trials, financial worries, emotional storms and mental anxieties enter into the lives of those who are strenuous and ambitious to achieve worldly success, and each adds its quota to the routine of daily duties and events that constitute the groundwork of a man's career. The stress of carrying on, whatever the effect on individual organs, falls primarily upon the nervous centres, which, becoming devitalized, reveal their feebleness in symptoms of neurasthenia. More often than not these ailments overlap one another, and instead of meeting with one of them in "pure culture" we more often get a blend of one with another, or of all three together. Arterio-sclerosis becomes associated with interstitial nephritis, which, in its turn, may be accompanied by glycosuria, and finally all three may occur together and give rise to a mixed clinical symptomatology. The following case is an example of this grouping:

CASE IV.

W. H. B., aged 53. A florid man who was once stout, but had recently become much thinner. Engaged in financial concerns which caused him constant anxiety. He was a large eater, and specially indulged in meat and sweets. He smoked and drank excessively. His father suffered from gout, and died from exhaustion produced by a large carbuncle. When first seen in 1913 he complained of broken sleep, enfeebled digestion, frequency of micturition, headaches, and giddiness. He gave a record of occasional traces of sugar having been found in the urine, but when examined at this interview it contained neither sugar nor albumin. His arteries were thickened, but his blood tension did not exceed 140 mm. His liver dullness was diminished, and he had pharyngeal catarrh which troubled him in the morning. In 1914 the urine contained a haze of albumin, and an abundance of phosphates, but still no sugar. The frequency of micturition had increased, and his tension now registered 160 mm. The sclerosis in his arteries was advancing, and he now complained of giddiness, fullness in the head, and occasional attacks of epistaxis. Early in 1915 4 grains to the ounce of sugar were found in the urine, which also contained hyaline casts and leucocytes. The urea remained in normal amount. In 1916 the sugar had increased to 12 grains to the ounce, and the albumin had more than doubled in amount. In October, 1917, after a period of greater worry than usual, and more indulgence in food and alcohol, he got an attack of delirium tremens which was accompanied by a mild degree of hepatitis and jaundice, much albumin in the urine, and sugar up to 20 grains. He also had two attacks of cardiac distress, which were anginal in type, and alarmed him greatly. He gradually recovered from this illness, and since then he has taken no alcohol, no sugar, and no meat. In other respects he has led a quiet and uneventful life, and has lessened his business responsibilities very considerably. When last seen some months ago he was fairly well. He had lost a stone in weight, his urine contained a trace only of albumin and sugar, but still had hyaline and granular casts; his arterial tension was 140 mm., and his heart was regular and without murmur. His temporal vessels were markedly prominent and tortuous.

From this triad of diseases ulterior consequences are apt to follow if the degenerative process continues progressive.

The changes in the arteries are liable to invade the aortic arch and the coronary vessels, with a consequent risk of aortic valve disease or angina pectoris. They may also become established in the myocardium, with resulting auricular fibrillation, dropped ventricular beats, or the Stokes-Adams syndrome. They may search out the tender cerebral vessels, and give rise to apoplexy or softening of the brain. Interstitial nephritis may be either the consequence or the cause of arterio-sclerosis, and may lead to tubular changes in the kidneys, and ultimate uraemia. The sclerotic processes in the kidneys may pave the way for similar changes in the liver and pancreas. This close association makes the onset of the one almost certainly the prelude to the others, should it pass beyond the earliest stages of development. Each is the sign-manual of commencing senility, and if uncontrolled will surely lead on to a premature old age.

The indications as to preventive treatment are simple and obvious if the theory as to causation is correctly stated. The strain of life must be ruthlessly curtailed whenever the first danger signals declare themselves. Work must be lessened, and leisure cultivated; the diet must be adjusted to the necessities of the condition and the capacities of the damaged organs. To take life easily means its prolongation, whereas to continue along the path of unbridled effort connotes a not far distant invalidism and an early demise. Curative measures ought to be adopted according to the indications presented by each patient, but the adage that "prevention is better than cure" is never more true than at this time of life and in cases of this type where the prognosis is always unfavourable if energetic measures of control are not adopted without delay. When arterio-sclerotic changes are first discovered nitrogenous food should be reduced to a small amount, and both alcohol and tobacco indulged in very moderately. All sudden effort or physical work that is sustained and heavy must be avoided. Life generally should be so arranged as to be unexciting and even monotonous. A weekly grain of calomel will provide for free action of the liver, and periodical small doses of iodide and nitrite of sodium with arsenic will help to keep the blood tension low, and possibly aid in delaying the thickening of the arterial walls.

In cases of interstitial nephritis it is again of importance to minimize effort and to curtail the diet, especially in regard to proteins and alcohol. Simple diluents ought to be taken abundantly, and a tumblerful of hot Vichy water before breakfast every morning is of considerable help. The amount of urea in the urine is more important than the quantity of albumin. Marked diminution of urea is an evil omen, and should be treated by complete rest in bed, a milk dietary, mild alkalis, and free hepatic stimulation. The eyes ought to be examined ophthalmoscopically from time to time, the occurrence of albuminuric retinitis being of grave prognostic importance. In diabetes the treatment practically resolves itself into a suitable restriction of diet and the exhibition of opium. One of the most valuable derivatives of opium is codeia, and this drug may be given in bold doses. When administered in combination with arsenic and rhubarb it seldom disagrees; it always has the effect of making the patient happier and more comfortable, and also often decreases considerably the output of sugar. In the matter of diet the fashion of the day is starvation. This plan of Guelpa, more recently elaborated by Allen, is successful in reducing the amount of sugar or in banishing it altogether for the time being, but the trial it makes upon the self-denial of the patient is a tax upon his nervous control which seriously imperils his serenity of temper and happiness of life. Even after a drastic course of such treatment, the sugar ultimately returns, and the unfortunate victim must again, and yet again, be cleansed in purgatorial fires in order to reach the promised land where there is no sugar. In younger patients, when the diabetic process is acute and the nervous energies are still superabundant, such a plan of treatment has much to recommend it, but at the age with which we are now dealing few patients can stand it, and the results are not likely to be brilliant when the probable cause is sclerotic change in the pancreas. The doubt is whether the amount of sugar in the urine is of very much consequence so long as the general nutrition is well maintained. Many patients live comfortably and do a fair amount of work over many years, with sugar constantly in the urine. In certain forms of chronic nephritis large

amounts of albumin are consistent with a partial recovery; why may it not be equally true of sugar in the case of diabetes? The excess of albumin in the kidney condition is less important than the diminution of urea, which is the gateway to uraemia. Similarly, the excess of sugar in the urine of middle-life diabetes is of small moment compared to the advent of diacetic acid, which is the prelude to coma. Obviously sugar must be excluded from the dietary, but whatever form of starch is found to be best metabolized ought to be allowed in such quantity as the patient's maintenance of weight proves him to be capable of dealing with. Loss of weight up to a certain point is inevitable, especially in those whose adipose tissue has been previously excessive, but when a condition of equilibrium becomes established—and this should be estimated by regular weighing—a moderate excretion of sugar need not be regarded with undue alarm. Diacetic acid should be searched for periodically, and on its first appearance the patient must be put to bed, treated with a more rigid dietary as regards carbohydrates, and with a temporary withdrawal of fats, purged moderately, and given bicarbonate of soda with taraxacum in full doses every three or four hours. In all such patients alcohol in reasonable amount should be allowed.

In women, colitis, rheumatoid arthritis, and hyperthyroidism are the ghosts most to be dreaded at the "change of life." Here again the same interdependency and hereditary influence may be observed as that which has been referred to in connexion with climacteric ailments in men. Women are as a class more careless than men in the proper regulation of their bowels. They suffer greatly from constipation, due in no small degree to the sedentary lives they lead, the less fluid they consume, and their greater liability to digestive disturbances. The consequence is that they fall into the aperient habit often quite early in life, and in many cases reliance upon drugs becomes habitual, the bowels never being relieved except by the assistance of a favourite remedy. In time the tone of the colon suffers, with the result that both its mucous membrane and its muscular wall lose their normal activity, and become sluggish in the performance of their natural functions. As age increases the bowels get more than ever troublesome, and the patient finds the use of stronger aperients imperative. This produces an alternative of diarrhoea with constipation, and ultimately the appearance of mucus and streaks of blood in the stools.

The woman who is the victim of colonic irritation at or about the period of the menopause looks toxic and shows many evidences of impaired nutrition. The muscles are flabby, the breasts shrunken, the tongue coated, the breath offensive, and the skin "muggy." She complains of palpitations, flushings, perspirations, a constant sense of fatigue and sleeplessness. She is never quite free from headache, has little or no appetite, and suffers after every meal from dyspepsia of the atonic type. She is uncomfortable in her abdomen, and is disturbed by intestinal rumblings and grumbings which make her shy of going among her friends or of taking her proper part in the social duties of life. Her bowels never act normally, and her stools are scybalous, offensive, and mixed up with more or less mucus, some of which is blood-stained. She is often a martyr to haemorrhoids, and this increases the discomfort of defaecation, and may produce tenesmus.

On examination there is probably no evidence of organic disease beyond a feeble, irritable, and "tic-tac" heart, but the colon is distended, splashy, and at one or more places—most often at the caecum or at one of the flexures—thickened and slightly tender to touch. The patient is depressed and emotional, with a firm conviction that she is the victim of a serious intestinal malady, and that a dangerous surgical operation will be required to give her any chance of recovery. Here is a short summary of such a case:

CASE V.

M. M., aged 52. A spare woman who belonged to a family with a record of nerve disorders. Her menstruation had been irregular for two years, and ceased altogether recently. She had suffered for three or four years from irregularity of her bowels, and within the past six months had never been free from colicky pains, indigestion, and tenesmus. The stools are offensive, streaked with blood, scybalous, and covered with mucus. She has become thin, irritable, and is always tired. On examination she is listless, and looks toxic. Her teeth have been only casually looked after, and she has some evidence of pyorrhoea. Her reflexes are exaggerated. The heart is normal but the sounds are soft, and there is a relative systolic murmur

at the apex and along the left sternal edge. The abdominal walls are thin and shrivelled; the colon is felt thickened and tender along its whole course, but especially in the region of the sigmoid flexure. No glands can be found, and anal examination is negative. The other organs are normal, and the urine contains an excess of phosphates, but neither sugar nor albumin. Under careful and patient treatment she gradually improved, and when last seen, in May, 1917, she had gained weight, the stools had become normal, the systolic murmur had disappeared, and she was fit for the ordinary duties of life if only she carefully avoided strain and unsuitable food.

Rheumatoid arthritis of the chronic variety is a frequent associate of the menopause. It commences insidiously, and at first causes no more annoyance than slight pain, which comes and goes, and is often confined to one joint only of the right hand. It is regarded as rheumatic and unimportant, but one joint after another gradually stiffens and becomes painful on movement, so that the patient is unable to use her hands with ordinary freedom. The affected joints are fusiformly enlarged, and the neighbouring muscles are wasted, with a resulting deformity that is quite pathognomonic. She is concerned lest she gets permanently crippled, not only in her hands, but in her feet, where in one or other of the larger joints she has recently experienced premonitory warnings. She is often a woman of cheery disposition who has been active and energetic all her life. In later years her digestion has caused some trouble, and she has found an increasing difficulty in regulating her bowels. Her vasomotor system has been unbalanced since her menstruation ceased, so that flushings and perspirations have played a leading part in her discomforts. The pulse is persistently small and rapid, and she experiences alarming palpitations from emotional or other disturbing incidents. Heberden's nodes are usually present, and are most marked on the exterior aspect of the terminal joints of the fingers. She has, or gives a record of having previously had, trouble with her teeth, which has kept her almost entirely in the hands of the dentist. Leucorrhoea has in some cases been a long-standing trouble. Almost invariably she can recall the fact that her mother or other near female relation has suffered from joints similarly deformed to hers when they reached or exceeded her age. Urticaria is met with in many cases, and unsightly growth of hair on the chin is a source of vexation to those who suffer from it. Organic disease only occurs as an incident, and is unrelated to the rheumatoid condition. The following outline of a case is characteristic:

CASE VI.

M. F. G., aged 58. Stout and active; all her life subject to chronic rheumatism. Her mother suffered from rheumatoid arthritis for some years before she died. She now complains of stiffness in her hips and one knee, also of difficulty in turning her head because of pain at the nape of her neck. Since her menstruation ceased two years ago her finger-joints have been subject to recurrent inflammatory attacks, and most of them are now deformed and knobby. Her digestion is troublesome. She had all her teeth removed four or five years ago because of pyorrhoea.

On examination she is typically rheumatoid, the knees are greatly misshapen, and creak audibly on movement. There is considerable tenderness over the cervical vertebrae when the head is rotated to one side or other. The heart is practically normal; the arteries are moderately thickened; the lungs are normal. The nervous system is of the neurasthenic type and there is a great exaggeration of the knee-jerks with complete absence of the plantar reflexes. The urine is of low density, but the chemical reactions are normal. The bowels are obstinately confined. When last seen she was in a state of quiescence, but there had been several subacute attacks of pain in the finger-joints, with temporary redness and swelling since the last visit. These attacks were always consequent upon extra worry or some passing disturbance of general health.

Graves's disease, or hyperthyroidism, does not often happen in the fully developed form of exophthalmic goitre, but an incipient variety is met with frequently. As the time of the menopause is approaching the neck is observed to get full at each recurrent menstrual period, and gradually the woman becomes more and more what she describes as "highly nervous." Not only has she the usual flushings to complain of, but her heart beats so rapidly that she is constantly aware of its action, to which she ascribes the tremulousness of her muscles. Both symptoms are unpleasantly increased by over-tiredness or mental worry. Her imperfect emotional control and constant sense of fatigue compel her to seek relief by lying down more or less continually. Her appetite is poor, and she has ceased to take an interest in the affairs of her

home and family. She is getting thinner day by day. Mentally she is irritable and despondent.

On examination she looks anaemic, and is so perturbed that she tells her story with difficulty. A mild tremor involves all her muscles, and is increased in a marked degree by putting them to the exertion of any movement. Her knee-jerks are exaggerated, but the plantar reflexes are flexor. Her heart is of normal size, but its action is persistently rapid, from 140 to 160, or, in some cases, more. The sounds are short and sharp, and a soft systolic bruit at the apex and over the pulmonic area is present, and is intensified when the cardiac action, from whatever cause, becomes quickened. Her breath is short and gaspy, but there are no physical signs in her lungs. Her stomach is often distended, and the abdominal organs all seem to sag. The urine is excessive and of low density, but it contains no albumin. Sugar is sometimes present in small amount, but is usually a passing event. In pronounced cases there may be a suspicion of undue prominence of the eyeballs and of slight enlargement of the thyroid gland. The bowels are irregular, and a moderate diarrhoea is readily produced either from unsuitable food or from mental upset. Sleep at night is uncertain, and a rebellious insomnia is not infrequent. The following case is at present under observation:

CASE VII.

B. D., 47 years of age, a widow who has had years of worry in her domestic life, stout and of pale complexion. Family history unimportant. For about eighteen months suffered from palpitation, shortness of breath, and tremors. Recently her menstruation had become profuse and irregular. Flushings and other evidences of disturbance of her vasomotor system.

On examination there was marked tachycardia, fine muscular tremors, and exaggerated nerve reflexes. At the apex of the heart there was a short systolic bruit. The thyroid gland was full, and though there was no true exophthalmos the globes of the eyes were prominent, and on excitement became staring. The urine was abundant, and contained a trace of albumin; from time to time it reduced Fehling's solution, but there was no established glycosuria. Her sleep was uncertain and dream-disturbed. She was restless, depressed, and her memory recently had failed considerably.

Complete rest, thymus gland extract, and a mixture of valerian, digitalis, strychnine, and codeia had the effect, after a time, of bringing about a decided improvement. The tremors diminished, the eyes became normal, the pulse slowed down from 120 to 80, and the cardiac murmur disappeared. Anything more than the most moderate excitement still brought back the tremors and tachycardia.

As in the case of climacteric disorders in men, so in the three foregoing ailments to which women are prone, ulterior consequences are apt to emerge if a check is not put on their progress. Colitis, if long-continued, impairs the mucous membrane of the large intestine, and predisposes to thickening and sagging, with all the consequent miseries that depend upon the drag and displacement of the abdominal contents. The impairment of vitality in the coating of the bowel may end in an ulcerative process which is difficult to repair, and may in many directions become dangerous to life. Chronic enteritis will cause nagging pains and troublesome irregularity of the bowels, with much flatulence and unpleasant borborygmi. Toxaemic consequences cause the patient to look ill, impair the general nutrition, and may end in a marasmus almost as pronounced as that produced by malignant disease.

Rheumatoid arthritis is almost always rebellious, and produces changes in and about the affected joints, of which the penalty is a permanent and characteristic deformity. When the disease invades the vertebral column the miseries and helplessness of the patient may compel for a time complete rest in bed. Until the pathologic process has been arrested there is constant risk of intercurrent acute exacerbations, when the joints become red, swollen, and painful, to the accompaniment of disturbed digestion, pyrexia, and a condition of neurasthenia with all its bewildering manifestations of functional instability. Fibrositis, sciatica, and lumbago are to be feared as hindrances to the progress of recovery.

Graves's disease, though generally met with in an incipient form, may pass from that stage to fuller development, and end in exophthalmic goitre. Even in its minor degree it is accompanied by disturbance of the nervous system, and sometimes leads to a mild degree of mental aberration. The thyroid gland may become enlarged apart from any change in the eyes. Every case is

associated with a risk of glycosuria which from small beginnings may end in a permanent diabetes. Intestinal difficulties are common and the colon may prove troublesome. Pigmentary changes in the skin may declare themselves in the form of leucoderma, and patches of alopecia sometimes become established on the scalp.

Here again we have three examples of climacteric disease in women with an inter-allied relationship no less notable than that found between the examples selected for illustration as being frequent in men at the corresponding period of life. The causative influence in all three is probably a toxæmia by which metabolism is more or less seriously interfered with. The toxic process has been going on over many years with passing increase or diminution of virulence according to the demands made upon the resisting powers of the individual. Finally, when the menopause arrives and temporarily disturbs the equilibrium of health, the toxins concentrate their energies and produce symptoms indicative of selective intensity in one direction or another according as it is guided by inherited tendency or personal idiosyncrasy. The nervous system has to bear the primary weight of the pathological condition, and we find in each of the cases quoted, just as in those exemplified by men, an irregularity of nerve supply which, added to the organic changes that have taken place, complicates the symptomatology and increases the uncertainty of the prognosis. These ailments are apt to overlap one another, and more frequently present themselves as a united clinical picture than as a true-to-type malady. Colitis enters into the make-up of the story of many cases of rheumatoid arthritis, which, in its turn, is often an associate of hyperthyroidism, while all three may find full expression in the same patient. The following case fully bears out this statement:

CASE VIII.

M. P., aged 63, a spare, active woman, who had suffered for some years from chronic rheumatism, and gave a history of temporary glycosuria about ten years ago. She complained of recent loss of flesh, weariness, constant palpitation, and irregularity of the bowels, with recurring attacks of colicky pains, diarrhoea, and mucus-coated, blood-stained stools.

On examination her terminal finger-joints were deformed by Heberden's nodes, and several of the interphalangeal joints were spindle-shaped and enlarged. Each hand was deflected to the ulnar side, and there was wasting of the interosseous muscles. The lungs were moderately emphysematous, and the chest was rigid. The heart was enlarged, but the apex beat was difficult to find because of the overlapping lungs. There was a systolic murmur at the aortic cartilage, and the second sound was accentuated. The arterial tension measured 140 mm., and the pulse was of the Corrigan type; it never numbered less than 120, and on many occasions ran up to 140. There was a constant tremor, varying in intensity. The colon was tender throughout all its course, and was thickened at the caecum and over the splenic flexure. No glands were felt. The urine was straw-coloured, of 1037 density, and contained 22 grains of sugar to the ounce, but no diacetic acid.

During three years after this note I saw her from time to time. She gradually developed a diastolic aortic murmur, and her left lens became cataractous. She went repeatedly to Harrogate, and derived benefit from the treatment there so far as the colitis was concerned. She had occasional recurrent attacks of mild arthritis, and the amount of sugar varied from time to time, but never exceeded 25 grains to the ounce. Latterly, she developed a mild albuminuria. Eventually she died of pneumonia.

If climacteric illnesses in women do not so clearly indicate as in men the advent of degenerative tissue changes, the toxæmia on which they depend cannot fail in time to have a debasing influence on all the cells of the body. The conditions of her life are generally less arduous than in man, and the climacteric period is reached earlier. Her vital energies are therefore better preserved, and her tissues have not yet begun to degenerate.

She may get arterio-sclerosis, or interstitial nephritis, but it is generally later than at the time of the menopause. On the other hand, the glycosuric liability may develop earlier than in man on account of her proclivity to thyroid mischief. Metabolic failure to deal with carbohydrates has, in her case, a thyroid, rather than a pancreatic, origin.

A few sentences only need be added in regarded to treatment. One leading indication is, from the preventive aspect, important—namely, the necessity for combating in every possible way toxæmic intoxication. This is most likely to be successfully accomplished by a careful regimen; the proper regulation of the bowels and the occasional stimulation of the liver; a suitable amount

of daily exercise in the open air; avoidance of worry and excessive fatigue; and by an attempt, through the use of intestinal antiseptics, to keep the whole length of the digestive tract clean and wholesome. In cases of colitis douches are sometimes useful, but they are an unpleasant form of treatment for the patient and may create an undesirable reflex effect upon a nervous system already touchy. Beta-naphthol, bromide of ammonium, and bismuth is a useful combination, the good effects of which will be intensified by an occasional dose of calomel or podophyllin. The bowel should be lubricated by a tablespoonful of liquid paraffin every morning before breakfast. The wearing of a suitable belt during the day supports the abdominal wall and helps to keep the colon in its place. Since it is probable that rheumatoid arthritis owes its origin to gastro-intestinal poisoning, the same treatment as is helpful in colitis applies in its case. It has been claimed that guaiacol carbonate is specially useful, but it is probably no more effective than the other antiseptics already mentioned. Hot-air baths at home are of value, and residence during the cold months of the year in a warm and dry climate such as that of Egypt is desirable. The vogue of modern remedies has caused many of those that are older to be forgotten or rejected as obsolete, but it is well to remember the efficacy of guaiacum in combination with sulphur, given in such a daily dose as provides for a comfortable and easy morning evacuation. In cases of hyperthyroidism, the usual treatment by bromides, strophanthus, belladonna, and arsenic, is greatly aided by the administration of suprarenal or thymus gland extract. The results are often brilliant, and improvement may follow their use when all other methods of treatment have been unavailing. Which will prove the more helpful in any given patient can only be ascertained by the experimental exhibition of first the one, and then, if need be, the other. There seems to be no guiding indication as to choice, and not uncommonly when one fails the other succeeds. Absolute rest in bed or on the sofa for three or four weeks is an essential element in the treatment of all these cases, and they seem to do better in a relaxing inland climate than at high altitudes or near the sea.

A clinical survey such as this compels us to recognize how important, in both sexes, is the climacteric period of life, and how essential it is to treat the ailments which may accompany it with perseverance and careful attention to detail. The secret of success lies in convincing the patient that the years are beginning to tell their tale, and that a new and more subdued plan of life must be found and courageously adopted in order to escape the danger of a too early advent of the time when "the grasshopper shall be a burden, and desire shall fail."

BONE GRAFTING IN UNUNITED FRACTURES OF THE MANDIBLE:

WITH SPECIAL REFERENCE TO THE PEDICLED
GRAFT.*

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THE evolution of the bone graft as applied to ununited fractures of the mandible is a matter of considerable interest. Since the outbreak of war orthodox opinion has undergone a radical change. The extent of this change can be gauged by a perusal of the *Transactions* of this Section. At a meeting of this Section in 1916 bone grafting as a means of dealing with non-union was mentioned merely for the sake of academic completeness. Practically, it was either ignored or regarded as a manifestation of somewhat ill-advised activity on the part of surgical visionaries. Compare this view with that deliberately voiced last session by the then president of this Section. In March, 1918, Mr. J. H. Badcock summed up the position

* Read at a meeting of the Section of Odontology of the Royal Society of Medicine, November 25th, 1918.