it attracted a much larger share of attention than at present, as being one of the most frequent and destructive of military and naval diseases. The introduction of a better system of dieting both soldiers and sailors, and greater attention to free ventilation on shipboard and in the hospitals, have reduced the prevalence of erysipelas, whether in the army or navy, to be comparatively rare to what it was in former times. From the writings of Blane, Hutchison, and Hammick, we learn, however, that it still occasionally threatens the safety of our wounded sailors, who, predisposed probably by a diet of salt provisions, are more particularly liable to attacks of this particular kind of inflammation.

Maggi, or Maggius, who was first physician to Pope Julius III., and one of the earliest and most sensible commentators on gun-shot wounds, notices, in his work, "De Sclopetorum et Bombardarum Vulnerum, Natura et Curatione," lib. iv., the frequent complication of wounds by erysipelas. In the first edition of this work, which belongs to the Medical Society of London, and was published at Bonn in 1552, he considers that, when this species of inflammation succeeds such injuries, it proceeds from an abundance of depraved humours in the body, or *cachochymia*, associated with an over-abundance of yellow bile. Hippocrates and Galen entertained a similar opinion as to the immediate cause of the disorder; and, more lately, this old doctrine of the humoral pathology was revived by Tissot. Dessault also appears to have been so impressed with the truth of this doctrine in some cases, and that, in autumn more particularly, it is dependent on constitutional causes, which give rise to an over-abundant production of bile, that he has termed one form of the complaint *bilious erysipelas*. As the associated febrile symptoms of the disease more frequently precede than follow the local manifestation of its presence in the cutaneous or sub-cutaneous tissue, it has generally a closer and more intimate relation to the nature of rheumatic, exanthematous, and scorbutic inflammations, than those observers admit who are disposed to consider it a highly inflammatory disease. In tropical and malarious countries, rheumatism and erysipelas may present themselves, of a sthenic-phlogistic, or asthenic-cachectic type, in which bloodletting for the former may be necessary; though bark and the muriated tincture of iron, under different circumstances, or an almost opposite state of nervous irritability and defective red blood-globules, may prove to be the sheet-anchor of successful treatment. But while varieties in type of erysipelatos inflammation may be essentially dependent on differently predisposed states of individual constitution, the prevailing endemic or epidemic influence of the locality, climate, and season, materially modify the different types of the disease.

The term *erysipelatos inflammation* has been frequently employed in a very vague and loose manner by some medical men, who are disposed to consider it in no respect different from erythema. Although both, in the most limited and abstract meaning of either appellation, and in regard to their anatomical seat, must be considered as inflammatory affections of the vascular rete of the derma, yet erythema, in most of its varieties, differs from erysipelas in being rather a state of passive than active cutaneous hyperæmia, in which the redness is characterized by its evanescent and fleeting disposition, associated with little or no tumefaction of the inflamed parts, and with comparatively little constitutional disturbance.

Erysipelas may be therefore properly considered as one of those febrile excretive inflammatory diseases of the skin which are unaccompanied by constitutional symptoms of a specific kind, and are not followed, except under peculiar circumstances of epidemic atmospheric influence of over-crowding and defective ventilation, by any direct contagious principle being generated, capable of producing in others a disease of the same kind. Several cases of erysipelatos inflammation have appeared in the Thistlewayte and Beverley, or upper wards of St. Mary's Hospital, during the last two months. These, however, in so far as I am able to judge from the registered facts of their prevalence, kindly furnished me by Mr. Graily Hewitt, were caused rather by the prevailing epidemic influence of the atmosphere, during the present season, than by the stagnation of the air in the first of these wards, or the position of the patients' beds near the water-closet. Inflammations of an exanthematous kind have been usually prevalent, and the peculiar meteorological character of the season has been—first, an unusual amount of cold atmospheric moisture, indicated by the small amount of difference between the dry-bulb thermometer, or temperature of the air, and temperature of the dew-point, during the last four months; and, secondly, the very constant prevalence of cold easterly winds, varying from N.E. to S.W., accompanied, during January, either by thick fog or heavy falls of snow, and by much cold moisture during the latter

months. Such physical causes are naturally followed by chilling effects on the cutaneous surface, and suspension of normal elimination by the skin of ordinary excrete materials from the blood. The consequence has been, as just mentioned, a very general prevalence of rheumatic forms of disease, with analogous exanthematous processes of the cutaneous and mucous membranes, accompanied by considerable degrees of constitutional affection. At one period I had all the children of one family, nine in number, successively laid up from cellular-mucous inflammation of the throat and fauces, accompanied by febrile symptoms and swelling of the absorbent glands of the neck. Erysipelatos traumatic inflammations amongst soldiers, though sometimes of local origin, are capable of communicating, through the dyscrasial changes of the blood of a part, a constitutional affection of the whole blood mass. They are, however, generally secondary results of antecedent constitutional disorder, and are ushered in by symptoms of depression characteristic of the early stage of intermittent fevers.

Several days before the appearance of the local symptoms, the patient experiences languor and general indisposition, loses his appetite, and feels much depressed; complains of nausea, constipation, and sometimes vomiting; has a foul and loaded tongue, with eructations from the stomach; and feels occasional shocks of chilliness running along the spine, or is attacked with shivering. To these succeed thirst, a dry, parched tongue, accelerated pulse, with greater or less heat and dryness of skin. Such constitutional symptoms as in analogous affections of rheumatism and gout are succeeded, on the second or third day, by the local symptoms of the disease, manifested in the skin and areolar tissue that surrounds the wounded part; or, when the disease is altogether idiopathic in its origin, and in no way caused by the local excitement of a mechanical or chemical irritant, these symptoms attack the head and face. The local inflammation, which is of the diffused cellular kind, affecting the skin and subcutaneous tissue, is a redness of a bright or livid hue, inclining sometimes to a mixture of yellow, accompanied by more or less swelling of a shining appearance, with pungent, tingling pain and heat of the part, followed by epidermic vesications, containing an amber-coloured serum, which quickly burst and form thin dark-coloured crusts. When of a mild or simple form, after spreading to the adjoining parts of the cutaneous surface, it generally terminates by resolution in a few days, after the impaired functions of the assimilating and excretory organs, on which it depends, have been restored to a natural state. But when the disease in the scalp is of traumatic origin, caused by punctures or gun-shot wounds, the effusion of *sero-fibrinous* matter into the loose cellular tissue between the tendinous expansion of the occipito-frontalis muscle and pericranium, becomes very great, and is either followed by diffused suppuration, or partial sloughing of the parts, through the intervascular compression or strangulation of the capillary circulation; and the disease, unless relieved by active treatment and free crucial incisions, disturbs the cerebral functions, and terminates in delirium and death. Somewhat less formidable in its progress when the disease complicates wounds of the lower extremities, it is not unfrequently combined here with inflammation of the absorbents, or *angioleucitis*, and requires prompt and active treatment. M. Baudens, in his "Clinique des Plaies d'Armes à Feu," relates two cases where the disease was successfully arrested by cauterization, after abundant local and general bloodletting had been used in vain.

(To be concluded.)

SOME PHENOMENA OF THE INTER-PAROXYSMAL CONDITION OF EPILEPTICS, AND THEIR RELATION TO TREATMENT.

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THE phenomena of epilepsy have their place in one of the darkest, and at the same time most attractive regions for human investigation—the border-land between mind and matter. Amongst them are to be found almost every variety in the processes of Intellectual, and, also, of Organic Life. It is therefore impossible, within the compass of this paper, to call attention to more than one or two groups of phenomena presented by a disease so extended in its relationships. It is my intention to speak only of the inter-paroxysmal state, and its rela-

tion to the attacks, with such inferences as are to be drawn from this inquiry in respect of therapeutics. To recall the various definitions of epilepsy would be to recall the history of its pathology, and this is not my object at the present time. The following may be taken as the definition which appears least exceptionable:—A chronic disease, characterized by the occurrence of paroxysms, presenting various degrees of disturbed consciousness, and spasm in combination. It is open to the objection of being too inclusive; but if made sufficiently minute to exclude all forms of hysteria, of softening, of congestion, &c., it must lose the definition-form. These two symptoms in combination form the essential features of the epileptic paroxysm, and their proximate cause may really be the same in other classes of disease. The diagnosis of physical lesions which may underlie the latter, depends upon other considerations, such as the general progress of the case in question, and its complication with ulterior phenomena.

The general agreement between symptoms produced by dissimilar physical lesions of the nervous system, and their frequent disagreement when arising from apparently similar causes, show that we have not yet arrived at a correct appreciation of the point of contact between the two; at the same time, they lead us to believe, that it is not so much the nature of these physical changes, as their degree and mode of induction, which determines the result. The progress of pathology will tend, I think, to the classification of nervous diseases by groups of symptoms, rather than of physical lesions. The former, resolving themselves almost entirely into modifications of the processes by which, on the one hand, properties or powers of mind are converted into phenomena of matter, (as in the case of volition determining muscular action,) and by which, on the other, the properties of matter are translated into phenomena of mind, (such as occurs when an impression from without induces a sensation,) are the true indices of the nervous state. But the latter (physical lesions) have not yet been shown to hold such definite relation, by virtue either of their special character or extent, with the functions of the nervous system during life, as to form the basis of a natural system of classification for its diseases. For these reasons, it is preferred to make use of such a definition of epilepsy, that it may include certain forms of hysteria, and the so-called epileptoid convulsions from organic lesions of the brain, rather than to adopt a definition which would exclude, perhaps by artificial lines, many diseases, *quoad* convulsion, depending upon the same proximate causes.

The epileptic paroxysm is an occasional thing, and there must be something peculiar in the constitution of that one individual who is liable to such an outburst from an indigestible meal, a strong emotion, or over-fatigue, when ninety-nine others may be subjected to the same occasional causes, with scarcely any appreciable effect. We are irresistibly led to consider the phenomena of the attack as symptoms of a disease, of which, at least, some part must exist during the inter-paroxysmal period. From this inter-paroxysmal condition, we must endeavour to discover the tendencies, of which the fit is but the full expression. In the present state of science, we cannot affirm that these tendencies exist until an attack has taken place, and then we are met with the difficulty arising from the effects of that attack. The tendency or predisposition to an attack was not created, however, but revealed by the paroxysm; and although of two individuals, A and B, A having had one fit, and B having been free from such a disaster, the apparent probability is greater that A will have a second than that B will have one at all, such apparent probability depends upon the fact, that this attack has pointed out A as an individual in whom the predisposition or real probability pre-existed. The predisposition, in many instances, must have existed before the first paroxysm with greater force than at any subsequent period, when frequently-recurring fits have induced a facility for their production, in accordance with the laws of nervous and muscular habits. But farther, the necessary results of paroxysms must be slight, as we find many cases in which it is with great difficulty that anything abnormal can be discovered, although the attacks have recurred frequently during a long succession of years. One of the healthiest epileptics I have seen has had violent fits for upwards of forty years. Those phenomena which do result from the paroxysms may, I think, be differentiated by close examination. We are, then, justified in taking the features of the inter-paroxysmal period as the signs of a predisposition or tendency to the attack.

In the examination of these features, so varied and so numerous, some mode of classification must be adopted. The nature of the attack does not admit of being used for this purpose. Extremely valuable as are the inquiries into its mechanism, as they have been most beautifully elaborated by Dr. Marshall

Hall, the simple fact that various forms of fit occur in one individual, and that the same form is observed in different patients, widely separated by the nature of their organic conditions, and by the circumstances of local irritation, shows that such classification is not applicable to the *disease*, but only to one of its symptoms. These distinctions and others, founded upon the locality of supposed exciting causes, may form most useful bases for subdivision; but the main features of the inter-paroxysmal state, those conditions upon which the paroxysms are dependent, appear to me to furnish the true lines of primary separation.

If we examine a large number of epileptics, we shall find no difficulty in recognising the existence of the three following groups, broadly separated from each other:—

1st. There are those who themselves say, and whose friends confirm the statement, that they are in perfect health.

2ndly. There is another group, marked by notable mental failure, although various in both kind and degree.

3rdly. There are others who present some marked derangement of the general organic health, or of some particular functions.

Of 71 cases which have fallen under my own observation, I place 29 in the first class, 31 in the second, and 11 in the third. These are respectively equal to 40, 43, and 15 per cent.

Some of the cases placed under the second head presented deterioration of general organic health; but so far as I could learn this was the result of circumstances arising since the development of the disease.

In examining those of the first class more closely, it is found that in respect of intellectual endowments and of organic strength they are (as they say) in perfect health. Many of them are remarkable for their intelligence, quickness of apprehension, memory, and good sense; at the same time their nutrition, temperature, and muscular strength are natural; they eat well, digest well, sleep well, feel well. But even in these individuals there are to be discovered some peculiar phenomena, decidedly not those of health. These are often attended with so little inconvenience that the patients make no spontaneous complaint of their presence, or they may even not recognise them when asked the question, although the physician has no difficulty in their detection. The phenomena to which allusion is made are common to the whole series of epileptic patients; but they alone exist in the first class, and will therefore be considered now.

The first of these is muscular *tremor* (found in fifty per cent.) It is either constant or occasional, and when the latter, is induced by mental, emotional, or organic changes, or by external impressions, slight in degree, as compared with the intensity of the result. This tremor is variable in extent and in intensity, passing from tremulousness (unnoticed by the patient, but readily detected by the physician if he grasps one of the limbs) to well-marked rigors. The occurrence of rigors is by no means uncommon in epileptics, when they make any intellectual exertion, are subjected to emotion, or to any physical change.

But passing beyond this condition, some *clonic spasms* are exceedingly frequent; they occur in 57 per cent. Variations are observed in the situation and force of contraction. In some cases they have not attracted the patient's observation; in others they are very annoying, but, so far as I have seen, never painful. In this respect these contractions differ widely from the tonic spasm of common "cramp." When occurring in the neck, they give rise to an unpleasant sense of constriction, the patient frequently feeling that his cravat is too tight, although this may not in reality be the case. (Trachelismus of Dr. Hall.) In the limbs, they cause jerking movements: if the hands and arms are affected, objects are thrown out of the finger; if in the legs, the patient may fall down. This occurred seven or eight times in the day in a gentleman under my care. If sitting, the legs would be suddenly extended with much force; the diaphragm was sometimes affected, and then an unpleasant barking sound was caused by a sudden expiration. In other cases, the spasm assumes a tonic character, the limbs, head, and neck, being fixed for some moments, and the patient unable to move or speak. This may occur without the slightest obscuration of mind. In one curious case which I have seen, there were not unfrequently attacks, resembling, in respect of the convulsive elements, a perfect epileptic fit, but there was not in these attacks any loss of consciousness. Strabismus is frequently observed; and when this evidence cannot be obtained, it may be inferred that irregular action of the ocular muscles takes place, from the patient complaining of occasional diplopia. There is, in children, a peculiar oscillation of the eyeball. Carpopedal

contractions and grinding of the teeth belong to the same category. Starting from sleep is exceedingly common, and although in many instances this may be due to some emotional, or semi-volitional condition connected with dreams, in other cases it does not appear to be so related. In several children I have noticed a more or less constant condition of choreic movements, these being much exaggerated for some days prior to an attack. Further, the reflex movements, of physiologic character, are often abnormally performed; deglutition is clumsy; respiration hurried or jerking, often suspicious or yawning. A peculiar stertor is very common in epileptics, even when awake. These phenomena, taken together, were marked in 52 cases, or 73 per cent., and it is probable that the number would be much larger if the patients could be observed more constantly, as they were very often denied until discovered by my own direct observation. Our knowledge of disease is accurate in proportion to the number of objective symptoms. Those, the description of which passes through the patient's mind, are subjected to the moulding influences of his individual peculiarities, and that which makes us differ from each other in intellectual life, makes us describe differently the conditions in which that life is placed, or by which it is affected.

In health there is a certain amount of reaction upon the application of all stimuli to the nervous system. It is the proper function of that system thus to act: we do not therefore infer the existence of morbid conditions from the simple fact of muscular action, involuntary in character. But if we find that the stimuli, (and I use this term in its widest sense, meaning all those conditions which are the occasions of nervous action,) to which all are more or less exposed, are followed by unusual results in some, we infer that the due relation between those stimuli, and their dynamic or vital effect is altered in those individuals, and when therefore, upon very slight or even inappreciable causes, these signs of muscular contraction follow, we are, I think, warranted in asserting that the reflective centre is in an abnormal condition; and the simplest expression for that condition appears to be, that involuntary actions are induced more readily than in health.

This does not appear due to the increase of proper muscular irritability or contractility, for in all the cases which I have examined this muscular property does not vary from the natural standard. The method adopted for its examination was percussion of the muscles, both pectoral and brachial. And yet, farther, the tonic of the muscles in the cases referred to bears no definite relation, direct or inverse, to the amount of tremor or the frequency of clonic spasm.

If, then, these undue contractions cannot be shown to depend on the nature or intensity of stimulation, or upon the contractility of the muscular tissues, they must be owing to the condition of the intermediate organism—the nervous system itself; and they become resolved into phenomena of morbidly active “reflection.” In using the term “active,” it is not at all intended that there is “excitement” or increased vascular action, or increased power of any kind, as a necessary co-existence. These terms are more or less complicated in their meaning, and it is difficult to select any one that shall be free from objection, but “susceptibility of reflection” appears to me the least exceptionable. There is a power by virtue of which a certain part of the nervous system converts external impressions of various kinds into the stimuli of proportionate muscular contraction. This is the reflective function, and in the epileptic it is unduly susceptible, or it exhibits an undue readiness of action.

The tremor, of which mention has been made, requires a moment's separate comment. It appears to indicate a disturbance in that function of the spinal cord by which it is enabled, in virtue of its own centric power, or in obedience to unconscious stimuli, (including by that expression the presence of blood, changes of temperature, &c., &c., for the function remains after division of the posterior roots of the nerves, and is consequently not “reflex,”—that function by which the spinal cord is able to maintain firmness and rest, by the contraction of opposed muscles.

In addition to these muscular phenomena, we frequently recognise in the first class of epileptics an excessive readiness of emotional disturbance, and an absence of power for the control either of the emotion itself, or of its expression. The degree to which such excess of emotional action may be carried is very variable, and it is presented much more frequently by women than by men; and in the former the epileptic attacks sometimes alternate with, are preceded or followed by, hysteric phenomena. Looking upon emotional changes, both in their mental and physical relationships, as induced or voluntary, rather than spontaneous or volitional in

their character, they are more closely associated with the group of spinal or reflective, than with the cerebral or intellectual spheres of human life. Having their anatomical centre most probably in those ganglia which constitute almost the whole of the cerebral nervous system in the lower vertebrata, and which underlie the true cerebral hemispheres in man, they take (with the simply consensual and instinctive functions) an intermediate position between the purely (that is, a—sensual) reflective movements on the one hand, and the purely volitional on the other. In the class of epileptics their predominance and freedom from restraint are marked characters, and evince, in this portion of the nervous system, an increase of readiness for induced, or a—volitional movement.

The first group of cases thus furnish, during the inter-paroxysmal period, evidences of morbid relations between the nervous functions; and the phenomena which they present—namely, involuntary muscular contractions—constitute one most essential element of the attack.

(To be continued.)

OBSERVATIONS ON THE ARCUS SENILIS,* OR FATTY DEGENERATION OF THE CORNEA.

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PART III.

(Concluded from page 74.)

THE cases to which I have referred in the first portion of this paper, and wherein the arcus may be present, allude to instances of the occurrence of this symptom at a time when no such appearance is in “the common run of life” to be noticed. I appealed to those examples where, from unexplained causes, a state of atrophy invades the system in comparatively early years, and at a period when that system should be maintaining a vigour and integrity according with its years. I spoke of cases where the patient had become *old-young*. The following instances will illustrate my position:—

CASE 1.—Thomas B—, aged forty-seven, applied to me at the Charing-cross Hospital. Is a tall, thin, and flabby man, languid in movement, slow in speech, with a sallow, careworn, and prematurely-wrinkled countenance. Within the last few years his hair has become very grey, and fallen off considerably. By business he is a tailor—a business at which he has unremittingly worked, on the average, for twelve hours a day since he was eleven years of age, and still is in this way and to this extent occupied daily. Few men, he says, “have taken less holiday.” His health has always been indifferent, and even whilst an apprentice he suffered with headache, oppression at the chest, and frequent palpitation at the heart. Has been married for twenty years, and had eight children born to him. Shortly after marriage his wife contracted very intemperate habits, and would constantly squander “the money he earned in drink,” which misconduct caused him much suffering “inwardly.” This state of domestic discomfort continued for some years, and still persists “off and on.” Thirteen years ago he fell into a very desponding and weakly state, and became quite unable to follow his employment, without, however, suffering from any very definite ailment. He now placed himself under the care of Dr. Rowe, who several times told him that he “was too weak for this world;” that “medicine would do him no good,” but that “he must get into his native air.” He went alone into the country for seven weeks, and returned considerably improved in health, with capability to resume his business, though unfitted to pursue it for his accustomed twelve hours daily until the lapse of three months, from which time to the present he has regularly followed it for the above-named length of time. His respiration is rather oppressed; often sighs involuntarily; occasionally experiences a “sharpish” pain darting from the front of the chest, “as if it went quite through him;” not unfrequently has pains extending down the arms,

* “I should fear the conversion of other tissues into fat, and their consequent death—so to speak—and that life's forces altogether were more spent than other appearances might indicate, in any individual whose corneæ presented well-marked senile arcs.”—A Manual of Clinical Medicine, H. Tanner, M.D., p. 95.