BRITISH MEDICAL ASSOCIATION.

FIFTY-FIRST ANNUAL MEETING.

PROCEEDINGS OF SECTIONS.

REMARKS ON APHASIA.

Being an Introduction to a Discussion in the Section of Medicine at the Annual Meeting of the British Medical Association in Liverpool, August, 1883.

By W. T. GAIRDNER, M.D., LL.D.Edin.,

Physician in Ordinary to the Queen in Scotland; Professor of Medicine in the University of Glasgow.

I HAVE been requested to appear here to-day in a position, not of my own choice, but assigned to me by the office-bearers of this Section. I am to introduce a discussion on aphasia; and I shall be followed by some who have not only given to this subject, as I have, much attention, but whose names are associated with it wherever medical science is cultivated. I shall, therefore, rather aim at presenting the subject in a form suitable for their remarks, than at attempting anything novel on my own account.

The first thing to be determined is, what are we to include under the name "aphasia?" Speechlessness, according to the common understanding of it, has reference only to articulate speech, the characteristic attribute of humanity as distinguished from the lower animals; but if we take the spoken word as the basis of our definition, we can hardly refuse to consider also the written word, in which the symbol showing forth the thought is essentially the same, though the channel of expression is different. Aphasia and agraphia, therefore, must be regarded as necessarily within the limits of the same discussion, and as throwing light upon each other; in both of these, whether observed apart, or together in the same case, the lesion is one of utterance of words, although the utterance is in the one case by the voice and organs of articulation, and in the other by an art of later origin, dealing with the verbal symbol in quite a different way. You might, in this sense, correctly speak of aphasia as a special form of lesion even in a deaf and dumb person, if his brain were so affected as to make it impossible for him to give effect to his own peculiar method of utterance by the fingers. I see no advantage, however, in the proposal by Steinthal, favourably mentioned by Kussmaul in his elaborate article in Ziemssen's *Cyclopædia*, to recognise as a general term "asemia" (*i.e.*, deficiency as regards symbols), subdividing this general expression into the varieties of A. verbalis, graphica, mimica, etc. Both the first and the second of these varieties are really verbal; the deficiency of pantomime may be, no doubt, combined with these, but it is often not so, and it differs from them altogether in their most essential character, and is, therefore, in a quite subordinate position in this discussion.

To save time, I think it well to start with the assumption that there is a distinct pathological condition to which the name of aphasia may be rightly applied, and that it is quite distinct, on the one hand, from all the well known paralytic or other disorders of mere articulation; and, on the other hand, from coma, dementia, and other states in which utterance is impossible owing to the general disturbance of the mental functions. At this time of day, it cannot be necessary to prove, in a medical assembly, by detailed facts, that this so. And I think we may further assume, without detailed evidence of the fact, that the progress of science has definitely associated this functional state with a lesion of structure in the third inferior left frontal convolution, and the parts of the brain immediately in contact with the island of Reil. Whatever doubts may have existed on this subject, have been finally dispelled.

(Dr. Gairdner here alluded briefly to an instance in a young girl with Bright's disease, in which very complete hemiplegia on the right side existed, but absolutely without aphasia; and Dr. Coats had found the middle cerebral artery plugged by an embolus or thrombus; but the branch going to Broca's convolution, being given off before the seat of obstruction, was exempt, and the convolution itself normal.)

We may regard it as being as well ascertained as anything in medical science, that right hemiplegia, when associated with aphasia, involves, and probably depends upon, a lesion in that part of the brain on the left side. And, in some cases of convulsive disease, where aphasia accompanies or follows the convulsion, especially when the latter is of such a character as to allow the observation that it originates in the facial muscles, or in some of those concerned in articulation, a similar conclusion follows irresistibly as to the probable seat of the lesion.

(Two cases of this kind were alluded to; in both of them temporary aphasia succeeded at each one of many convulsive attacks; and, in one, a case of Jacksonian epilepsy, when the attacks ceased to begin in the face and upper extremity, the tendency to aphasic phenomena disappeared. Two cases were also alluded to as recorded in the BRITISH MEDICAL JOURNAL for October, 1881, in which similar symptoms followed an injury to the head.)

I have no doubt that, if any facts of exceptional interest of this kind deserve to be placed before us, we shall have them from the speakers who are to follow me. I do not think it necessary to dwell on this subject, nor yet on one about which a great deal might be said—the theories that have been proposed as to the origin and development of language as a specially human faculty. One short passage, however, from the writings of Max Müller, may be allowed, as containing within a brief space much matter for consideration.

"We must concede to animals sensation, perception, memory, will, and judgment; but we cannot allow to them a trace of what the Greek called *logos*, *i.e.*, reason—literally, gathering: a word which most rightly and naturally expresses in Greek both speech and reason. *Lógos* is derived from *légein*, which, like the Latin *legere*, means originally to gather.....*Logos*, used in the sense of reason, meant originally.....nothing more or less than the gathering up of the single by means of the general.....But *logos*, used in the sense of word, means likewise a gathering; for every word, or at least every name, is based on the same process; it represents the gathering of the single under the general. As we cannot tell or count things without numbers, so we cannot tell or recount things without words."

According to these statements, it appears that simple naming is a process of generalisation; and therefore all nouns, and also all word-roots of every kind, imply a mental process of reasoning, as well as mere perception of impressions, before they can be invented in the first instance, or in the first instance fully apprehended—*e. g.*, by an infant.

The human infant, therefore, has already ceased to resemble other animals in the development of its mental processes from the first moment when a vocabulary begins to be formed, for every word added to its little store of vocables is, more or less, "a gathering of the single under the general;" and ere long the comparatively simple and elementary symbols thus slowly acquired will be used by it, like the symbols in an algebraical formula, for making new advances and more profound generalisations in the inner world of thought. But, while this is so, and while words, in their first initiation and combination into sentences and connected speech, always imply thought, and thought of a higher order than is possible to any other animal than man, it is by no means equally true that words in their actual use correspond always with the mental processes involved in their origin. On the contrary, a large proportion of the words and phrases in most common use are, in a very real sense, thoughtless and mindless—*i. e.*, almost purely automatic as regards the individual—corresponding rather with the inarticulate gestures and cries of man and other animals alike, though modified by habit into the form of articulate speech. Of this kind are (as Dr. Hughlings Jackson was the first to point out) almost all conventional and habitual oaths; *e.g.*, the use of "the big, big D.," which has ceased to have even a swearing value, and therefore has been rightly eliminated from all rational, not to say moral or religious, conversation. A man who can damn his own or another's eyes cannot be said to have the faintest glimpse of a meaning in doing so; and even the comparatively innocent-looking but equally conventional phrases of emphasis, such as "Bless me!" "A-dear-a-day!" "My goodness!" or simply "My!" are to be placed in the same category. You remember the Frenchman's idea, or caricature, of John Bull, as represented some years ago in *Punch*, with the following elegant *morceau* as the supposed typical utterance: "Godam! Rosbif. I shall sell my vife at Smitfeeld. Dam!"—in which the emphasis thus insisted on in the *language* is the precise counterpart of the grimaces and contortions of *gesture* typically ascribed by the vulgar to Jean Crapaud on this side the Channel. In both cases, there is a measure of truth underlying the caricature; and it is noticeable that both these really automatic, and therefore largely false, methods of conveying emphasis tend to disappear in proportion as really articulate expressions of thought reach higher development; in proportion, that is, as words are put to their right use, and become instruments of genuine and really human intercourse.

This is the common principle of what is best and worthiest both in the Christian and in the aristocratic types of conversation. In

the former, the communication must be "Yea, yea—nay, nay; for whatsoever is more than these cometh of evil." In the latter, "the repose that marks the caste of Vere de Vere" will not condescend to a merely false and conventional emphasis—it regards words as too valuable to be thrown away in vulgar and meaningless formulæ, although, it may be, allowing them freely to be used according to Talleyrand's method, deliberately to conceal or disguise the thought. The highest type of conversation, undoubtedly, is that which makes the word most perfectly correspond with the thought, makes it the legitimate and immediate outcome of the idea or emotion as it springs up in the consciousness, and is organised into thought in the brain, to be clothed at the same time with a fitting, and therefore not too exuberant, verbal expression. But this again involves, what would be hard measure for some of us, that we should be absolutely condemned to think, even while we speak; which also involves as a necessary sequence the still harder, and to most people impossible task, "When you have nothing to say—say it!"

But in the great difficulty which we all of us feel in reducing this ideal to practice, one may recognise another law as entering deeply into the whole of our nervous organisation, and all the functions that depend upon it. The degradation of intelligent speech into automatic and almost mindless expressions is only a part of a much larger and more important series of phenomena, in which the same word, *degradation*, may be used in its literal etymological sense, and without any moral significance whatever, to denote an all but universal and indispensable part of such complex activities as are modified by habit, either in the individual or in the race. In all such instances, there is a constant and inevitable degradation of acts originally springing from volitions, *i.e.*, impulses from the higher brain, into acts more and more dominated by the lower planes, so to speak, of nervous communication, *i.e.*, the reflexes. So constant and so absolute is this law, that it operates over the whole sum of those activities which form part of our daily life; operates apart from voluntary determination, apart in many instances even from consciousness, upon all complex forms of motor activity, speech among the rest, which require co-ordination, and in which such co-ordination is a part of our education. In learning both to walk and to talk, the infant acquires slowly, painfully, it may almost be said thoughtfully, what is to each new individual an entirely new art. In the first instance each separate movement, or group of movements, is slowly and imperfectly directed by the will, at a large expenditure of conscious effort; by-and-by the combinations become easier, more perfectly performed, and at the same time more and more automatic; so that we may affirm with the strictest accuracy, that, before either speech or progression has become even moderately easy or comfortable for any one of us much the greater part of what has been acquired at such an expenditure of brain-force, has been permanently degraded into an automatism, and is conducted mainly under the direction and influence of reflex centres below the highest. The higher brain rules, indeed, and continues to the last its control (in all normal states) over these reflexes; but it rules on the principle of a constitutional monarchy, wherein the supreme officer "*regne, et ne gouverne pas.*" Every kind of skill in every manual art depends largely upon the education of the so-called voluntary movements, having been conducted to the point at which combined and co-ordinated actions, at first only possible with thought and deliberate purpose (and therefore done with effort and at the risk of failure), are at last done mechanically or automatically, so as at once to be much more perfectly done, and done so as to leave the higher brain free for new acquisitions, or for more extended general superintendence. And the difference between an intelligent talker, or walker, or worker, and the opposite, is not so much, perhaps not at all, in the greater amount of conscious effort expended, but in the greater amount of control exercised over a much more extended group of automatisms, and the greater freedom acquired in rendering all of these subservient to the expression of the higher human nature. The task-work, or mere routine, is degraded towards a reflex, in order that the free intelligence may emerge into conscious supremacy, in guiding these acquired automatisms towards higher ends. The music-lesson, which at first is painfully and slowly mastered, note by note, with a separate voluntary and conscious effort in the production of each separate phrase, becomes so easy at last that it "plays itself," as if on a barrel-organ; whereby the whole attention and the true soul of the player is allowed to be given to those more delicate requirements which we recognise as the soul of the music, and of which any tolerable expression is absolutely denied to the beginner. A Rubinstein or a Joachim is thus composed of two parts—a mechanical part which plays almost as automatically as a barrel-organ (only with an infinite variety of tunes, and a power of acquiring more at will), and a soul which inspires the dead playing and makes it at once human, and what we sometimes think almost superhuman, in its beauty and impressiveness.

All this bears on the doctrine of aphasia, as follows. Movements that are purely and absolutely, in all circumstances, automatic, are reflexes, mostly detached from consciousness, and therefore from brain. But language never can be so detached; it belongs to the class of mixed motor activities, partly cerebral and related to all that is most exalted and distinctive in brain-function, partly reflex and connected with innumerable other reflexes, conscious and unconscious.

Dr. Broadbent has pointed out that it is a law of nervous activity that, under such conditions, hemiplegic paralysis extends only or chiefly to those actions that are normally practised unilaterally, and in proportion as they are so practised. Now, in relation to aphasia, the curious fact, which has been placed on a basis of observation practically secure, is that, in many cases, speech seems to be so affected. It is presumed, therefore, that the habit of executing highly specialised digital movements with the right hand chiefly, determines the superior volitional activity of the left brain, not only for the work of the hands, but for all intricate and complex combinations of the same type, *i.e.*, intimately related to consciousness and to the manifestations of the higher brain; therefore, in a peculiar degree, for language.

But, as we have seen that language is in reality twofold, viz., partly related to the higher brain and mind, and partly degraded conventionally towards a reflex or automatic act, it might resonably be expected that the latter kind of language would, under certain circumstances, escape in unilateral paralysis, while the former suffers severely, as is found to be in fact the case.

Dr. Hughlings Jackson has borrowed (with almost too much acknowledgment) a casual expression of mine in a paper on Aphasia, published in 1866, and has generalised into a common form of description those emotional and meaningless detached phrases remaining to the aphasic—oaths, etc.—which he holds to be words,[1] but not speech, calling them "barrel-organ-isms."

The facts are probably more or less familiar to all of you; the explanation which I understand Dr. Jackson to have given of the facts is, that the domination of the left brain extends only, or chiefly, to true intellectual language, which is directly the product of present ideas, and of a need for their special and volitional expression; and not to emotional language, which is the residuum of ideas, it may be, but of ideas which have passed through the brain over and over again in the state of health, so as to have become by habit degraded into mere automatisms, or almost pure verbal reflexes.

The exemption of these from paralysis, when Broca's lobe is injured, is due to their being so "degraded," *i.e.*, brought within the compass of those acts which, like the breathing, the balancing of the trunk, and partly the walking, are normally effected by the joint action of the two brains, and therefore (according to Broadbent's law) not so much liable to be utterly paralysed when only one brain is disabled.

Articulate sounds are, under these circumstances, no more determined necessarily by brain-power of a high order, or even by conscious volition, than is the "cri hydrocéphalique," which I have heard perfectly conscious and adult patients go on uttering for hours together, explaining to me at the same time that it was not from pain, and that they could not tell what made them cry out—a purely automatic cry, therefore, coincident in this case with consciousness, but quite detached from volition.

I should like to conclude this branch of the subject by the quotation of a single paragraph from the paper above referred to, which will not, indeed, convey the whole argument, or the illustrations given in detail, but will at least give an idea of the use made of that particular illustration singled out by Dr. Hughlings Jackson.

"The explanation that seems to me, amid the confessedly great difficulties of the subject, to come as near as any to a satisfactory one, of these and other eccentricities of utterance in the aphasic, is that the words which are most readily spoken are always those which are prompted, not by external observation and deliberate volition, but by some internal association of ideas; the words being not so much deliberately spoken as set free (so to speak) by the waves of emotion or of memory, which may be conceived to act upon the old established habits and latent capacities of the brain, very much as one wholly unskilled in music, or deprived for a time of his musical faculty, might let loose the tunes of a barrel-organ,

[1] "A man may be speechless, but not wordless." Hughlings Jackson.

without any direct cognisance of the music he is playing, or the precise combinations of movement he is calling into action. In other words, the aphasic is able to pronounce those words, and those only, that are called out of him, as it were, by trains of association of which he is only partially conscious at the time, acting upon forms and modes of expression which he may have learned to blurt out in the presence of similar associations long before his disease; while, on the other hand, he is utterly unable to select deliberately an appropriate term from among many inappropriate, and to apply it to the expression of a predetermined idea then and there accurately defined in the consciousness.[2] And hence he stumbles most of all at names, which are at once the simplest, the most primeval, and the most determinate of all utterances, while he is comparatively expert at phrases, which are the mechanical slaves of habit, the vague expressions of the inner consciousness or of old associations..... Without being quite assured that the peculiarities of the aphasic will submit to be tested by this criterion, I think it helps to explain the most obvious, and at the same time some of the most surprising facts of his condition, *e.g.*, his absolute inability to pronounce some phrases voluntarily, while the same phrases are readily and even profusely poured out under mental excitement; the utterance of phrases *en masse* which he is incompetent to utter in detail; the confusion, misplacement, and often blank incapacity of utterance which specially bar the application of a noun or proper name to its object, even when that very noun or proper name can sometimes be elicited improperly by some roundabout process, in the midst of a phrase not so accurately determined by voluntary effort."[3]

I have next to ask your attention to some of the varieties which have been set forth in definite terms by Kussmaul and others, as related to the general condition, or pathological state, of aphasia. The first distinction made which I shall remark upon is between *aphasia* and *paraphasia*—between the want of verbal utterance altogether and the confusion of words and phrases, or the habitual misuse of them. This distinction requires to be made, inasmuch as there are aphasics with every variety and degree of defect of utterance; but I am not sure that I can suggest any special conclusions from this distinction that would aid us in the discussion to-day. Paraphasia implies confusion or mistake rather than absolute disability. It is worth while to remark that slight degrees, both of aphasia and of paraphasia, are almost normal to many persons, at all ages; but especially, perhaps, to those advancing in years. I would also like to put it to you, as a point of personal experience, whether, under the circumstances of being liable, as I dare say many of us are, to occasional forgetfulness, or inability to utter names when most wanted, you have not observed that some names, much more than others, seem to get lost, as it were, in the pigeon-holes of the memory; so that one dreads the occasions when one is required to recall them, well knowing beforehand that there will probably be a difficulty about it. One such instance occurs to me at this moment. A preparation of digitalis, called Nativelle's digitaline, came to my knowledge perhaps ten or a dozen years ago; but, during all that time, I have scarcely ever been able to prescribe it without taking down a book and looking out the word. What makes this particularly odd and absurd is, that I was always sure it began with N, and usually could remember several of the individual letters, but could rarely collocate them, and this after many efforts to do so by mnemonic stratagems, as by connecting the word with natives, oysters, etc. This fact is of importance, because it forms the nearest approximation that a moderately healthy man is likely to find, in his own experience, to the ever-recurring and insuperable difficulty of the true aphasic—viz., to bring the mechanism of association within the brain into such working order, that the name will infallibly suggest the thing named, and *vice versâ*. The perfectly constituted man, whose memory and utterance of words are always under control, has an apparatus of suggestion at work in his mind and brain, by which trains of thought, or outward objects observed in any way—whether through the eye, ear, or any other sense—naturally and almost automatically tend to bring up the word that is wanted. Somehow or other, the "barrel-organ-ism" involved in this process, a large part of which is through habit almost apart from voluntary effort, and thus purely automatic, is apt to get out of order at points; and then there is a hitch, precisely corresponding to what happens when a certain number of the levers have been removed from the revolving barrel—the corresponding notes (or words) disappear when wanted, even although all the rest of the mechanism is working perfectly well. A friend and patient of mine, who was partially aphasic, but perfectly intelligent, expressed it thus, when he missed a word in this way: "Ah! its gone—gone into the waste-paper basket!" I believe that almost all persons are subject, more or less, to this infirmity.

The peculiarity of the case here is that, familiarity with the word and with its meaning makes no difference, or, if anything, tends to place it rather more beyond reach of recovery than if it had been an utterly new and unfamiliar expression. It cannot be had just when wanted, and no amount of pondering will recall it; but, ten minutes or half an hour afterwards, it will flash upon you suddenly in the midst of quite another set of ideas, and when you do not want it at all. The organ-barrel has, no doubt, been under repair in the interval somehow, and takes up the interrupted melody just at the point it left off, and *à propos* of nothing at all.

[Dr. Gairdner here alluded to the case of Sir Wm. Lawrence, as recorded by Sir Thomas Watson in the last edition of his well-known lectures. It was an almost inconceivable narrative—resting, however, on excellent authority—of an aphasic who, being unable to find a word, was yet able to pun upon it, practically: a true paranomasia, and by no means a mere practical joke. "The psychology of this," said Dr. Gairdner, "is very involved. I am unable to speculate about it profitably, but the instance must not be left out of account."]

Another distinction which has been observed among aphasic cases is that to which Kussmaul has adapted the rather convenient and expressive terms, word-blindness and word-deafness. Most aphasics, I believe, are both word-blind and word-deaf in a degree more or less proportionate to their defective power of recalling or of uttering words; but the differences in this respect are, perhaps, sufficiently striking to call for a clinical subdivision of the cases in accordance with these expressions.

The aphasic can occasionally be assisted towards a missing word, in some cases by pronouncing it in his hearing. He can then follow and imitate the mere utterance of the word, but has no power of initiation, and very soon loses the word again. In other cases, the opposite is the fact; the spoken word excites no idea, and cannot be followed or imitated. Again, the aphasic can sometimes be assisted or re-educated through the eye into words lost, when he cannot at all be led by ear. He may learn to follow the movement of the lips of another person (Finlayson[4]), and so get back some of his individual vocables, when he cannot make them out at all, or very imperfectly, through the mere impressions of sound. This is "word-deafness" in a most striking form, and it is partially to be met by the same process of education as in the deaf-mute. Cases of this kind, however, have rarely been observed with accuracy sufficient for scientific purposes of definition.

But the aphasic who is unable to utter words may not be at all "word-deaf;" on the contrary, he may perfectly understand what is said to him, and may give the most clear evidence by signs that he does so. He may even like to be read to, though perhaps this is very exceptional. Usually there is a degree—and more commonly than not a very great degree—of word-deafness in the aphasic.

Another way of putting this distinction is to regard the person who is aphasic, but not word-deaf, as having "ataxic aphasia" or "incapacity for the motor co-ordination of words" (Kussmaul); while the man who is both word-deaf and aphasic is said to have

[2] An interesting example of the disability here referred to, occurring in connection with expressions which contained a suggestion of something more than mere "barrel-organ-isms," in an aphasic, was brought under my notice in the Royal Infirmary of Glasgow, some time after these words were written and published. A woman, who was so completely aphasic, that she could at first make no use even of "Yes" and "No" in conversation, and who could not identify, much less pronounce, her own Christian name, while having a considerable command of gesture-language, was constantly in the habit of uttering the phrase "up a stair," with such animation, and such varieties of tone and gesture, that it seemed at times as if she intended it to do duty for all rational and intelligent speech; more especially when she associated this phrase, as she very commonly did, with the word "God," thus—"God—God up a stair," etc. It seemed not altogether improbable for a time that some more or less clear idea of heaven as the residence of the Divinity might underlie this strange utterance; and various attempts were made to appeal to whatever of religious aspiration might have survived the wreck of the function of articulate speech. But after a while, as a result of education in the ward, she acquired a few more sublunary and perhaps more really rational phrases and names, such as "Doctor! Doctor!" or, at a later period still, "Dr. Gairdner;" and these she substituted at once for the other and more solemn utterance, as follows: "Doctor up a stair—Doctor—Doctor—Dr. Gairdner up a stair," etc., for a quarter of an hour together, or as long as one would listen to her; and always with the same animated expression and gesture, as if she were "propositionising" something of supreme importance to all of us. This woman ultimately died under the care of Dr. Robertson, of the Town Hospital, and was found to be the subject of an immense softening in the middle cerebral region, involving Broca's lobe.

[3] "On the Function of Articulate Speech, in its connection with the Mind and the Bodily Organs; illustrated by a reference to recent observations on certain diseased states of the brain." Read before the Philosophical Society of Glasgow, March 7th, 1866. Glasgow: Bell and Bain; and in the *Transactions* of the Society for 1866.

[4] See a case carefully recorded in the *Obstetrical Journal*, vol. iv, p. 353. London. 1875.

"amnesic aphasia," or "incapacity for the recollection of words as acoustic aggregates of sound." But this comparatively old and well-known demarcation presumes too much, I think, upon our knowledge of the psychological state of the aphasic to be adopted without a *caveat*. All true aphasia is, probably, more or less amnesic; but of the precise degree in which loss of memory co-operates with other conditions in respect of deficient word-faculty we know, and can know, little that is exact, and therefore capable of definition.

But, on considering the facts of different cases with respect to what has been called agraphia, a further distinction becomes apparent. The educated aphasic, more commonly than not, loses the faculty of writing words and sentences in a like proportion with his loss of the power to speak them, or to recognise them when spoken to him. As I put it in 1866 (when this branch of the subject had been very imperfectly opened up), "the aphasic writes at least as badly as he speaks; and when he speaks not at all, he also writes not at all." But sometimes, unquestionably, it is not so. The power of writing words, and even sentences, may be retained when the power of speaking them is almost wholly lost. Of course, if the power of writing words is in any considerable degree retained, it is clear that the aphasia is not amnesic. There is a difficulty of co-ordination (ataxia), insuparable in the case of articulation of words, but not so insuparable in the case of writing them. And sometimes this absence of amnesia is even more clearly and definitely set forth by the preservation of the power of reading words, sentences, and even whole paragraphs, with apparently perfect intelligence. This is a most marvellous fact, but it is perfectly well authenticated.

No case of this kind on record is more striking than that of the first Lord Denman, one of the ablest of the judges and statesmen of his time, the facts of which, though not medically recorded, may be read in an apparently trustworthy narrative of details in the second volume of his published life. Lord Denman had a stroke of paralysis some time before his death, which left him perfectly aphasic as regards utterance; but so far from his power of recognising and using words being correspondingly impaired, it is said that he was in the habit of reading a great deal in several languages, and indicating most pointedly his approval and disapproval of what he read. He was as unable to write as he was to speak, and thus could not express himself in any way whatever except by gestures; but he lighted upon the plan (apparently spontaneously) of causing his daughters to copy out passages which, in reading, he had strongly approved, in the newspapers and elsewhere, and sending them in a letter to his friends to show that he was still conversant with affairs, and able to take decided views of them.

The usual fact is otherwise. In the great majority of aphasics, the reading faculty is abolished, or lost, in proportion to the speaking and writing faculty; it is hardly necessary, therefore, to devise a new term for this (alexia) as Kussmaul does. But this makes it the more necessary to preserve a scientific distinction in theory and in practice between these different classes of cases.

Dr. Fraser of Paisley has communicated to me a very remarkable case from his experience of the asylum at Riccartsbar, which is still under observation; and I had thought at one time of presenting the man to you here, along with a typical aphasic of the ordinary kind, for purposes of contrast, but it was found better to give up the idea, as this man is rather violent and uncertain in his mental condition. This case originated in an attack, probably of right hemiplegia, in 1870; and there is a profusion of these automatic or quasi-automatic utterances to which I have already referred, with a great difficulty, not to say always impossibility, of referring to things and persons by name. It is difficult, for want of time, to give many details; but the point that is of greatest interest at present is that, when he is utterly at a loss about a name, and can neither speak it spontaneously, nor apprehend it when spoken in his hearing, he is able almost invariably from the written symbol to reproduce something like the word in speaking, and then loses it again as completely as ever when the written word is withdrawn from view. Thus, when shown a pen, and when the word was repeated to him again and again, he could not get nearer it than "petste," but when shown the word *written*, he at once called it "pin." So he called a purse "poke" and "foke," and, when pronounced to him, attempted something like "pats," but when the written symbol was shown him, said at once and forcibly "purse." These facts have been repeatedly ascertained, and you might conclude from them that this man is "word-deaf," but not "word-blind." But that he is not word-deaf entirely, is shown by the fact that he can pick out on a table a number of objects named to him, while he cannot name any of them except after seeing the written symbol. These anomalies in the state of aphasics evidently require more study than has yet been given to them, before we can classify them in a thoroughly satisfactory manner.

Now the knowledge that a perfect aphasic like Lord Denman may be able to read well and easily in several languages, that other aphasics may be able to write intelligibly, even with a maimed right hand, or with the left, and that (as in Dr. Fraser's case) the education through the read letters may be made, to a certain extent, a means of education of the lost faculty, while the education of it through the ear is impossible, has, no doubt, suggested the distinction, just mentioned, of aphasics into those who are, and who are not, "word-blind." But here, I think, we are upon insecure ground, as regards the latter condition. We cannot tell absolutely whether the word-blind aphasic is so from amnesia or not; but we may be quite sure that the aphasic, who can read as well as Lord Denman, is not amnesic as regards the verbal symbol, although he may be quite incapable of uttering it.

A patient whom I had desired to introduce to you at this meeting, but who is, unfortunately, not present, owing to some misunderstanding, forms an interesting object and point of comparison with these others. This man has been aphasic, with right hemiplegia, for some years; and he is so far intelligent as to have no disposition to misuse words, or to indulge in unmeaning phrases. He has been partially re-educated, although now and for some time in a stationary condition. He is perfectly good-humoured, and a very fit subject for experiment in every way. We are sure that he knows the meaning and use of objects, even when he cannot name them; and in particular, we are sure from his playing at dominoes, working with coins, etc., that he perfectly understands the real significance of numbers. This being so, it is to be observed that he is utterly helpless when asked to name the numbers on a domino, and equally so when a number is named to him, and he is asked to single it out from a lot of dominoes spread out before him. But he has no difficulty at all in counting on his fingers the number of any domino, or of showing a domino corresponding to any number so displayed to him. In this respect, he resembles perhaps the majority of aphasics; but the peculiarity in his case is that, while he cannot realise the number for the spoken word, nor yet from the written symbol, so long as the symbol is a word, he can easily, and apparently with perfect accuracy and intelligence, translate the Arabic symbol into the corresponding number on the domino, and *vice versâ*. The word, and the word only, representing a number, is a nearly absolute barrier to him in both directions; he is equally word-blind, word-deaf, and aphasic. But he is not in the least in a difficulty about reading or writing a number, provided only the Arabic symbol, and not the word, is made the medium of communication.[4]

I am very far from supposing that anything I could say at present would throw much light on the state of mind of the aphasic; and I have always regarded this as a nearly inscrutable mystery. But I think we ought to be able to give an opinion, in some cases, as to whether an aphasic is to be considered as technically insane, or, if otherwise, in what sense sound in mind. My own opinion has been that, in a case of recent aphasia, or even one of some standing, in an adult, who has grown to the full development of his powers through the ordinary use of language, there need not necessarily be any presumption against sanity, although there may be great difficulty in getting valid evidence as to the actual state and legal capacity of the mind for particular acts (as making a will, etc.). But when we come to the case of aphasia in very early life, or of congenital aphasia (if such cases exist), I fear it must be admitted that a marked deficiency in the power of acquiring language would be almost a fatal bar to any considerable intellectual development, and that such individuals, stunted in growth as regards this one faculty, even if no other were primarily involved, must necessarily grow up deficient in most of those higher elements of mind that are distinctive of humanity—in other words, more or less imbecile or idiotic. But my object at present is to raise these questions for discussion, not to answer them; and with these remarks, therefore, I will leave them in the hands of the meeting.

Dr. HUGHLINGS JACKSON (London) said that one thing which interested him very much in cases of aphasia was that they exemplified Dissolution, using this term as the opposite of Evolution. In a case of complete ordinary aphasia, dissolution was seen in the loss of intellectual language, with the persistence of emotional language. It was seen in the frequent retention of the words "yes" and "no"

[4] This patient was afterwards produced being placed in Dr. Davidson's ward in the Liverpool Royal Infirmary, during the meeting, and intimation of the fact made in the Daily Journal.

only, propositions of the deepest generality, standing on the borderground of intellectual and emotional language. Adverting to the retention of such complex and particular utterances as "Come on to me"—seemingly exceptional to the principle of dissolution—he had no explanation to offer of them, but suggested the hypothesis that they were owing to the circumstances of the patient when taken ill. He mentioned four cases in illustration. A man who had the recurring utterance, "Come on to me," was a signalman, and was taken ill when on the line in front of his box. Other cases were mentioned, in which there was no evidence as to circumstances likely to give rise to the particular recurring utterances which the patients had. Referring to cases of incomplete aphasia, he mentioned that Dr. Gairdner had pointed out that a patient might get out a proper reply to a question, and then go on uttering it in irrelevant rejoinder to several further questions. Using the term which Dr. Gairdner had used for the phenomenon mentioned, the recurring utterances of the completely and permanently aphasic were examples of persisting "barrel-organism." They might be called examples of "verbal monomania." Allied phenomena were found in connection with some cases of coma (Abercrombie); in some cases of dreamy states at the onset of certain epileptic seizures (Falret); a man who began to count after every one of his epileptic fits, had his first fit when a soldier, and whilst "numbering off." The hypothesis might be applied, not to the explanation, but as a means of investigating ordinary cases of monomania. Returning to cases of complete aphasia, he urged that a still more important exemplification of dissolution was the retention of the more automatic service of words, by which (except in the rare cases of word-deafness described by Dr. Broadbent) the speechless man understood what was said to him. Dr. Hughlings Jackson held that the right half of the brain was that for the most automatic nervous arrangements for words, and the left for the least automatic; the term least automatic being, he considered, rigidly equivalent to what is called most voluntary. He further illustrated the subject by cases of incomplete aphasia, expressing the opinion that the disease was not answerable for the wrong utterances, but that these occurred during activity of the speech-nervous arrangements left intact. The disease caused the dissolution, and was answerable for what the patient did not say; whilst the wrong utterances, however bad they were, were the "survival of the fittest" on the lower, but *then* highest, level of evolution remaining; just as normal speech was such a survival on the normal highest level in healthy people. He believed that, when the aphasic uttered a wrong word, the so-called right word was revived also—that there was "verbal diplopia," giving rise to "mental diplopia," as in the case of a pun in healthy people. One advantage in studying cases of aphasia as examples of dissolution was, that we could, by so doing, trace their relations to other superficially very different cases of diseases of the nervous system. He believed that dissolution was seen in ordinary cases of progressive muscular atrophy, in cases of hemiplegia, of aphasia, and insanity, there being in each a reduction from the special towards the general. To see this fundamental community, we had to distinguish the mental loss, in cases of aphasia and insanity, from the correlative physical loss. He believed that, correlative with the loss of speech, there was loss of highly special and complex articulatory movements, although there was no, or very little, paralysis of articulatory muscles. The seeming discrepancy was accounted for by Dr. Broadbent's hypothesis, one of inestimable value in the investigation of many different nervous diseases. This hypothesis was to be judged of not only from the effects of unilateral destructive lesions, causing no notable paralysis of the articulatory muscles of either side, but also from the effects of unilateral discharges causing convulsion of the articulatory muscles of both sides, and further, from the effects of bilateral destructive lesions causing some paralysis of the articulatory muscles of both sides. Dr. Hughlings Jackson believed that hemiopia was often overlooked in cases of aphasia; in all the cases he had seen thus complicated, the blind half-fields were on the right. Hemiopia of this kind in itself, even when owing to central disease, did not prevent a patient from reading. In cases of "word-blindness," such as had been described by Dr. Broadbent, to whom Dr. Hughlings Jackson was indebted for his knowledge of that symptomatic condition, hemiopia had been found (Westphal and Charcot). Dr. Hughlings Jackson mentioned three such cases. It was to be observed that optic neuritis might add nothing to a hemiopic defect of sight, and when the two things coexisted, any inability to read was not to be hastily ascribed to either of them, or to both of them; there might be the very different thing, "word-blindness," without any defect of sight in the left field. He mentioned one case in which there was hemiopia (right field) and double optic neuritis. In this case, the optic neuritis had caused no defect of sight; the visual acuteness in the left field was perfect, but the patient had great difficulty in reading, on account of "word-blindness."

Dr. BROADBENT (London) began by considering a question of Professor Gairdner's, as to the condition of a patient in whom the third left frontal convolution was missing. He had had no *post mortem* evidence, but he had seen a boy who was perfectly aphasic from birth, and in whom there was a deficient development of the left frontal region. He was not an idiot, however; he understood language, could be sent errands, and would bring the proper object and the right change, but could not say a single word. His appearance and behaviour reminded him of an extremely intelligent dog. He then referred to the analysis of language in Professor Gairdner's preliminary remarks, as leading up to what he wished to say on the subject. There was a further analysis than that which divided language into rational and degraded or automatic. There was an entire difference between nouns and all other parts of speech, which was recognised by the old grammarians, and was brought out by disease. Nouns or names were the subject of thought; all other parts of speech were the mere setting in which nouns were placed. Now, these were examples of affection of speech in which the only defect was the impossibility of saying a noun. One asked such a patient, "How are you to-day?" and he would answer generally, "I am very well indeed, thank you;" but if he were asked where he had pain, he would perhaps say, "Yes, in the——." He failed entirely to name the part, and, in the course of a long conversation, would be unable to utter a single noun. Coming, now, to what he specially wished to say, he thought that the term aphasia had begun to do harm. Observers looked upon aphasia as a type, and studied its varieties, instead of fixing their attention on the cell and fibre mechanism of speech and thought. The term paraphasia, which had been employed, meant confusion in more senses than one. In speech, as in all motor processes, there was a sensory as well as a motor side; and here, as in movements generally, the sensory was the more important of the two. It was by grouping of cells on the sensory side of the nervous apparatus that automatic movements were organised, and when this regulating group was damaged, the motor expression suffered. Dr. Broadbent's own idea of the cerebral mechanism by which words were formed was, that there was a perception-centre for each sense, in which the perception or recognition of the external cause of sensations was elaborated. "Naming" was a further intellectual elaboration; it was, to quote Professor Gairdner, "a process of generalisation;" his interpretation of which was, that perceptions from each perception-centre converged to a common centre, in which the perceptions were combined to form a complete idea of the object, the auditory perception associated with it being the name. This might be called the naming centre. Now, by reference to this mechanism, the cases of so-called word-blindness and word-deafness could be understood. But he objected to the terms word-blindness and word-deafness as both inexact and imperfect. He would relate the case which had been alluded to. This was that of a man who could converse fluently and intelligently without mistakes of any kind; but, if an object were held up, and he were asked to name it, he failed absolutely. He could not name such familiar objects as a coat and hat; but if it were said of a hat "That is a coat, is it not?" he would answer at once, "No, but that is," pointing out the hat. He could write either out of his own head or from dictation, but when he had written it he could not read it. It was clear that the word-blindness was only a part of a general loss of the power of naming objects at sight. The explanation of such a case was, that the part from the visual perception-centre to the naming centre was destroyed; and it was interesting to remark that the lesion found after death implicated the left angular gyrus, insulating it from all other parts. The same thing might happen to the conducting fibres between the auditory perception-centre and the naming centre, giving rise to so-called word-deafness; and Dr. Ross had brought to the meeting an extremely interesting case, in which there was partial breach of communication of both visual and auditory perception-centres with the naming centre. The naming centre, however, might itself be damaged or destroyed; and he had published a case in which he believed this to have occurred. The patient did not understand a single word said to him, and his speech was perfect gibberish. Here, also, a *post mortem* examination had been obtained, and the lesion was entirely behind the fissure of Rolando. The third left frontal convolution was untouched, and its communications with the central ganglion unaffected. It was interesting to remark that, both in this case and in the case in which the patient was unable to name anything at sight, the lesion was in the left hemisphere; so that the exclusive employment of the left

half of the brain in intellectual expression involved the special education of this hemisphere in the process of naming. In the cases, again, in which there was loss of nouns only, the evidences of lesion were in the left hemisphere only. Now, in most cases of loss of speech in the common forms of aphasia, the lesion was on the motor side of the cell and fibre apparatus concerned in speech and thought; it was the way out for words—to employ a phrase of Dr. Hughlings Jackson—which was damaged. But the amount of damage varied in different cases, and with this varied the affection of speech and of the mental faculties. He had been greatly interested in the evidence which Dr. Gairdner had mentioned on two points in which he differed from Dr. Hughlings Jackson. One was as to the possibility of a mental rehearsal of a phrase by a patient who was utterly unable to speak; the possibility of actual words being present to the mind when they could not be uttered. He believed that such mental rehearsal existed in some cases. The other was as to the power of speechless persons to understand what they read. It seemed to him that the cases of Sir W. Lawrence and Lord Denman were conclusive on both these questions as regarded themselves; of course, there were other cases to which these conclusions would not apply. Besides, however, these cases in which the way out was broken up, there were others in which the lesion was on the sensory side of the apparatus; and these afforded some of the most interesting examples of affections of speech by disease of the brain. He would not further refer to these, however, but would conclude by reminding Dr. Gairdner of cases which they had discussed, in which, with complete loss of speech for all other purposes, there was associated remarkable power of saying numbers. The patient could count up to twenty or more, and would at once give accurately the number of shillings shown to him, either by speech or writing, and in some cases the number would drag after it the word shillings. A man who could, under no other circumstances, say the word shillings, would say it after the number two or three.

Dr. CLIFFORD ALLBUTT (Leeds) urged the danger of approaching aphasia from the mental or spiritual side, *i.e., incertum per incertius*. He thought it more fruitful to approach it from the physical side, and to realise the degree in which speech was a reflex act. A noun was a conventional movement, which, partly by heredity and partly by habit, was aroused by impact of an object upon the periphery. The relation between contemplative intelligence and speech was far from direct; on the contrary, speech was no doubt largely automatic, and might, like walking, be carried on without the intervention of centres higher than the speech-centre. To talk of amnesic aphasia was, therefore, like talking of amnesic paraplegia in cases where the paralytic had also lost the mental powers which should direct his steps if he could walk. Dr. Clifford Allbutt had, like Dr. Broadbent, seen cases of voluble gibberish in which the speech-centre, to use Dr. Gairdner's words, ran down like a clock from which the escapement had been removed or injured. Dr. Broadbent's patient who could not remember the word shilling, but who uttered "three shillings" when three were shown to him, showed the automatic nature of speech. By looking at speech as a conventional muscular act largely automatic, and originally called forth as a reflex of peripheric impressions, we could understand how in health the afferent impressions might enter by all channels, and that efferent movements might issue by any channel, such as gesture, pen or voice, or how in disease some of these channels might be closed, inward and outward, or all of them. Or finally the speech-centre might be severed from the rest of the cerebrum. Dr. Clifford Allbutt had often seen aphasics in full possession of the rest of their faculties, but thought that in aphasia there was a special tendency to loss of emotional control.

Dr. W. W. IRELAND (Prestonpans) thought that the faculty of speech was of such importance in mental operations, that any damage to its exercise had a tendency to weaken the mind. Words supported thought; and where the words failed, or could not be recalled, thought, in the end, lost its exactness. He was inclined to believe that almost all aphasics were weakened in mind. Dr. Gairdner had put the case of a child, born without the third frontal convolution, or other parts necessary to articulate speech. A being so deprived, living alone and unaided, might evolve its faculties in a way showing a high intellect; but this was a mere speculation. It was not man alone, but men working together, that did great things; and this was accomplished by means of speech. The child of whom Dr. Broadbent spoke, who could not speak, might not be a pure idiot, but he must have been imbecile. Dr. Broadbent said that he had the intelligence of a clever dog; well, this degree in a human being was no higher than imbecility. He (Dr. Ireland) had seen many aphasic children. They were all more or less imbecile. Some imbeciles could speak with a small stock of ideas; others, who had a great many more ideas, and could understand a great deal of what was said to them, nevertheless could not speak. If we were to have "naming centres," we must have two centres; one for receiving heard words, the other for imitating the motor process of articulation. He found that in effect it was not enough to have a few ideas, such as the recognition of a common quality to ink, black dress, and a black coat, for a child, normal or imbecile, to commence to speak. There must be a considerable accumulation of thoughts. Speech was an endowment peculiar to a high intellect. This was the reason why animals could not speak or use similar means of communication. Their intellect, though the same in kind as ours, was so inferior in degree that they never arrived at such maturity of thought as to fit them to begin language.

Dr. DRUMMOND (Newcastle-on-Tyne) would make a few remarks upon the subject under discussion. Much had been written upon the subject; and the physician-philosophers had, apparently as with the hands of an iconoclast, swept away the sweetly simple image which in his student days bore the name of aphasia. Some writers had endeavoured to divorce amnesia from aphasia; and he trusted it would be decided, to-day, whether or not such a separation was scientific. He thought it was not. He preferred yet to consider that aphasia included amnesia. It used to be held that there were two types of aphasia; the ataxic and the amnesic. The first might be said to be more physiological and mechanical than psychological, and was evidenced by an inability on the part of the patient to speak, because he could not translate mental into physical speech. In other words, in this impairment, the incitations to the muscular acts engaged in articulate language, emanating from those mental receptive and reproductive centres, were blocked in another centre (Broca's convolution), whose function was to co-ordinate these complex mental actions involved in the intelligent expression of words or propositions. In amnesic aphasia, on the other hand, the defect was more intellectual than physical, and it precluded the patient from receiving and reproducing the verbal equivalents of things or ideas on account of damage to those centres which were purely mnemonic in relation to speech. In his opinion, patients whose impairment was purely ataxic, were scarcely ever met with. They nearly all displayed some mnemonic defect, and were therefore more or less amnesic; in fact, it was almost impossible from the nature of things to affirm that a patient who could not speak, who was aphasic, was not amnesic. With reference to the mental state of the aphasic, in Dr. Drummond's opinion, it could not be said to be intellectually intact. A patient with aphasia came to him recently, whose defect consisted principally in forgetting names of places, and who was considered by his friends as mentally intact; nor could he detect any impairment in this direction; but in his business-relations he was considered unreliable.

Dr. JAMES ROSS (Manchester) thought it was much better to retain the old division of ataxic aphasia and amnesic aphasia, but would prefer to call them motor aphasia and sensory aphasia. Motor aphasia was really of a paralytic nature, the special movements of articulation and vocalisation being paralysed and the general retained. This opinion was proved by the fact recorded by Dr. Barlow, in which a bilateral lesion of the third frontal convolution had produced paralysis of the muscles of the general movements of the month, tongue, and jaws, as well as of the special movements of them which were alone engaged in speech. Correlative facts with regard to sensory aphasia had been recorded recently by Wernicke and Dr. Shaw of Brooklyn with regard to sensory aphasia. In Wernicke's case, the patient became the subject of word-deafness after a slight apoplectic seizure, and completely deaf after a second seizure; and at the necropsy, the first and second temporo-sphenoidal convolutions were found softened on both sides. In Dr. Shaw's case, the patient became blind, deaf, and aphasic, and at the necropsy the angular gyri and superior temporal sphenoidal convolutions were found atrophied in both hemispheres.

Mr. G. A. WOODS (Southport) said that the definitions of aphasia were numerous; for instance, *(a)* the loss of intelligent expression; *(b)* the loss of speech, but not of words; *(c)* impairment or loss of speech. He had endeavoured, with some difficulty, to define aphasia as loss of ideal perception, but not of utterance; or, better, loss of faculty of generating, or, after generating, mentally assimilating words to correctly represent intelligent expression. He divided aphasia into two classes for practical purposes: 1, aphasia permanent, more or less—disease; 2, aphasia temporary—disorder. In the first class, viz., that from disease, the patient had in some way suffered the loss of the nervous arrangement which had been

trained in the production of intelligent expression, but retained his will to speak. He had usually the power of utterance, but his utterances were either mistakes in words or ataxy of articulation. In the second class, viz., that from disorder, the patient retained the nervous arrangement necessary for the production of speech, but from certain causes had lost the will to put this arrangement into action, and so long as this condition lasted there was a total non-utterance of words—disorder. For instance, in migraine aphasia was sometimes noted. This he believed to be caused through vaso-motor influence causing contraction of cerebral vessels, and so rendering certain portions of the cerebral cortex anæmic. In epilepsy it was sometimes seen, and it was usually preceded by twitchings about the mouth, face, and hands; and he believed it questionable which of the two factors caused the inhibition, whether epilepsy or contraction of vessels from vaso-motor supremacy. These two states, disease or disorder, might be formulated thus. One could will to but could not speak from breach of continuity of nervous tissue when, in the majority of cases, the paralysis was on the right side. The other could not will, therefore could not speak, from loss of will when the paralysis or paresis was on the left side. To condense further: one had tissue-loss of either in-coming or out-going currents; the other loss of will. Subjective speech, or thought, and objective speech, or intellectual expression, must both be the resultants of cerebral molecular change. Taking into consideration both cerebral hemispheres, one might be led to believe, and, he thought, with some truth, that the portion of the right hemisphere, viz., the third frontal convolution in the island of Reil, through an impression transmitted through the auditory centre to the kinæsthetic word-centre, would arouse in the centre certain nerve-cells, the result being the formation of words, but only in "embryo." To be perfectly developed, these words were transmitted by commissural fibres to the left third frontal convolution, where they were further developed or intellectualised into subjective speech, or thought, whence they were transmitted by outgoing fibres to the lower ganglion, viz., the left corpus striatum, and ultimately became, by the aid of the muscular force of articulation, transformed into objective speech, or intelligent expression. There thus was a cycle of change: through the auditory centre, beginning by sound, ending by speech or sound; through the visual centre, beginning by sight, ending by writing—noiseless. A practical point was that, in paralysis with aphasia, if the leg were more paralysed than the arm, the aphasia was always less; and Dr. Bastian pointed out that the intellectual impairment was usually increased if the lesion of the left hemisphere receded in site from the third frontal convolution and approached the occipital lobes. He had especially noted this in a case of his own.

Mr. ARCHIBALD CAMERON (Liverpool) commented on the tendency of aphasia to appear in near relations, and on the fact which, he thought, would be shown, that aphasia might be, and often was, present without any tendency to agraphia; and, on the other hand, that agraphia might be present without aphasia. He brought forward some cases in support of these points. The first had been under his observation for some years. A C., a man aged 67, thirty years ago had an attack of fever, called by the medical man typhus, but he believed it was of a rheumatic character. After recovery from this, paralysis of the lower limbs came on. He had repeated attacks for three years, and was in the Liverpool Royal Infirmary twenty-six years ago. Two years afterwards the speech was affected, first for four days, then for nine days. He entirely lost his speech during these attacks, but could write, and his intellect was clear. He had not had loss of speech for some years, but had had repeated attacks of paraplegia. His own description was that the attacks came on when he was recovering from cold. The first symptom was a nervous feeling in the hands, and afterwards the legs became affected, and there was a difficulty of passing urine. When the urine was free, he was less likely to have paralytic symptoms. Trouble and anxiety might bring on paraplegia. The man stated that he never had any venereal affection. The urine was healthy and, when Mr. Cameron examined it, of specific gravity 1009. This was when he was recovering from an attack. Mr. Cameron was inclined to think that the paraplegic attacks were of a rheumatic character. The man had a daughter aged 32, of somewhat weak intellect and feeble bodily health. She had, on several occasions, lost her speech for varying intervals. On one occasion, after her mother's death, for nearly ten months she was troubled with round worms, which she occasionally vomited. There was always a hesitancy about her speech, and she had a dull stupid expression of countenance. As further showing the tendency to aphasia in near relations, he mentioned the following case, where several members of the same family were affected. The parents were apparently healthy, and in no way related. The two eldest children were not defective, but the third, now aged ten, would only speak odd words at times, and seemed as if she could not connect her sentences, or put words properly into sentences. She had whooping-cough at the age of from five to seven months, and afterwards, at intervals, suffered from fits. She was undersized, but could read and write. Her sister, aged 9, could read and write, but spoke much as the elder one. Another child, aged 7, had bow-legs and was undersized; she spoke much as the others, but her mother thought it was due to shyness, and her habit of emulating the others. The mistress of the school in which they had all been for some years, was not of this opinion. They had all been carefully trained in a board-school, and could read, write, and do sums, a striking illustration of the fact that agraphia and aphasia were in no way necessarily connected. The parents had lost several children in infancy; and it was worthy of note, that the three children affected with aphasia had rather a vacant look, with large development of the lower part of the face. In further confirmation of the fact that agraphia and aphasia were not necessarily connected, Mr. Cameron referred to the case of a lady about 40 years of age, who suffered from a complication of anomalous nervous symptoms, one of the most prominent of which was a loss of the power of writing; but here there was never, in her case, any tendency to aphasia. Facility in speaking and in writing seldom co-existed in the same individual, and fatigue was usually much sooner shown in one faculty than in the other.

Mr. T. MARK HOVELL (London) called attention to the following case. W. S. G., a telegraph-clerk, employed at the General Post-office, London, left his home at the usual time on Monday morning, April 2nd, 1883, but did not return until past midnight on Tuesday, when he came in appearing much exhausted, and so weak that he could hardly eat a thin slice of bread and butter that was given to him. He related in a weak voice what had occurred to him. There were marks on his temples and wrists, such as would be produced by their being tightly tied. The next morning (April 4th), he was unable to speak, and appeared upset at the loss of his voice, which did not return until Saturday, April 14th, when, whilst eating an orange, some of it went the wrong way, and caused him to cough violently for some minutes, immediately after which his voice returned. During the time that he was unable to speak, he readily wrote the answers to questions that were put to him. He stated that, as he was leaving the Broad Street Station on the Monday morning, a man came up to him and inquired if he was W. G., and, on his replying in the affirmative, said that a friend of his had just come from America and brought some news from his (G.'s) brother, but as his friend had experienced a rough passage he was unable to leave the house, and therefore wanted G. to go to him. As G. was walking along a court with the man on his way to the house, his eyes were suddenly bandaged from behind, he attempted to snatch the bandage off, and then found that it was covered with a shade similar to that worn by people with weak eyes. On his remonstrating with them, for there were now two men; something, which he thought was the muzzle of a pistol, was put against his forehead, and he was told that he was only wanted to answer a few questions, and would soon be released, but if he made the least outcry or attempted to escape they would not answer for his life. He was taken to a house and questioned by men as to the number of police on duty at the Post-office, the position of the engine-room, etc. He was then bound, with his hands behind him, and one of the men remained in the room until the evening, when he was taken to a cart, and made to lie down on the bottom, and then driven a considerable distance. He was taken to another house, and again questioned by more men, after which he was again threatened, and then thrust into another room, where he remained until Tuesday evening. He was then taken to a cart and made to lie down as before, and after being driven some distance, he was put over the back of the cart, and, as his knuckles were knocked, he was obliged to let go his hold of the cart, and in consequence fell in the road. When he recovered himself and removed the bandage, which had been tied very tightly, from his eyes, the men were out of sight. He walked home, a distance of about ten miles, and reached there in the condition before mentioned. He had nothing to eat or drink between the time of leaving home on Monday and reaching it again on Tuesday night. On April 11th, Mr. Hovell examined him with a laryngoscope; the vocal cords moved evenly and met in the middle line, but they appeared to lack proper tension. His pulse was feeble. The sudden death of his father, a few months before, had materially altered his prospects in life, and the state of his health had in consequence been depressed. Although W. G.'s statement was an unusual

one, it must not be forgotten that he had always borne a good character, and his landlady stated that during the time he had lodged with her, nearly four years, she had always found him to be steady and particular as to his time of coming home. Treatment such as he described was sufficient to produce emotional aphasia; and Mr. Hovell considered that his speaking, although in a feeble voice, on his return home, and the complete loss of voice not appearing until the following morning was in favour of the condition being real, and the restoration of his speech after a violent fit of coughing supported the view that it was not wilfully suppressed. A severe fit of coughing brought on by a foreign body in the larynx would stimulate the muscles to violent exertion, and produce an effect similar to that caused by the application of a current of electricity. Even if W. G.'s statement had been disproved, it would not follow that the dumbness was feigned; the cause was one thing, the effect another. W. G. had been dismissed from the Post-office service, and informed that the authorities had come to the conclusion that his statement was a wilful concoction to cover absence from duty, and that it was the opinion of the medical officer to the Post-office that his dumbness was feigned. Not only, therefore, had his employment been taken away, but he had been branded with falsehood and deceit.

Dr. ALTHAUS, Dr. WAHLTUCH, Dr. DRYSDALE, and Dr. GLYNN also made remarks.

Dr. GAIRDNER, in reply, said that perhaps it would be best for him to allude first to the points last brought up in discussion, and on which a special appeal had been made to him. The case of Lord Denman, and not a few other cases, appeared to show that aphasics might retain all the affections, emotions, and intellectual activities of the state of health, in so far at least as their limited faculties of expression allowed us to judge of what was passing within. But this judgment was necessarily difficult and uncertain; and we were not in a position to declare, as to any individual aphasic, that he was or was not in possession of all his faculties, except the one most obviously lost. Dr. Broadbent's idea, that a congenital aphasic, otherwise sound, would grow up much like a highly intelligent dog, was not very far from his (Dr. Gairdner's); but it was difficult to be sure that one had witnessed such a case. On the whole, the position he would be inclined to take in a court of law, with reference to aphasics, would be to avoid, as much as possible, being drawn into general discussions, but to entertain the question as one of evidence, whether in the particular case there were available facts, amounting to a presumption of so much mental capacity as to carry the legal inference required. There could be no doubt, for instance, that aphasics would for the most part be responsible in cases of crime. Whether they would be able, in law, to assent to or emit a deed, would depend altogether on the amount of proof that could be obtained as to their being capable of understanding its contents; and this would be difficult, though perhaps not altogether impossible, to obtain in most cases. Dr. Gairdner agreed with some of the speakers, that the division into amnesic and ataxic aphasia was not a satisfactory one; but, in the meantime, all classifications must be taken as provisional, and, in this sense, as mere indications of clinical facts. He by no means objected to the terms "word-deafness," or "word-blindness," but thought them very inconvenient. He was afraid it was impossible to give an opinion with any confidence on the intricate questions of evidence involved in the case narrated by Mr. Hovell.

ON SOME POSTEPILEPTIC PHENOMENA.

Read in the Section of Medicine at the Annual Meeting of the British Medical Association at Liverpool, August, 1883.

BY JULIUS ALTHAUS, M.D., M.R.C.P.Lond.,
Senior Physician to the Hospital for Epilepsy and Paralysis, Regent's Park.

IN this communication, I wish to draw attention to certain either acute or chronic alterations of the mental faculties which have fallen under my notice, as direct consequences of epileptic attacks. I shall purposely exclude, in discussing this matter, any cases in which epileptiform seizures took place in consequence of gross organic lesions, such as tumour of the brain, chronic inflammation of the membranes and the grey surface of that organ, blood-poisoning of various kinds, and other diseases in which the convulsive paroxysms were only one symptom amongst many others; and I shall confine myself strictly to the consideration of those cases in which epilepsy occurred as a true neurosis, that still mysterious and unexplained functional disease of the grey matter of the brain, which is possibly owing to some kind of imperfect nutrition, but certainly not to any such structural alterations as would reveal themselves to our present means of research.

The paper is based on an analysis of the cases of 250 epileptic patients which have been under my care, in private and hospital practice, during a period of six years. Amongst these cases there were 89, or 35.6 per cent., in which no perceptible temporary or permanent alteration in the mental condition, which could be ascribed to the epilepsy, was to be ascertained; while in 161 cases, or 64.4 per cent., such alterations did occur. Of the 89 cases which escaped mental deterioration, 61, or 68.5 per cent., were instances of nocturnal epilepsy, while in 28, or 31.4 per cent., attacks took place in the daytime. All, however, which escaped were cases of typical convulsive attacks; while, in all cases of loss of consciousness without convulsion, or *petit mal*, and epileptic vertigo or automatism, a more or less permanent mental alteration was induced. Amongst the 161 cases which were followed by mind-affection, there were:

123 cases (or 76.5 per cent.) of typical convulsive attacks;
26 ,, (or 16.1 per cent.) of *petit mal;* and
12 ,, (or 7.4 per cent.) of epileptic automatism.

Amongst these patients there were 91 males, or 56.5 per cent., and 70 females, or 43.5 per cent. The ages of the whole series varied from 5 to 62; and when these were distributed over decades, it appeared that the decade from 5 to 15 was at the bottom of the list with 10.5 per cent.; while that between 15 and 25 headed the list with 24 per cent., the other decades being very nearly even, with a medium of about 16 per cent. The hereditary influence was marked in 66 cases, or 40.9 per cent. The nature of other predisposing or exciting causes, as far as they could be ascertained, did not appear to have exerted any special influence, since they were much of the same kind as in those cases in which the mind was not affected. I will, in passing, remark, that I have excluded from the present considerations those cases which were apparently owing to injury to the head, syphilis, and masturbation, as these are of a complex character, and will be subsequently considered.

The cases, therefore, which form the groundwork of this paper, are only such where epilepsy was the primary event, and where some mental disturbance was observed subsequently to, and as a direct consequence of, the attacks. There are two forms of this disturbance; viz., an acute one, where mental symptoms occur soon after attacks, and disappear again after a certain time; and a chronic form, in which there is a gradual and permanent loss of mental power consequent upon attacks.

The characteristic feature of the acute form of postepileptic mental affection is its periodicity. Identical, or at least highly similar, symptoms are seen to occur year after year, and gradually become intensified, unless they be checked by active treatment. They do not always occur immediately after attacks, but occasionally a day or two afterwards, and last a variable time, but rarely longer than a week. After such an attack is over, the patient has mostly no recollection whatever of what has occurred.

I will now relate as briefly as possible the particulars of a case which was some time ago under my care, and which I consider well suited to illustrate this pathological condition.

An unmarried lady, aged 57, had for three years suffered from epileptic seizures when she came under my care. No cause could be assigned for this illness. There was no neurotic tendency in her family; she had lost her catamenia ten years before, without any trouble; her general health had been good, and her life comparatively uneventful, although well employed. She had had no anxiety, and her habits had always been regular and temperate. From the first, the disease had followed such a regular course that it was possible to predict, with a great degree of accuracy, the time when attacks would take place, and what would be their consequences; and this course had not been influenced by the treatment which the patient had undergone.

The usual sequence of events was as follows. Having gone to bed as usual, and slept the first part of the night, she has, generally between 3 and 5 A.M., a sort of convulsive munching and swallowing in the mouth and throat, which lasts one or two minutes, and which is accompanied by a rolling or rumbling noise in the stomach. There is rhythmic action of the muscles of mastication and deglutition, as one sees it in the ruminating of sheep. After this munching and swallowing is over, she relapses into a quiet sleep, from which she awakes in half an hour or so, in a bewildered state of mind, asking what day it is, what o'clock it is, over and over again, and being quite incapable of collecting her thoughts. Her attendants then give her some medicine, which she swallows, and then goes to sleep again, awakes in a few hours for good, quite herself again, and has not the slightest recollection of anything that has occurred. Such attacks are followed by a slight but perceptible loss of memory, and occur generally at intervals of from ten to twelve days.

Sometimes, however, there are two or three such attacks in one night.

More severe attacks take place every four to six weeks. These also begin with munching and swallowing; but then she does not awake at all, but lies, with her eyes wide open, quite unconscious for hours. After a time, a tremulous motion of the whole body is observed, and a half-suppressed noise in the throat. The tremor soon becomes intensified into convulsion; the head turns round to the left side; a moaning sound is produced, the eyes are turned upwards; and this convulsion, which is at first tonic and afterwards clonic, lasts from three to ten, twenty, and even twenty-five minutes. The head then gradually turns back, and the eyes close; and a sort of heavy puffing comes on, with a slight flow of saliva from the mouth, the face being a good deal flushed. The tongue is not bitten, which is perhaps accounted for by the patient having lost all her teeth, and wearing a set of artificial ones, which is habitually removed at bedtime. The excretions are not passed into bed.

Sometimes there is only one such great convulsive attack, but she has had two, three, and even five, in succession, in the same night. After the convulsion she falls into a deep sleep of some hours, then awakes for an instant, opens her eyes, complains of violent headache, and again becomes comatose. She awakes again after a few hours, complains of her head, and sometimes recognises those about her, while at other times she takes no notice whatever. Towards evening of such a day, however, she becomes wakeful, conscious, and collected, and then falls into a sound natural sleep, which generally lasts till morning.

The second day she complains of pains all over, and, although remaining in bed, gets no sleep all that day, nor the following night, and she then becomes very restless, feverish, and delirious; the pulse is 120, and sometimes 140; the temperature is 102°; she hears voices and sounds; the screaming and screeching which is going on all around her is, she says, dreadful; she sees terrible visions, and talks incessantly and quite incoherently, in a highly pitched voice, repeating constantly religious hymns, which is the only thing that gives her comfort. This goes on for two or three or more days and nights, until sleep ensues, and the mind then gradually recovers its tone; and in a few days she appears as well as ever, until another great convulsive attack comes on, when the same phenomena are repeated.

Since the commencement of her illness the patient has been subject to the delusion that a cock, in a yard adjoining her house, was speaking to her, repeating constantly the name of her medical attendant, Dr. A. The bird was ultimately removed, at the particular request of the patient's friends; and on returning home from a journey, she immediately missed it, and said she thought it must have died. This cock was an only one, in one yard; in another yard close by, there were others, but they did not affect her at all. The patient's friends were quite unconscious of any difference of sound between the crowing of any of them. After some months had passed, the offending bird was, unknown to the patient and her friends, brought back, and was immediately detected by the patient as always calling out Dr. A.'s name and other things. Soon after this, they came to London to place the patient under my care; and although they occasionally heard cocks crowing there, she did not mind them at all. When she returned home, the offender had again been removed; there were, however, others which were very noisy, and disturbed the patient's friends a good deal; but she slept so well herself that she did not notice them. As her sleep, however, lessened, she began to notice them, about the same time complaining of her head. She said that these cocks were all saying: "just going away by the railway, away, away;" wondered that her friends did not hear them distinctly say so, and felt sure that they were taught by the school-children as they passed by, for their amusement.

The patient never had any recollection, after recovering from the attacks, that anything unusual had taken place. She sometimes refused to take medicine, insisting that there was nothing the matter with her. When a medical man was consulted, she said that her friends were deceiving him, that she was quite well, and it was extraordinary that they should always think her ill.

Another peculiar symptom in this patient, which, however, occurred only off and on, was a dream of some horrible smell, three or four nights before a great convulsive attack would come on. On waking in the morning, she would ask her attendants why they had put such a horribly smelling ointment into her hair; she had dreamt the whole night of it; she was smelling it now; and for the next few hours was constantly sniffing, and complaining of other bad smells in the house, which did not exist; then she would cease to mention the subject, and three or four days afterwards a great attack would come on.

This patient remained for a considerable time under my care, and eventually recovered to a very great extent from her illness. I found that the postepileptic delirium, which constituted the most alarming feature of the case, more especially as it was gradually becoming more severe and prolonged, was quite, or very nearly, uninfluenced by sedatives, of which I used morphia, atropia, henbane, cannabis Indica, and hydrocyanic acid; but that it yielded almost at once, and like a charm, to full doses of quinine. When I first used this latter drug, the delirium had lasted for five days, and showed symptoms of aggravation rather than abatement as time went on. The first dose of four grains of quinine, dissolved in hydrochloric acid, diminished the "screeching," of which she had chiefly complained, very considerably; after a second dose, she heard some voices quite at a distance, but not so as to alarm her; after a third dose, all delusions had vanished, and she was perfectly quiet and rational. Having ascertained this, I ordered quinine, during the further progress of the case, to be taken the first day after a great attack, so as to prevent the occurrence of delirium; and the drug proved equally efficacious as a preventive as it had done as a curative. The patient is still alive, and has never since had further attacks of postepileptic delirium.

The epilepsy itself proved more troublesome, but yielded ultimately almost entirely to treatment, in which hyoscyamus, atropia, and bromide of potassium played the principal part. The patient has for years been free from munching and swallowing, as well as from great attacks; but, when discontinuing certain medicines altogether, has had occasional relapses, which have again yielded when the treatment was resumed.

An interesting symptom in this case was the character of the smaller attacks. It has lately been asserted that the epileptic discharge never, or hardly ever, originates in the medulla oblongata, but always in the grey matter of the hemispheres. The case which I have just related shows that it may commence in the medulla oblongata as well as in any other portion of the brain; for the convulsive munching and swallowing which I have described point clearly to the grey nuclei of the minor portion of the fifth nerve and the pneumogastric, which are situated on the floor of the fourth ventricle, as the principal portion affected. No doubt the higher centres did not escape the pathological influence, as shown by the loss of consciousness, the olfactory aura, and other unmistakable signs; yet it would be pushing a theory to unjustifiable extremes to deny, in the present case, that the grey nuclei in the medulla oblongata were particularly and primarily affected.

Similar attacks of delusions, hallucinations, and religious excitement, with subsequent utter forgetfulness of what had occurred, took place in twenty-two out of the 161 patients, or 13.6 per cent. Mania, with ideas of persecution, was observed in twelve patients, or 7.4 per cent. In them, the prevailing notion was, that secret poisoning was intended, or that murderers were hidden under the bed or behind a door, or prowling about the house. A quiet happy delirium, in which everything was delightful, and the patient had actually entered paradise, occurred in three cases, or 1.8 per cent.

The remaining 124 patients, or 77 per cent., suffered from chronic loss of mental power, and the degrees of this varied from simple deficiency of memory and slight faultiness of judgment, to complete imbecility. The number and severity of fits which took place, appeared to have had no determining influence on this condition. In the most severe case of this malady which has ever been under my care, and in which more than 10,000 well marked epileptic fits had taken place when the patient came under treatment, the mind was, even at the worst stage of the disease, hardly at all affected. The patient made a good recovery, and has now been perfectly well for eighteen years. She is now a lively clever woman, a great conversationalist, with an excellent memory, of whom no one, who was to meet her in society, would imagine that she had successfully stood the ordeal of such an awful complaint.

The chronic form of postepileptic mind-affection, is, in general, equally characteristic and peculiar as the acute form. Sometimes sooner, sometimes later, there is a kind of dulness, stupidity and hebetude, which is betrayed to the observer at the first glance by the vacant and silly facial expression of the patient. He often does not know that he has had an attack; when questioned, he gives no answer, or an inappropriate one. His articulation is generally affected; his memory, for recent events, is impaired, while he still remembers very well things which happened long ago. His temper becomes sullen and morose; and this appears sometimes to come

on spontaneously, while, in other cases, it is evidently the consequence of being at complete variance with his surroundings, and, so to speak, at war with society. The epileptic finds all the avenues of life closed to him. When he has had a fit in an office or a workshop, he is generally discharged from his situation, and finds it difficult, or impossible, to procure another one; he is shut out from most hospitals and convalescent institutions by special regulations, and is a source of terror to his family. The younger members of the family are often withdrawn from intercourse with him, for fear of their becoming infected with the epileptic habit. He therefore considers himself ill-used and unjustly treated, and gives vent to his indignation at the slightest provocation. Feeling himself, as it were, alone in the world, he becomes in turn utterly selfish, and loses all regard for his friends and relations.

This feeling of isolation often makes him turn towards Heaven as the only consolation left to him. The only book which he reads is the Bible, and he seeks, by constant prayer and devotional exercises, to induce Providence to work a miracle in his favour and cure him. There is a deep inner consciousness that he is the subject of a dreadful malady; and this distinguishes postepileptic imbecility from other forms of mental disease, where the patient is quite unaware that there is something the matter with him. Yet he does not like to be considered a fool; and, like the cad who insists that he is a gentleman, or like the inebriated who swears that he is perfectly sober, the epileptic endeavours to impress upon people that his mental faculties are as good as theirs, and he therefore launches out into those endless arguments about trifles, more especially relating to himself, his habits, his diet, etc., which constitute him, even at best, an intolerable companion, and try the patience of his friends and medical attendants to the utmost.

Some time ago I had such a patient under my care who would, if I let him, discourse by the hour on the virtues of Ind, Coope, and Co.'s ale and its superiority, in his case, to porter. This man, although generally stupid, had a good head for figures; and he was improving, not only as far as fits were concerned, but also in his mental peculiarity, when one day he went to take a warm bath in a public establishment, and was soon afterwards found drowned by the bath-attendant, having evidently had a fit while in the water.

Treatment has much influence on this condition. Large doses of the bromides often increase the mental hebetude, indeed, sometimes seem first to produce it. On the other hand, quinine, phosphorus, strychnia, and arsenic, act as tonics to the mental faculties; and, as to the degree of efficiency of these latter remedies, I consider that they rank in the order in which I have just named them.

In many cases, however, more especially in out-patients of hospitals, whose attendance is often irregular, where the treatment cannot therefore be systematically persevered with, and the circumstances at home are unfavourable, things often go from bad to worse. The memory becomes more thoroughly impaired, even for events of the far past; there is an apparent impossibility of receiving new impressions; conversation with the patient is difficult, although he may still write an intelligible letter. Almost to the end, the consciousness of being an outcast, of bodily illness, and of mental deficiency, survives, and poisons the last hours of the unhappy sufferer.

It has been asserted by some observers that the same deterioration of cerebral nutrition which gives rise to the epilepsy, also causes the various mental affections from which so many of these persons suffer. I hope I may have succeeded in the foregoing remarks in showing that such is certainly not the case for a large number of epileptics, in whom the mental affection is truly postparoxysmal. We meet, however, with cases in practice where it is difficult, and sometimes impossible, to speak decisively on this point; and these are chiefly cases where the illness is owing to injury to the head, masturbation, or syphilis.

Injury to the head is not unfrequently mentioned as a cause of epilepsy, although often no trace of such an injury remains. In such cases, it has appeared to me in general most probable that both the epilepsy and the mental affection were owing to a common cause, although attacks are seen to increase mental dulness. Injury to the head often leaves a distinct mark on the intellect from the first, even if not severe enough to break bones or to lead to actual surgical concussion of the brain. There can be little doubt that it impairs the nutrition of the nerve-cells of the grey matter, perverting their energy and diminishing their resistance; and it thus eventually conduces to intellectual decay or perversion, and also to epileptiform seizures. Cases of this kind have purposely been omitted from the present consideration.

I have also excluded cases of epilepsy which were apparently owing to masturbation. With regard to the causative relationship of the two conditions, I can quite corroborate an observation of Dr. Gowers that, in some of these cases, the attacks are more of a hysteroid description, or intermediate between hysteroid and epileptic; but there are also cases of perfectly typical epilepsy, in which no other cause, more especially no inherited neurotic tendency, could be discovered, and where the manner of evolution of the disease left no doubt on my mind that masturbation was the real cause of the complaint. In some of them, there was complete imbecility, but the history of the cases showed that the mind had been greatly clouded before any epileptic seizures took place. The imbecility however, appeared in general deepened after attacks.

I feel convinced that such cases are often treated for years, without either the friends of the patient or the medical attendant being aware of the cause of the complaint. Inquiry is often difficult, and always painful, more especially in girls; and only an accident will sometimes lead us on the right track. Some years ago, I was consulted in the case of a young lady who suffered from several kinds of fits, the slighter ones of which occurred about twenty or twenty-two times a day. It was impossible to discover any cause by the strictest inquiries. Treatment was instituted, but did not prove successful. About a twelvemonth afterwards, I received information from the sister of the patient, who had gone with her on a visit to friends, and on that occasion shared her bed, that the girl was in the habit of masturbating violently every night. The sister then suddenly remembered that, some years ago, she found the patient scores of times shut up in her room, and violently agitating herself, and that she did this even out of doors, as soon as she thought herself unobserved; and that the first epileptic attacks took place about fifteen months after the first such observation had been made. In this case, symptoms of mental hebetude and perverseness certainly preceded the outbreak of the epilepsy. In my male in-patients in the hospital, the nurses have many times drawn my attention to this habit. Circumcision, blistering, and in some instances deep and frequently repeated cauterisation of the glans penis, and in women cauterisation of the clitoris with the solid stick of nitrate of silver, often produce the greatest benefit under these circumstances.

Patients who have had constitutional syphilis, and afterwards epilepsy and mental alteration, have likewise been excluded from the cases which form the groundwork of this paper for similar reasons. The relations of syphilis and epilepsy are not yet well ascertained. It is well known that gummatous tumours and meningitis on a specific base will give rise to epileptiform seizures; but in such cases there are generally so many other symptoms, that they are not likely to be mistaken for idiopathic epilepsy. A short time ago, I was consulted in a case which was believed to be epilepsy, but where I found, besides a history of unilateral epileptiform convulsions, also loss of power in the left side of the body, extreme tenderness on cranial percussion in an area corresponding to the right central convolutions, severe paroxysmal headaches, and optic neuritis. The patient, who had taken bromide ineffectually, recovered almost completely under mercury and iodide of potassium. There are, however, cases in which typical epileptic seizures occur in undoubtedly syphilitic subjects, and may be preceded or followed by mental deterioration. It seems to me rational to assume that, in these cases, both the epilepsy and the mental decay are caused by the effects of the syphilitic poison on the brain; anyhow, I have not been able to satisfy myself that the loss of mental power in them was purely postparoxysmal.

THE TREATMENT OF NÆVI.

Read in the Section of Surgery at the Annual Meeting of the British Medical Association in Liverpool, August, 1883.

BY WM. MARTIN COATES, F.R.C.S.Eng.,
Senior Surgeon to the Salisbury Infirmary.

HAD I not seen in the agenda of this Section the notice of a paper by Mr. Edmund Owen, on the treatment of large nævi, this communication might not have been presented to your notice to-day.

Having, for many years, given some attention to the cure of the different kinds of nævus, I thought it a good opportunity of making known to you my experience, especially as I think that I have something new to say.

The treatment of superficial venous nævi, found by me to be painless, safe, scarless, and certain, but little known, or, to speak more correctly, almost forgotten, was worked out by the late Dr. Marshall Hall. His object was to excite just so much increased action in the

growth as to cause deposition of lymph and occlusion of its vessels. He, for this purpose, introduced a cataract-needle at about a line from the circumference of the nævus, and passed it from the point of its entrance to the opposite extreme edge of the growth, keeping it in all its course as near as possible to the surface. The needle was then withdrawn almost to its point of entrance, and pushed again through the nævus at about the sixteenth of an inch from the line of the first puncture, and so on until the lines of puncture took a fan-like shape. It is desirable to keep the needle as close as possible to the surface, though, should it penetrate the thin covering of the growth, a piece of adhesive plaister arrests the bleeding immediately.

There is no need of breaking up the structure of the nævus, as has been recommended. The way in which Nature perfects the cure is very beautiful. A small white spot soon makes its appearance in the centre of the growth; this gradually spreads, and there is left in a few months a spot perfectly smooth, and whiter than the surrounding skin. A few months should be allowed to pass before following Dr. Marshall Hall's advice to puncture again, as I have never found it necessary. One operation has invariably succeeded in the superficial venous nævus. My first case was a boy aged two years, an out-patient at the Salisbury Infirmary. He had a superficial blue nævus, of the size of half a crown, on the left side of his chest. I operated as above described. He did not come again. A year afterwards, I got his address, and paid him a visit. The nævus had entirely disappeared, leaving in its stead a spot smooth and whiter than the surrounding skin.

Now that we have safe anæsthesia, there need be no pain in the treatment of such cases.

To Dr. Marshall Hall belongs undoubtedly the merit of the discovery and perfecting of this philosophical and successful treatment. It is, it seems to me, a beautiful instance in which, as in congenital cataract and talipes, Nature awaits the beneficent interference of the surgeon, and then does her part perfectly.

The bright scarlet or arterial nævus, whether it appears as a small bright spot, or as a patch measuring one or two inches in diameter, or, again, as one or two minute arterial branches, requires a more pronounced treatment, based, however, on the same principle—stimulation, not destruction of tissue.

My first case of minute arterial nævus occurred in a young bride. It was on the left side of her nose. It was, she said, increasing. Nitric acid would have left a pit. I made a puncture into the bright spot with a bleeding-lancet, and then passed into the small incision a point of nitrate of silver, holding it there for a few seconds; this we all know is a stimulant, not a caustic. This cured the nævus, leaving no scar. The needle would have been useless in such a case. When there are several minute arteries radiating just beneath the cuticle, nothing but destruction by nitric acid, or tying the part, both of which leave scars, or the following little operation—which, as the next case will illustrate, was discovered by a lucky accident—has succeeded in my hands.

A young lady, aged 15, was anxious to be present at her sister's wedding, which was to take place in three weeks. She had observed a red spot on her left cheek. On examination, there were at this part several minute vessels, which divided into several branches. I had in other cases tried to deal with them by cutting through subcutaneously each trunk and branch by a cataract-needle having sharp edges, but failed.

Nitric acid was undesirable, as was tying, from the attendant pain and inevitable cicatrix. I determined to try the needle again, as, at the worst, it could do no harm. On taking it out from its case, I was momentarily annoyed to find its point broken off; but, after a moments' reflection, I saw how this might be turned to good account. I determined to proceed. I entered the broken needle at a line from the nearest branch, but with the flat of the needle at right angles to the skin, and, pushing it steadily forward, tore through each vessel and branch in several directions. The next morning, a bluish spot had taken the place of the red one, produced evidently by an ecchymosis. This was absorbed in a week, and the case was cured. The cure was permanent, as five years have elapsed, and no sign of the deformity exists.

I have applied this treatment in one similar case since. The spot of enlarged vessels appeared behind the left ear of a little boy, aged two years. It was growing. For this case I had had made, by Weiss and Son, a large needle with a blunt flat end. Under anæsthesia, I, with this instrument, passed, as in the last described case, with the flat end at right angles to the skin, tore through the vessels. Again an ecchymosis took place. This was soon absorbed, and the red spot disappeared, and is now not to be seen.

I have since then applied this treatment in the broad superficial arterial nævi, with invariable success; but they require the proceeding to be repeated two, three, or four times, at intervals of three or six months. In these cases, numerous white spots occur over the whole nævus after a few weeks. These, spreading slowly, join together; and, in a space of time varying from six months to two years, the nævus has disappeared, leaving in its place a portion of white skin, but neither scar nor depression. Large nævi claimed my attention more than twenty years ago, excited by a desire to save little children especially from the agony felt by them for many hours after strangulation or ligature, or destroying the growth by nitric acid, and from the danger of the injection of perchloride of iron.

When a nævus, venous or arterial, exceeds a thickness of one-sixteenth part of an inch, the needle-operation is not applicable. Having failed with it in one or two cases, I looked out for a more effective treatment for what I shall call thick nævus.

During my investigation of the treatment of bronchocele, cold abscess, and hypertrophied glands, I was struck by the power of hardening, contraction, and subsequent absorption possessed by hypodermic injections of undiluted tincture of iodine, and made up my mind to try it in the first case of thick nævus that presented itself. The following case gave me the opportunity.

A. E., aged one year, became an in-patient at the Salisbury Infirmary in the year 1861. This little girl had a venous nævus, of the size of a large walnut, situated on the left eyebrow, from which it hung down, completely obstructing vision in the corresponding eye. When admitted, there was a thread seton which had been passed through the centre of the tumour. The patient's mother stated that there had been no improvement. I was induced to try a treatment recommended at that time by some surgeons. It consisted in making several punctures by a small hot iron. These produced little pits in the skin, but no improvement followed. I then threw into the midst of the nævus, hypodermically, half a drachm of undiluted tincture of iodine. Hardening was the immediate result. This was repeated every month. The nævus soon began to lose its colour and to slowly shrink. In twelve months it no longer obstructed vision. I then lost sight of the patient. As she lived only seven miles from Salisbury, I visited her in 1869, and found that the nævus had entirely disappeared; but the seton and hot iron had left pits which will, of course, last during her life.

Since 1861 I have treated all nævi projecting more than a sixteenth part of an inch from the surface in this manner.

The little operation is very simple. Wood's syringe, with a very fine needle, is the only instrument required. Sufficient tincture of iodine having been drawn into the syringe to fill the nævus, the needle is introduced through the skin at about a line from the circumference of the nævus, and passed to its centre. The piston is propelled slowly home, so as to force the tincture into every part of the growth. This is facilitated by moving the point of the needle into every part of the nævus. On withdrawing the instrument, pressure is made on the small puncture for a few seconds, and the proceeding is complete.

I have practised this treatment many times since the year 1861, with complete success. One injection generally succeeds, sometimes several are required. Usually a slight vesication occurs on the surface of the nævus, then a white spot or spots appear, which spread in all directions until the vessels are obliterated; a slight depression of the surface alone remains.

In two cases the action was more violent and more rapidly curative.

In a little boy who had a small thick nævus in the inside of the upper lip, five minims induced sloughing of the growth, which shelled out, leaving a fine cicatrix. In a little girl, a nævus of the size of a filbert, situated in the left labium, sloughed and shelled out in a similar manner. In these two cases, the abnormal structures could not bear even the gentle stimulus of the tincture of iodine, and so lost their vitality.

I am quite aware that the treatments of nævus that I have ventured to bring before you are not heroic. This, by some, might be thought an objection, but to you accomplished medical practitioners, whose lives are spent in the relief of pain and the saving of life, the bloodlessness, painlessness, and freedom from danger of these proceedings will be an additional recommendation. If by this paper some sensitive patients be saved from the torture of the ligature, the pain and scars of nitric acid, and the danger of the injection of the perchloride of iron, my object will have been attained, and I shall be amply rewarded. This is my ambition, and it is not a trifling one; for it aims at no less an object than the

abolishing several time-honoured proceedings in favour of a system by which they will be rendered unnecessary, and much pain and some danger of life avoided.

ON THE TREATMENT OF LARGE NÆVI.

Read in the Section of Surgery at the Annual Meeting of the British Medical Association in Liverpool, August, 1883.

By EDMUND OWEN, F.R.C.S.,
Surgeon to St. Mary's Hospital; and to the Out-Patient Department at the Children's Hospital, Great Ormond Street.

THE nævi which form the subject of this communication are not of that variety which may be readily or effectually obliterated by the use of ethylate of sodium or nitric acid; they are vascular tumours, varying in size from a dried raisin to a ripe fig, and which, situated in and beneath the skin or mucous membrane, are growing steadily, usually to the alarm of the parents, and sometimes to the embarrassment of the medical attendant.

Marvellous in their ingenuity are some of the snares and ligatures which have been devised for a subcutaneous attack upon them; but, even if the surgeon should have happily succeeded in tightly knotting together the right ends of the ligatures, certain portions of the vascular mass were almost certain to have escaped effectual obliteration, and to have been apparently stimulated by the surgical interference into renewed and vigorous growth; so that the poor child had to be again subjected to a long course of irritation and exhausting suppuration. A great uncertainty, too, attended the treatment by setons of silk or worsted, which had been saturated with a solution of perchloride of iron. Their mode of action was by setting up an active suppurative inflammation; but it happened from time to time that, when the operator had been induced, by the auspicious intensity of the local disturbance, to withdraw some or all of the threads, he experienced the inefficiency of the treatment. The disfigurement, also, which followed on the seton-treatment, was apt to be a serious matter.

Oftentimes, large nævi may be removed by the aid of the scalpel and forceps; but there are certain situations in which such a line of attack is impracticable; as when the whole thickness of the lip is implicated, or when the inside of the cheek, or vulva, or eyelid, is the seat of the growth. The many sittings, and the length of time required, are a serious objection to the employment of electrolysis in all these cases.

When a nævus is large and growing, some prompt and effectual treatment is demanded—one on which thorough reliance may be placed. It is a great point if the surgeon can almost promise that a single operation—and that not of a cutting nature—will be all that will be necessary.

In my experience, all the demands are supplied, and most of the objections avoided, by the treatment of large nævi by that useful instrument, the thermo-cautery of Paquelin. I show you the two blades which I employ; the larger the nævus, the larger the heated point. This small needle-blade is very efficient in dealing with small nævi, or nævoid stainings. The vapour of benzine, pumped through the hollow stem with the India-rubber hand-ball, is ignited at a low temperature, and keeps the point of the blade at any desirable heat throughout the whole operation.

Having been heated to a dull redness, the blade is thrust through the skin in as many places as may be considered necessary, and the point directed to all the regions of the vascular mass: central, deep, and peripheral; each district must be searched out and invaded. The skin-punctures should be made well within the limits of the tumour, as the effects of the cautery necessarily extend beyond the limit of the tissues actually traversed. By the slow and cautious withdrawal of the blade, the small eschars are permitted to remain, sealing the wounded vessels, and thus not a drop of blood need be lost. A few black sinuses, surrounded by a ring of skin which has been reddened by the scorching, remain after the operation, and the tumour is found smaller and firm from coagulation having taken place throughout the entire mass. Oiled lint may be used as a dressing.

For the next few days the part looks angry and swollen, and is evidently painful. Then a slight amount of sloughing takes place, and, in a few days more, some small clean ulcers mark the dwindling mass. The ulcers heal, and cicatricial contraction, taking place throughout the entire mass, determines the process of shrivelling. The integument does not perish, except where wounded; but it loses its old purple staining, from the obliteration of the vessels which formerly brought to it the unsightly injection.

It is unnecessary here to particularise the various situations in which one has thus destroyed nævi; but I may perhaps remark that the most unequivocal successes have been obtained with those tumours which occupied the entire substance of the lip (of which there were several examples); in these, by attacking the tissues deeply from the dental surfaces, one was enabled to reach their dermal limit without implicating the skin in the least. And, whereas the lip had previously protruded greatly, the subsequent cicatrisation of the mucous membrane brought it into the natural position.

A flat bleeding nævus, which occupied almost the entire extent of the mucous lining of the cheek of a grown girl, was treated in much the same manner, and was obliterated in a single operation; indeed, I am at a loss to know by what other means such a nævus could have been effectually dealt with.

Mr. FOLKER (Hanley) related a case of extensive facial nævus treated in the manner suggested by Mr. Owen, excepting that it was done by many applications instead of a single one.

Mr. THOMAS DARBY (Bray) said that, of course, it was understood that different kinds of nævus required very different treatment. A process which would succeed in one case would quite fail if applied to another. The small star-like superficial kind he had removed by passing a cataract-needle at a short distance on the sound skin, and pushing it subcutaneously through the nævus, moving the needle so as to break up the vessels, then applying pressure for a short time to allow the blood to coagulate, and lymph to be shed into the wound. A cure had been effected without leaving a mark. With regard to those larger nævi occurring on the face, which mothers called "raspberry-marks," he had seen them successfully treated by hypodermic injections of absolute alcohol, without leaving a mark.

Mr. SILCOCK (London) often practised an old, now almost obsolete, method of treatment in the case of capillary nævi frequently met with, namely, that of painting them with collodion. These nævi had a natural tendency to atrophy, and the collodion, by compressing the nævoid tissue and driving the blood from it, aided that tendency, and often brought about an actual cure.

Mr. F. J. BAILEY (Liverpool) said that the smaller nævi had been very successfully treated by vaccination; very many on the top of the head, and some on the face, leaving very little mark; and if this were done when the patient was young, the mark wore away with the growth. Since the introduction of the ethylate of sodium, he had used that rather extensively in the smaller nævi with great success; in some of the larger nævi, he had seen very good results follow the use of perchloride of iron.

Mr. COATES said that Mr. Edmund Owen had objected to the injection of fluids into nævi, because the injection of tincture of perchloride of iron had produced death in some cases; but it was well known that the tincture of iron produced coagulation of blood, the cause of danger, whereas tincture of iodine did nothing of the kind; and, as he had for twenty years used this remedy, in the way described, without the least evidence of danger, he pleaded for his treatment the irrefutable logic of facts. The treatment of Mr. Edmund Owen, by what was really the external cautery, produced sloughs and subsequent ulceration. This must be followed by scars, which were not desirable on the face, neck, or upper or lower arm of a girl, especially of the wealthier classes. Mr. Coates had only seen once the result of vaccination, done by a very eminent London surgeon on a child of high rank; and that left scars, but did not cure the nævus.

THE SUBCUTANEOUS LIGATURE OF VARICOSE VEINS.

Read in the Section of Surgery at the Annual Meeting of the British Medical Association in Liverpool, August, 1883.

By W. H. FOLKER, F.R.C.S.,
Senior Surgeon to the North Staffordshire Infirmary.

VARICOSE veins so very commonly come under the notice of every surgeon, and at times give rise to so many troublesome affections, that any improvement or simplification in their treatment is a matter of interest.

Formerly, I generally adopted the method of treatment by a potassa fusa and lime eschar, strongly advocated by the late Mr. Skey, and found it always both effectual and safe, though I must also admit that it was troublesome. This method, however, together with the subcutaneous division of the vein suggested by Sir Benja-

min Brodie, are now things of the past; the only treatment now adopted being ligature or suture.

Either of these, which are applied merely till a clot is produced in the vein, and then removed without completely dividing it, I consider not only unreliable, but dangerous, as clot might subsequently become loose, and be carried up the vein.

Whatever method is adopted, it is absolutely necessary that a complete division of the vein should be effected; but, that accomplished, I think the more formidable operations of slitting up or dissecting out portions of the vein are then quite unnecessary.

A hare-lip pin passed under the vein, with silk twisted over it, is effective if allowed to cut its way through; but it is clumsy, and also very uncomfortable to the patient to have three or four needles in his legs, with the cut ends projecting, however carefully they may be dressed.

The brooch with pad and screw only serves to stop circulation in the vein till a clot is formed; but it does not sever the vein completely, and is, therefore, not to be depended upon.

The plan I now venture to bring before the meeting is that of subcutaneous ligature of the vein; and, I trust, it will be found safe, efficacious, and very simple and easy to apply. It is safe; for the ligature is applied with the slightest possible disturbance of the surrounding parts. It is efficacious, as it completely stops all circulation in the vein for ever afterwards; and I think you will admit that the operation is extremely simple and easy to be performed.

A very small incision is made on each side of the vein, of the width of a tenotomy-knife. The ligature is then passed under the vein with a curved needle, which is made to enter at one incision, and is brought out at the other and withdrawn, leaving the ligature *under* the vein. The straight instrument, which is just sharp enough to go through fat and cellular tissue, but not sharp enough to endanger a vessel, is passed from one incision to the other between the skin and the vein; it is then threaded with the ligature, and withdrawn. The ligature now encircles the vein, with both its ends through the first incision. It is tied as tightly as possible, and the ends cut off closely. If a spot of blood remain, it is to be sponged away, the skin dried, and the incisions pencilled over with collodion, and the operation is complete.

Of course I do not pretend to say there is anything new in tying a varicose vein subcutaneously, though I wish to suggest its more general adoption, as being thoroughly effectual; and I believe that by using the little instrument now shown, the operation may be performed in the easiest manner possible, even by anyone not much accustomed to operating. There is nothing unsightly for the patient to see; and the part may be easily and comfortably dressed.

This last may be considered by some a trivial matter, but many of the patients will be induced to submit to this, who would be frightened at the idea of a cutting operation.

[The instruments were made by Messrs. Weiss and Son.]

Mr. J. R. HUMPHREYS (Shrewsbury) said that he had applied the various methods for the relief of varicose veins, and amongst them the method of subcutaneous ligature; but of late he had cut down on the vein, and tied it below and above, about an inch apart, and cut the intermediate portions. He had had some troublesome cases of varicocele which he had readily cured by this means, and had no bad result.

A CASE OF FEMORAL ANEURYSM TREATED BY INJECTION OF FIBRIN-FERMENT, AND SUBSEQUENTLY BY LIGATURE OF THE EXTERNAL ILIAC ARTERY.

Read in the Section of Surgery at the Annual Meeting of the British Medical Association in Liverpool, August, 1883.

BY F. A. SOUTHAM, M.B. Oxon, F.R.C.S.,

Assistant-Surgeon to the Manchester Royal Infirmary, and Surgeon to the Clinical Hospital for Women and Children.

THOS. H., a strong, healthy-looking man, aged 38, a striker by occupation, was admitted into the Manchester Infirmary on November 2nd, 1882, suffering from aneurysm in the upper part of the right thigh.

He had always enjoyed good health, and there was no history of syphilis, but he had for some time been in the habit of taking large quantities of drink.

Twelve months previously he noticed a small lump in the upper part of the thigh; this had continued of small size until about a fortnight previous to admission, when it suddenly began to enlarge and feel extremely painful. On examination, a pulsatile swelling about the size of an orange could be felt in the upper part of Scarpa's triangle, corresponding in position with the commencement of the superficial femoral artery.

The symptoms characteristic of aneurysm were well marked; the pulsation, which was of an expansile nature, could be readily stopped on compressing the artery against the brim of the pelvis, at which point the vessel could be felt to be considerably dilated. A *bruit* could be heard over the tumour, and a distinct thrill could be detected on laying the hand upon it. Pulsation could be felt in the posterior tibial artery, though not so strong as on the opposite side. The patient was confined to bed, and intermittent pressure was kept up by means of weights and tourniquets for about a fortnight, but without any apparent benefit.

On November 18th, I determined to try the effect of a plan of treatment which has been suggested by Dr. Arthur Gamgee in cases of aneurysm—viz., the injection of a solution of fibrin-ferment into the interior of the sac.

A solution was kindly prepared by Dr. Gamgee, and, with his assistance, one drachm was injected in the following manner. The patient having been anæsthetised, the flow of blood through the tumour was completely arrested, digital pressure being made on the artery above the aneurysm, and an Esmarch's elastic tourniquet being tied tightly round the middle of the thigh below. The solution of fibrin-ferment was then injected into the aneurysm, and the circulation through it was arrested for thirty minutes. At the end of this period all pressure was gradually taken off the vessel above and below, and the blood was allowed to slowly re-enter the limb.

On examining the tumour, it was found that no appreciable change had taken place in the aneurysm itself, though pulsation had entirely disappeared in the vessels below—viz., in the popliteal and both tibial arteries. The following morning the condition was exactly the same, but towards evening (*i.e.*, thirty hours after the operation) the pulsation returned, and could be distinctly felt in both vessels.

I have no doubt, therefore, that the effect of the injection was to cause partial coagulation of the blood in the tumour, but, on the re-establishment of the circulation, the clot, which was not sufficiently firm, was carried on by the blood-stream, and became temporarily arrested in the distal portion of the vessel, where it was afterwards broken up and washed away by the blood.

The patient was then left alone for some days. On November 26th, as the tumour appeared to be increasing in size, and was becoming more painful, it was determined to ligature the external iliac artery without further delay; and preparations were made for performing the operation the following day; but the same night, about 2 A.M., the patient was suddenly seized with excruciating pain in the upper part of the thigh, and the house-surgeon, on examining the tumour, found that the sac had given way, and the aneurysm had become diffused. I was accordingly sent for; and, meantime, digital pressure was kept up on the vessel above the aneurysm. On arriving at 3 A.M., I found that the swelling had lost its defined shape and become diffused over the upper part of the thigh, which was very much increased in size; pulsation, though very much less distinct than before, could still be detected, extending over the whole of the swelling. The limb was slightly colder than the other; no pulsation could be felt in the popliteal or tibial arteries; the patient was extremely collapsed, and complained of severe pain through the limb.

My colleague, Mr. Wright, who had kindly accompanied me, agreed that the best plan of treatment would be to ligature the external iliac artery, and this we at once proceeded to do. The operation was performed in the usual way, with antiseptic precautions; and not the slightest difficulty was experienced in exposing the vessel, which was secured with two chromicised catgut ligatures, placed close together, about an inch and a half above Poupart's ligament. Contrary to what we expected, the vessel was apparently quite healthy at this point. The ligatures were cut short, a drainage-tube inserted, and the wound closed and dressed according to the Listerian method.

As regards the after-course of the case, recovery took place without a single bad symptom. The temperature never rose above 101.4°; and the wound readily healed, with very little suppuration. The effused blood rapidly became absorbed, and there was never the slightest indication of any tendency to gangrene, though, for a time, the limb remained considerably colder than the other.

The patient was allowed to leave his bed on February 1st; and on February 26th was discharged to the Convalescent Hospital at Cheadle, being then able to get about on crutches. At the time of discharge, the greater part of the effused blood had become absorbed.

and there was very little difference in the size of the two thighs; no pulsation could be detected in either the popliteal or tibial arteries.

When last seen, at the end of May, the patient had recovered complete power over the limb, and was going about, following his usual occupation.

REMARKS.—The treatment of ruptured aneurysm is always one of considerable difficulty; various plans may be adopted.

1. *Compression of the vessel above the aneurysm.*—This method has proved successful in certain cases of ruptured popliteal aneurysm (Poland, *Guy's Hospital Reports*, third series, vol. vi); but in the present instance it was inapplicable, as it could only have been applied by digital pressure, and means for obtaining this were not at hand.

2. *Cutting down on the aneurysm, turning out the clots, and ligaturing the vessel above and below the sac* ("the old operation.")—This plan of treatment is recommended by Mr. Holmes (Lectures on the Surgical Treatment of Aneurysm, BRITISH MEDICAL JOURNAL, 1874, vol. i., p. 828) in the case of ruptured aneurysm in the thigh; but it would, I think, have been an extremely difficult operation in the present instance, when we consider the condition of the surrounding soft tissues, viz., extensively infiltrated with blood. Moreover, the artery would probably have been found diseased in such close proximity to the aneurysm, and therefore incapable of holding a ligature.

3. *Amputation of the limb.*—Amputation of the thigh below the hip would, I think, have been unsuccessful, for the patient was extremely collapsed, and the additional shock of a serious operation would, under these circumstances, have probably proved fatal.

4. *Ligature of the main artery at a distance above the aneurysm.*—This was the only method which appeared to offer any chance of success; and, at first sight, this was apparently slight; for the probability was that gangrene of the limb would ensue, owing to the extravasated blood pressing upon the femoral vein, as well as on the anastomotic vessels, and in this way preventing the establishment of the collateral circulation.

The result, however, proves that, even under these unfavourable circumstances, viz., rupture of an aneurysm with extensive extravasation of blood and ligature of the main vessel above the tumour, the collateral circulation may be sufficiently powerful to maintain the vitality of the limb.

The treatment of aneurysm by injection of fibrin-ferment is well worthy of a further trial; but in another case it would no doubt be advisable to inject a larger quantity of the solution, and, at the same time, to keep the flow of blood through the tumour completely arrested for a longer period, in the hope that a coagulum might be formed, sufficiently firm to resist the force of the blood-stream on the re-establishment of the circulation through the limb.

THE COMPARATIVE ADVANTAGES OF SCRAPING AND SCARIFICATION IN THE TREATMENT OF LUPUS VULGARIS.

Read in the Section of Surgery at the Annual Meeting of the British Medical Association in Liverpool, August, 1883.

BY MALCOLM MORRIS, F.R.C.S.Ed.,
Surgeon to the Skin Department of St. Mary's Hospital.

"IN the more rapidly spreading and worst forms of lupus exedens, that horrible disease termed by the older surgeons *Noli me tangere*, nothing can be done beyond the relief that is afforded by the administration of opiates, and a general sedative plan of treatment." (Erichsen, *Science and Art of Surgery*, vol. i, page 624. 1869.) Such was the opinion expressed only fourteen years ago by one of the most eminent London surgeons, whose work is a text-book of more than European celebrity. Another quotation from a pamphlet recently published by one of the distinguished physicians at the St. Louis Hospital, will show the revolution that has since taken place. He says (Vidal, *Traitement Chirurgical de quelques Maladies de la Peau*. Paris, 1882), "when we remember that the red-hot iron and the most powerful chemical caustics could not always overcome this variety, formerly so much dreaded, we are surprised that it is the one which yields the most easily and rapidly to (surgical) treatment."

Scraping, or erosion, and scarification are the two surgical methods which have so completely changed the prognosis of this disease.

Constitutional remedies, after many years of trial, had failed to do more than palliate the symptoms, and had never succeeded in removing the disease when once established. As regards local treatment, the scalpel, the actual cautery, and chemical caustics, were of real value, though there were objections to each of them. The knife was used to extirpate the entire diseased mass. If successful, the deformity from the scar was often as hideous as if the disease had been allowed to run its course untreated. The actual cautery and strong mineral acids, when thoroughly applied, were open to the same objection of removing far more tissue than was necessary; or, if sparingly used, as also in the case of the knife, they did not attack all the lupus-nodules, and, from the irritation they excited, often caused a more rapid spread of the disease. Arsenic, as used by Hebra, was perhaps the most effectual of the caustics, because it destroyed only the lupus and not the sound tissue, but from the fear of its toxic effects never gained any real ground in this country. This serious objection was met by Volkmann's process of free scraping or erosion by means of a blunt spoon. This simple and easy method of treatment was a marked step in advance, and has received the support of many British surgeons. Several cases have been reported in which complete cure was obtained. I have myself treated a considerable number of cases in this way. The plan I adopted was, with a few minor modifications, identical with that originated by Volkmann in 1870. With a large spoon, all scabs are thoroughly removed, and with them the great bulk of the superficial deposit; and after drying the surface, the minute nodules which are deeply lodged in pockets of the corium, are dug out with smaller and pointed scoops. The margins are also vigorously scraped. The spoon should be applied till the whole of the soft friable lupus-tissue has been removed, and only the firm resistance of the sound parts is met with. Though the greater portion of the disease may be removed at one operation, some of the smaller deep-seated nodules which have escaped will reappear in the scar, and require subsequent treatment. After the healing of the wound produced by the operation, a scar with more or less loss of substance is left.

The great advantage of this treatment is the rapidity with which a cure can be obtained; and if a large surface be affected, in a position in which a scar is of no consequence from its appearance, it is, on the whole, the best that can be recommended. On the face and other exposed parts the appearance of the cicatrix is a matter of some importance, and it is here that the other mode of operation, scarification, yields better results. I would here mention, that in lupus of the mucous membrane I have had the most satisfactory results from scraping.

The method of multiple punctures, as suggested by Veiel of Cannstatt in 1871, is effective but tedious in application, and I have preferred to practise linear scarification with a narrow triangular-pointed knife, as used by Professor Vidal of St. Louis Hospital, Paris. The little operation is performed by pressing the sharp point of the knife, which should be held like a pen, on the sound skin at the edge of the lupus-growth, and quickly drawing it across the mass to the healthy skin on the opposite side. In its course it should penetrate the entire thickness of the morbid nodule, dividing at its base the fibrous bundles of the corium. Other incisions, parallel to this, should be made as close as possible, and these should be crossed by others at right angles. The bleeding, which is slight, is easily checked by a compress of cotton-wool, and the little cuts heal rapidly. After a week's interval, the operation should be repeated. Occasionally two or three operations are all that is needed, but more often it is necessary to repeat them several times. The scar left is smooth, supple, and usually distinguishable from the healthy skin only by its paler colour, being little if at all depressed.

In the severer ulcerating forms of lupus, especially in lupus exedens, the one alluded to in the opening of the paper, scarification, to be of service, must be used more boldly. We have sometimes to plunge the whole blade of the knife into the mass for a depth of one-half to three-quarters of an inch, to incise it in all directions, leaving the part in a condition literally of mincemeat, but without removing any portion of the tissue. This plan, I can state from my own personal experience, is most effective, and fully merits the favourable recommendation of Vidal.

In comparing scraping and scarification, the former, though it has the advantage of rapidity, in the character of its scar is much inferior to the latter. Scraping is, after all, a destructive method, similar to, though milder than, the older forms of treatment, as it mechanically removes the diseased material, whereas scarification is essentially conservative in its action. The incisions, by cutting off the blood-supply, modify the nutrition of the new growth, and lead to its atrophy with a minimum loss of substance. In addition, in the severe forms of lupus exedens, in which scraping fails, or even aggravates, scarification acts most rapidly and completely. A further though minor advantage is, that scraping, on account of the pain, requires an anæsthetic, which can be dispensed with in scarification.

Dr. WHITFORD (Liverpool), in the absence of Mr. G. E. Walker, showed a case of lupus that had been under treatment by him for twelve months. The patient suffered from the disease for twelve years before coming under treatment, and, when first seen, the greater part of the face and the mucous membranes of the mouth and nose, were deeply infiltrated and extensively ulcerated. The treatment employed had been entirely local; it consisted in the complete destruction of the lupus-tissue by solid caustic potash, dealing with a small patch at a time; and, when a healthy granulating surface formed, skin-grafting was employed. The case was not represented as a complete cure, as the patient was still under treatment, but the progress made was considered highly satisfactory.

Dr. THIN (London) agreed with Mr. Morris that, in lupus of the face, scarification yielded the best results as regards the cicatrix. The objection to it was the great length of time that, in some cases, was required before it was effective. He related a case of a boy, with a patch of lupus on the cheek about the size of a shilling, whom he had treated for a year. During that time, he had thoroughly scarified the whole surface of the patch once a week. There was considerable improvement, but the case was not yet complete. This was an extreme case as regards the time required; but, in most of the cases, the treatment was more or less protracted. This led him to consider the older methods as still preferable in parts of the body which were habitually covered; but on the face, in spite of its disadvantages as regards protracted treatment, scarification was to be preferred.

Mr. BICKERSTETH (Liverpool) had formerly used scarifications, scrapings, and caustics; whereas latterly he had employed antiseptic dressings in the form of liquor calcis bisulphatis on lint covered with waterproof tissue (a strong solution, which was also painless); with the addition, in scrofulous cases, of cod-liver oil and iron, in syphilitic cases, of antisyphilitic remedies, with the effect of speedy improvement in a few weeks, and a cure in a few months at the most.

Mr. MORRIS replied.

MELANOTIC ROUND AND FUSIFORM CELLED SARCOMA OF ANTRUM; EXCISION OF SUPERIOR MAXILLA: RECOVERY.

Read in the Section of Surgery at the Annual Meeting of the British Medical Association in Liverpool, August, 1883.

BY ARTHUR TREHERN NORTON, F.R.C.S.,
Surgeon to St. Mary's Hospital, London.

THE patient came under my care for polypus of the nose, which, he said, he had recognised only three weeks. It presented itself to him as polypus of the nose usually does, a slight obstruction to respiration on one side of the nose gradually increasing, or rather rapidly increasing in his case, for, as I have said, he had only discovered it three weeks before entering the hospital. I found a black mass plainly visible by looking up the right nostril, and, on passing my finger behind the soft palate, I could feel the posterior extremity of the growth, not projecting into the pharynx, but terminating in the nose a short distance from the posterior nares. On withdrawing my finger, it was stained with blood, and the patient said that he frequently spat blood from the back of the throat. On examining it with the probe, I found it unattached on the inner side, and I could limit it above; but, on the outside, part of the inferior turbinated bone was absorbed, and it was attached by a broad base in the region of that bone and above it. The right ala nasi was very prominent, from the pressure of the tumour within. I concluded, from the position of the tumour and knowing the nature of such growths, that it had arisen in the antrum, and grown inwards into the nose. I had no hesitation in stating it to be melanotic sarcoma; but, as one of the staff suggested that there might be an effusion of blood in an ordinary fibromyxoma, I caught a small particle with artery-forceps and excised it with curved scissors. Under the microscope it presented cells, some round, and a few fusiform, all pigmented; there was no loose pigment such as would have been seen from the effusion of blood, but all the pigment was in cells.

I decided upon the immediate removal of the growth with all its attachments; and, as it was not yet certain whether or not it had arisen in the antrum, or only in the outer wall of the nose, I determined to investigate this point during the operation, and to be directed in the proceeding accordingly. I made an incision from the inner angle of the eye downwards along the side of the nose, then turned inwards below ala, and down the central line of the upper lip; with the scissors, I next cut through the mucous membrane which joins the lips and the cheek to the upper jaw, and, using a lever instead of a knife, separated all the soft tissues from the upper maxilla as far upwards as the malar bone, so that up to this stage of the operation there was absolutely no bleeding, except from the first incision, which had been arrested by ligaturing the angular branch of the facial artery, and by the aid of cotton-wool. I now ascertained that the antrum was full of the growth, so that nothing short of the complete removal of the maxilla would have been of any use. With the bone-forceps I then severed the nasal process of the superior maxilla, together with the chief portion of the inner wall of the orbit; then, with one blade of the forceps in the orbit, and the other beneath the zygomatic process of the malar bone, the maxilla was separated from the outer wall of the orbit; next an incisor tooth was drawn, and the hard palate cut through immediately along the side of the septum nasi. The bone being now separated with the exception of the palatine attachment to the pterygoid process, the mass was seized with lion-forceps, and twisted from this attachment and drawn forwards and outwards, in order to separate with the scissors all the soft tissue-attachments at the back of the mouth and palate, and thus completely freed. The skin was re-adapted in the line of incision, and attached by small sutures, and united in such a manner that it was quite impossible to see where the incision was in its chief part. A subcutaneous injection of morphia was administered, and the diet was milk and small pieces of ice, etc. The temperature never rose above 99°, nor the pulse above 80. The wound was syringed with Condy's fluid, and as the wound was naturally drained of all secretions, none could be retained, and none absorbed, hence the complete absence of all symptomatic fever and constitutional symptoms. On the Wednesday following, that is one week from the date of operation, the patient was walking about the ward, and in twelve days after the operation he left the hospital.

THERAPEUTIC MEMORANDA.

PTOSIS AND DIPLOPIA FROM ADMINISTRATION OF LIQUOR GELSEMII (*U.S.P.*)

R. T., a man, aged 30, consulted me on July 16th for severe neuralgia of the face. I gave him a quinine-mixture, with three-minim doses of liquor gelsemii fluid, *U.S.P.* (Ferris and Co.), every four hours. He came again the following day with his neuralgia cured, but suffering from the diplopia and dimness of sight of gelsemium-poisoning. Moreover, there was almost complete loss of the power over the left eyelid, and in a lesser degree of the right eyelid also. I gave him a simple quinine-mixture, and the next day he was quite well. Gelsemium, in my experience, to be useful, must be pushed until the physiological effects are produced; but I have never before seen or heard of dropped lids being produced by its administration. In this case only six three-minim doses had been taken.

C. H. WATTS PARKINSON, M.R.C.S., Wimborne.

MORPHIA FOR SEA-SICKNESS.

WITH reference to Dr. H. Bennet's article on sea-sickness, published in last week's JOURNAL, it may be of interest to many to know that the hypodermic injection of morphia is almost invariably attended with much benefit to the sufferer. I have given it in a great many cases, and found it give, at any rate, some relief for several hours always; and in a few cases the sickness has even ceased altogether from that time. In two or three instances in which I gave it as soon as the vomiting had commenced, the passengers remained well throughout the rest of the voyage, and that a rough one. I have not yet tried the use of strong coffee in the way Dr. Bennet mentions, but hope to do so soon. I have often found passengers able to retain dried toast soaked in strong tea without sugar or milk, when their stomachs have rejected everything else. Nitrite of amyl, which has been much recommended, I have found to be useless, and the taking of bromide of potassium for some days before embarking almost equally so. Dry biscuit and lemon-juice will often stay down when nothing else will. In conclusion, I may say that, after trying nearly, if not quite, all the usual remedies for sickness, I have found the hypodermic injection of from one-third to half a grain of acetate of morphia to be by far the most useful of all drugs or remedies.

PHILIP VINCENT, M.R.C.S., L.R.C.P., L.M.,
Surgeon, Cunard Royal Mail Service.