On the
Relations of Speech &
Aphasia.

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Aphasia is so striking a symptom of disease that its occurrence has been observed from earliest times. It has however escaped scientific investigation till comparatively recently. But though this is the case the literature is already voluminous. Some notes taken in the course of my reading have been put together in this paper, not with the intention of adding to the literature of the subject, nor in the expectation of being able to throw light on this somewhat obscure symptom – but rather as an endeavour to lay side by side some of the views already advanced, and thus to be able to show what has already been discovered. What is most likely to strike one in commencing an inquiry of this sort is the number and contradictoriness of the theories advanced by successive writers; and in a study such as this, it is hard to distinguish fact from theory:– a psychological description is apt to be taken for an explanation if couched in physiological language. Facts, too, are hard to get, for the accurate examination of a speechless person is, of necessity, difficult.

Before considering the question of aphasia I shall briefly refer to speech itself. And here we are met by an insurmountable obstacle in the impossibility of solving the question of the origin of language. This has afforded a field for many disputes amongst philosophers and philologists. The "Bow wow" and "Pooh pooh!" theories have had their supporters against those who held that the faculty of articulate speech was

the natural prerogative of man to distinguish him from the lower animals. Philologists seem to be more or less agreed in carrying language back to certain primitive word roots, as to the 'germs' from which the species of animals have come. But beyond these word roots they are unable to go, and it is not necessary for my purpose to follow their speculations. We may be content to study the relations of language such as we now have it.

"Animals and infants," says Professor Max Müller,[1] "who are without language are alike without reason: — we must concede to animals sensation, perception, memory, will and judgment. But we cannot allow them a trace of what the Greeks called Lógos, i.e. reason, literally gathering, a word which most rightly and naturally expresses in Greek both Speech and reason." "Without speech no reason, without reason no speech." He proceeds to quote — against his own argument, as it seems to me — from St Thomas Aquinas 'Nomina non sequuntur modum essendi, qui est in rebus, sed modum essendi, secundum quod in cognitione nostra est.' He uses the word <u>characters</u> as an argument and points out that the English word cháracter has no meaning in French or German. Charácter has no meaning in English or French; caractère has no meaning in English or German. "It matters not whether the sound is articulate or not; articulate sound

[1] loc. cit. vol ij chap 2.

without meaning is even more unreal than inarticulate sound. If, then, these articulate sounds, or what may be called the body of language, exist nowhere, have no independent reality, what follows? I think it follows that this so-called body of language could never have been taken up anywhere by itself, and added to our conceptions from without; from which it would follow again that our conceptions, which are now always clothed in the garment of language, could never have existed in a naked state. This would be perfectly correct reasoning, if applied to anything else; nor do I see that it can be objected to as bearing on thought and language. If we never find skins except as the tegument of animals, we may safely conclude that skins cannot exist without animals."
This argument quite fails to convince me. The conclusion he wishes to draw is not that skins cannot exist without animals but that animals cannot exist without skins. If we say that some animals require to use coverings of other animals' skins, for their own the preservation of their lives and for their prolongation, we would be brought to Herr Teufelsdrokh's definition of man as a 'clothes wearing animal'. Max Müller finds fault with those who disagree "owing to the very influence of language which in most modern dialects has produced two words, one for language the other for reason; thus leading the speaker to suppose that there is a substantial difference between the two, and

not a mere formal difference." Yet the Professor himself tries to draw an argument from the singleness of the Greek word Logos: such an argument is of no more value than that of Aristotle, which maintains that interest on money is unnatural, because TÓKOS means "offspring", and dead gold cannot have "offspring." This is surely arguing from "barren words which more than any deed characterize man as subject to a curse."

In contrast to this I quote a passage from Mr. W.D. Whitney's volume on the "Life and Growth of Language." "First there is always and everywhere an antecedency of the conception to the expression. In common phrase we first have our idea and then get a name for it. This is so palpably true of all the more reflective processes that no one would think of denying it; to do so would be to maintain that the planet Oe. could not be found and recognised as something yet unnamed until a title had been selected and made ready for clapping on it: that the child could not be born till the christening bowl was ready. But it is equally true only not so palpable, in all less conscious acts, all the way down the scale to the most instinctive. The principle of life for instance was called animus a blowing, or spiritus breathing, because the nomenclator had a dim, to us wholly insufficient apprehension of something within the bodily frame, distinct from it, though governing it and directing it." and again

[1] loc. cit. p. 137

he says [1]"The doctrine that a conception is impossible without a word to express it is an indefensible paradox;- indefensible that is to say except by misapprehensions and false argument. The immense gain in clearness of apprehension, in facility of handling conferred upon a conception by its naming, is not for a moment to be denied: only those are in error who so transform this advantage into an absolute necessity".

[2]Russmaul quotes H Bastian - or rather mentions him, as one of those who hold that intelligent thought is bound up with speech, or words. But Dr Bastian does not I think go so far as Max Müller. He says[3]:- "That Thought in all its higher modes cannot be carried on without the aid of Language is a proposition which will be almost universally admitted by those if we use the latter term in its broadest sense. For, as Thomson says [4]'Language in its general acceptation, might be described as a mode of expressing one thoughts by means of motions of the body; it would thus include spoken words, only involuntary gestures that indicate the feelings, even painting & sculpture, together with those contrivances which replace speech in situations where it cannot be employed.' Articulate Speech, in one or other of its modes, is, however, the process which (for ordinary human beings) is found to be inseparably related with the thinking processes. Speech is, indeed, nothing else than 'a system of articulate words adopted by convention to represent outwardly the internal process of thinking.'" This last sentence does not seem to bear out the argument. If Language - even in its widest

1. loc. cit. p139.
2. Ziemssen: loc. cit. p597.
3. Brain as an Organ of mind. 601.
4. Laws of thought p. 27

sense – is adopted to represent outwardly the internal process of thinking, it by no means follows that that internal process cannot be carried on apart from its outward manifestation. Nor is his conclusion more logically deduced in a passage to which he evidently attaches importance, as he quotes it from an earlier work, in his volume on 'Brain as an organ of mind'. After stating that it is by Language that man has had the power of rising so high above the brutes, and that by it particular races have been enabled "to advance through the multitudinous grades of civilization intervening between those who lived in the condition of savages, and those who now constitute the flower of European civilization:" — after stating this, he goes on to say:— "If then the possession of Articulate Speech, with the superadded accomplishments growing out of this, of transmitting thought by means of written and printed symbols, have had such an overwhelming influence in aiding certain races to elevate themselves out of a condition of the rudest barbarism, it seems even more certain still that Thought in all its higher modes could not be carried on at all without the aid of Language of some kind".[1]

The case of Professor Lordat of Montpellier is described at length by Trousseau in his "clinique on Aphasia and bears on this question. Lordat became for some time aphasic after a fever, and has left us an account of his mental condition. He maintained that, though he had forgotten words, he was yet able to carry on elaborate trains of thought without them.[2]

1. "Fortnightly review" Jan. 1869.

2. Clinical lectures. art. Aphasia – passim.

For example he says that he thought of the Christian Doxology, Now and thought he could realize all the ideas of it, though he could not think of any of the words of it. He also rearranged his course of lectures during his illness. Trousseau, as also Kussmaul, throws doubts on Lordat's statements, on account of his known bias to the "spiritualistic" school of thought, which maintained the independence of mind & body. Though Kussmaul distinctly[2] ~~states that~~ he cannot altogether reject Lordat's narrative, yet he[1] says that he finds it impossible to "conceive a formula without symbols, a word formula without symbol word". In regard to such a case as Lordat's, it must be at the outset granted that he had originally acquired his ideas by means of language. But, apart from that, it seems possible to get over Kussmaul's dificulty by supposing that Lordat had other symbols in his mind's eye than verbal ones. And mere words can not express an idea fully, & such as that of the Trinity.

"Art may tell a truth
"Obliquely, do the thing shall breed the thought
"Nor wrong the thought, missing the mediate word.
"So may you paint your picture, twice show truth
"Beyond mere imagery on the wall."

We can readily conceive of Lordat having in his memory some such picture as Albert Dürer's famous "Holy Trinity" (Allerheiligenbild). And he might then try to express in word symbols — through a formula

1. Ziemssen xiv. p. 601. 2. loc. cit p. 767. see also Gairdner. Glasg. Phil. Soc. Trans. vi. p. 115.

which he knew to exist— the very highest ideas, which might, after all, in his healthiest moments, have been as fully conveyed to him by such a picture as been by hearing the word sung.

Most of us in our daily tasks at school, have at some time or other, — say in trying to recite a piece of Greek dialogue — become painfully aware that we could not remember a word of the formula, though the ideas conveyed by the formula may have been perfectly distinct, (and yet not represented by the symbols of English words in the mind of one who could "think in the language" he was trying to recite.)

Sir William Hamilton states his views of the relation of speech to thought very clearly. He says that "we could never have risen above the very lowest degree in the scale of thought without the aid of signs." "Language is the attribution of signs to our cognitions of things. But as a cognition must have been already there, before it could receive a sign; consequently, that knowledge which is denoted by the formation and application of a word, must have preceded the symbol which denotes it. Speech is thus not the mother, but the godmother of knowledge — In general we must hold that language must be viewed as posterior to the act of thinking itself." He proceeds to compare language to fortresses planted in a conquered territory (or to an arch built to hold up the tunnel excavated in sand) to "enable us to realize our dominion over what we have already overrun in thought; to make every intellectual conquest the basis of operations for others still

1. Lectures. Logic vol. 1, p. 137

beyond." I intended in first considering this question to support the view of the independence of thought and language – even of any sort of symbols – by a reference to the processes of 'unconscious cerebration'; for some of these are undoubtedly highly complicated and distinctly 'higher thought'. In consideration, however, of some of the phenomena of automatic (or planchette) writing, it is doubtful if this illustration would be admissible.

I have already referred, in speaking of Lordat's case, to the realizing of ideas in symbols other than word-symbols. This subject is of some importance in regard to uninstructed deaf mutes and to certain aphemic patients, and also in regard to the mental operations of many healthy people. It is commonly taken for granted that we learn language by means of auditory word-symbols. [For our 'mother tongue' this is no doubt true; half educated people require, by reading aloud, to convert graphic (or visual) word symbols into spoken (or auditory) symbols, to enable them to understand what they read. Similarly, even a well educated person may require to read aloud anything written in a local dialect, which he may have learnt orally in childhood.] But this is not always so. It is obviously not so in the case of deaf mutes. Nor is it so with many people who acquire a knowledge of a foreign literature, without being able to speak it, or understand it when heard. St. Bernard[1] makes some interesting observations on this subject. "M. Charcot a fait encore remarquer et insiste

1. Loc. cit. pp 48 et segg. 'De l'aphasie et de ses diverses formes.' Paris 1865.

volontiers sur ce sujet, qu'il en est de la mémoire des signes comme des autres mémoires qui sont inégales héréditairement, par habitude ou par éducation, chez les divers individus. Tel sujet fera plus souvent appel à la mémoire visuelle des signes, tel autre à l'auditive, un troisième à la motrice. En sorte que la prééminence d'un centre pourra devenir telle qu'il tienne sous sa dépendance non seulement celui qui dépend directement de lui, mais encore un ou plusieurs autres. ××× Ainsi sont constitués, parmi les parlants, des <u>visuels</u>, des <u>auditifs</u>, des <u>moteurs</u>.
He goes on to show that the auditory centre, is, as a rule, that which controls the others. Our he mentions a case in which a gentleman recollected the contents of a document only by reading it mentally. The celebrated orator Hérault de Séchelles was also a 'visuel'. He also refers to the success of the plays produced by M.M. Scribe and Legouvé, and ascribes it the fact that one in writing imagined himself in the position of an auditor, the other in the position of a spectator. "Rien de plus juste, dit Scribe. Savez-vous où je suis quand j'écris une pièce? Au milieu du parterre." Les procédés de la parole intérieure ne sont pas autres que ceux de la parole extérieure. La connaissance de ces prédominances individuelles de la mémoire des mots explique les erreurs et les contradictions que M. V. Egger[1] relève dans l'œuvre des philosophes qui ont étudié cette question avant lui. M. V. Egger est évidemment un auditif comme Socrate, Rivarol, Cardaillac et de Bonald qui ont

1. La parole intérieure pp. 40.41. quoted by Bernard.

toutes ses préférences. Aux moteurs tels que Montaigne, Maine de Biran, Taine, Lemoine, mais a Bain surtout, il ~~réserve~~ toutes les critiques. Aux visuels tels que Prévost (de Genève), il reproche d'avoir pris pour une vérité psychologique la maxime d'Horace "segnius irritant..." L'idée d'une écriture intérieure émise par Charma est simplement mentionnée par lui en note et déclarée un fait faux."

Dr Bastian "lays considerable stress on the comparatively greater vividness of our visual and auditory impressions than of our Kinæsthetic impressions derived from writing or speaking movements. [Dr Bastian objects to the term muscular sense, and maintains that this so called muscular sense or 'Kinæsthesis' is derived from afferent impulses coming from the moving parts themselves, and is not entirely to w a concomitant of outgoing currents] 'How almost impossible is any such recall to consciousness, and how vague and blank a feeling is associated with the attempt, as compared with the recall of a Visual or of an auditory impression, any one may easily convince himself who will make the following simple experiment. Let him close his eyes, and with pen in hand make movements in the air as though he were writing the word 'London.' He may thus assure himself that he has a set of sensations accompanying these movements. After an interval, say the next day, let him again close his eyes, and, without making any movement, attempt to recall 'in idea' the muscular and other sensations he previously experienced when

1. loc. cit p. 611

writing the above mentioned word. Let him then contrast his comparative powerlessness in this direction, with his ability to recall in idea the visual appearance of this word when written or its corresponding sound." He goes on to show that the kinaesthetic impressions from speech movements are still vague, as these are more automatic and less voluntary. But before we apply these principles to the study of aphasia it is necessary to remember that though absolutely true they will not hold, in the same degree, in deafmutes. A slight modification of the manner of carrying out the 'experiment' would also modify the result obtained. The experiment as carried out is scarcely a fair test, as people as a rule are not educated to receive impressions from their movements in writing — I shall later draw attention to several cases in which word blind patients read through their muscular movements. If the experimenter were rather to write the word in some recently acquired symbols, such as 'shorthand', he might find the comparative powerlessness not so marked. Some musicians, in playing from memory, rely in part on their kinaesthetic recollections as well as on their auditory and visual impressions. Or if that be considered the result of acquired automatic movements, it might be instanced that some musicians, if asked to name a particular note ~~struck~~ sounded, do so after singing in harmony to it. It is common for people learning a foreign language, such as German, to find it easier to write than to read even their own manuscripts.

In treating of deaf mutes, Mr Arnold says[1] "Learning to

1. Thos. Arnold: "Method of Teaching Deaf & Dumb Speech" &c. p.109.

speak is not of course learning language, for there is no necessary connection between words as sounds and thoughts. Words must first be heard and known as the names of the things which are thought of and associated with them before they can become a part of language. Their chief use is to suggest to us by symbols their ideas and to keep them before the mental vision for the purpose of thought. This mental faculty of associating things and names is essential to reason, for without it any attempt would be vain, to go beyond passing impressions. ‹‹ Deaf mutes have ideas of things like ourselves but no words to symbolise them. The deaf have memory also but only of things." But it is evident that deaf mutes – even those who are untaught – have memory of more than things: – a memory no doubt carried on by mental images of some sort. "We may be tolerably certain" says John S. Mill, "that the things capable of satisfying hunger, form a perfectly distinct class in the minds of any of the higher animals; quite as much so as if they were able to use or understand the word food." [2] Kruse relates the case of a deaf mute boy who was found wandering in the streets of Prague and unable to give any account of himself. He was placed in a deaf mute institution, and on learning to talk was able to state sufficient of his earlier circumstances to enable the police to identify his birth place and secure for him his inheritance. He said that his father was a miller – and he was able not only to describe the house and its furniture accurately, but also to give an account

1. Quoted by H. Bastian. "Brain as an Organ" p. 420. Hartmann "Deafmutism". Translated by Cassell. p. 15.
2. Ueber die Taubstummen p. 53 Zt. 1853. quoted by

of his early life. The father had remarried after the death of the boy's mother and sister. Being unable to put up with the cruel treatment which he received at his stepmother's hands, he ran away. He could not name his birthplace – nor his father – but knew it lay East of Prague. Such a history brings Mr Locke's 'bizarre' 'fancy' within the range of possibility.

"I recollect a nurse called Anne,
Who carried me about the grass,
And one fine day a fine young man,
Came up and kissed the pretty lass.
She did not make the least objection.
Thinks I, 'Aha!
When I can talk I'll tell mamma.'
And that's my earliest recollection."

Some months ago, I saw a girl, in a deaf mute class, who seemed to be of very low moral & mental development. On her admission to the school she had been utterly untaught and required instruction in the most elementary lessons in personal cleanliness. After a few days she was receiving instruction in the necessary discipline of sitting still while some of the more advanced pupils were getting an object lesson from wall pictures. She, however, was looking on, and applied one of her recent lessons to the picture of a sporting whale, indicating by pantomime that it should use its handkerchief. This girl it must be remembered was unable to speak – in the ordinary sense – either by articulation or by finger alphabet. Yet this gestural speech

1. 'London Lyrics'.

was of a tolerably high order - without words - if we apply Dr. H. Jackson's definition[1] that "superiority in speech means precision of application to new relations of things".

I shall again refer, incidentally, to the language of emotional and other gestures. It is commonly stated, by such writers for example as Mr. Haweis, that music is not meant to convey definite ideas to the mind of the hearer but merely emotions. If however we are to agree with Herbert Spencer in considering the inflections and emphases of our ordinary speech, as rudimentary music, we must admit that music may also be distinctly narrative. Without further explanation I shall proceed to quote a case[2] from Dr. Bernard's book on Aphasia as an illustration. The case was observed in Prof. Charcot's wards at the Salpêtrière. An old woman, named Tibout, affected with hemiplegia and aphasia could say only "non" when displeased:- "ah! ah!" when pleased, and voluntarily only the 'bizarre' word 'macassa' frequently repeated with varied intonations. "We cannot always succeed in guessing what she wants, though her requests usually refer to some article of diet. We must then obtain the assistance of an amaurotic patient in the ward, who has the gift of understanding the meaning of the intonation of macassa. One day recently Tibout wanted a bath. The list of her favourite foods and drugs was exhausted and had been vainly repeated several times. The amaurotic neighbour was called, and after listening stated that 'Tibout wants a bath', which was the fact. We have frequently asked this patient how she

1. 'Brain' vol. ii p. 218.

2. "De l'Aphasie et de ses Diverses formes" p. 245.

succeeds in understanding her friend, but without getting any satisfactory reply."

"Human language, or speech, is only a superior kind of the faculty of Expression which all, or nearly all, animals possess. Birds by their attitudes and their song, dogs by their barking and howling, ants by the contact of their moving antennae, and certain kind of fishes by sounds, probably related to their instinct of propagation, in short, the greater numbers of animate beings, are able to communicate to each other, species with species, and individual with individual, by ocular, auricular or tactile signs, their sorrows and their joys, their desires, their loves, their angers. For man and for other animals, language has the same origin— a complex origin, and one in which direct observation of little children at the period of lingual evolution may give us much valuable light." M. Perez proceeds to support the statement I have just quoted, by describing the development of natural speech in childhood. He takes a child's natural gestures and ejaculations to be so many reflex acts, occurring at first spontaneously and unconsciously; later becoming consciously associated with the particular emotions and desires; & so finally being used purposively. He thus goes somewhat beyond Hughlings Jackson's statement[2] that many of our signs of emotion or rather the sign tones of them may be looked upon rather as

1. The First Three Years of Childhood. p. 236. 2. "Brain" II. p 210.

actual parts of this or that emotional state."

Most writers draw a distinction between this 'natural language' and our peculiar articulate human speech. M. Perez goes on somewhat regardless of his opening statement, to shew that the language which we do actually learn to speak is the direct result of instruction and of imitation. And he describes in detail the gradual evolution of articulate speech in children. Dr. Bernard[2], however, follows M. Ad. Franck[3] and M. Jules Simon[4], in rejecting this distinction between natural and artificial language. And as a natural corollary he also rejects the definition of MM. Proust[5] and Grasset[6] that Aphasia is the loss of the signs of artificial language with the conservation of those of natural language. Dr. Bernard maintains that it is not possible to trace to their origin 'word roots', even supposing that these could be identified: and he quotes the researches of those[7] who have watched the development of speech in children, in support of his view. But the remarks of M. Perez can scarcely be said to bear this interpretation, though - in the English translation, his words are, perhaps, a little obscure, from the use of the word 'imitative' in two senses. He says[8]: "Thus then we see imitative

1. Loc. cit. chap. xi. passim.
2. Loc. cit. p. 41.
3. Dict. des Sciences philosoph., article 'signes'.
4. Manuel de Philosophie 4ième Ed. p. 275
5. De l'aphasie (Arch. Gen. de Méd. 6e Serie t. xix. p 664.
6. Traité des Mal. du Syst. Nerveux. 2me Ed. p 162.
7. M. E. Egger Observation sur le develop. de l'intell. et du langage chez les enfants. '79. Taine. L'Intelligence. Perez. loc. cit. xi.
8. Loc. cit 241.

and oral language developing side by side; the former, however, thrown back for a time because of the rapid progress of the latter, which is the necessary, universal, and so to say, official instrument of human expression." And a few lines lower he says "First of all, it is necessary to decide which are the different parts played by instinct, organisation, heredity and education – i.e. imitation – in the acquisition of language." In the first instance, from the context, "imitative" clearly refers to the language of gestures – for he has just given a plausible explanation of the gesture of supplication, a gesture singled out by M. J. Simon as capable of no explanation by analogy. – In the second instance he states definitely that it is of the "official instrument of human expression" he is talking.

In giving an account of the parts played by these different factors in the acquirement of speech, he shows that a child does develop a certain power of expressing itself without instruction but that this, as quoted above, is in great measure overborne by the 'official' language. The factor 'heredity' is of interest, and on its importance, even in the lower animals, authorities are much divided. M. Perez quotes the story of the children sequestered by King Psamметichus for an ethnological research sake; and almost suggests that such an experiment might be actually carried out; not, of course, to see in what language they would speak, but to see if they would develop a language for themselves. "We declare ourselves to be absolutely incapable of deciding, à priori, whether children subjected for

1. Herodotus II. 2 et segg. 2. loc. cit. 243.

a sufficient length of time to a like treatment would work out for themselves anything like a real language, what sort of language it would be, and what sort of ideas would be evolved in their brains, abandoned solely to the resources of hereditary transmission and imitation of nature". [1] "There is no more improbability in the effects of continued use of the vocal and mental organs being inherited, than in the case of hand-writing, which depends partly on the structures of the hand, and partly on the disposition of the mind; and hand writing is certainly inherited."

" On prouvera avec tout autant d'évidence que peuvent le faire pour les langages humains n'importe quelles recherches philologiques, que le grondement des ours du Kamtchatka est allié à celui des ours du Thibet .. et des Andes. Cependant tous ces ours sont considérés comme des espèces distinctes n'ayant en aucune façon hérité de la voix les uns des autres. Les différentes races humaines ne l'ont pas fait davantage. Tout ce qui précède est encore vrai du caquetage des gallinacées, du cancanage des canards aussi bien que du chant des grives, qui toutes lancent leurs notes harmonieuses et gaies, chacune dans son dialecte, lequel n'est ni l'héritier ni le dérivé d'un autre, bien que toutes chantent en grivien" De [2] Quatrefages, who quotes the above passage from Agassiz, points out that he has forgotten that no species of animal has ever exchanged its 'voix' for that of an "espèce voisine. L'ânon allaité

1. Darwin. Descent of Man. i. p. 58. 2. L'Espèce Humaine. p. 324. 325.

par une jument et isolé au milieu des chevaux ne désapprend pas à braire pour apprendre à hennir. Au contraire, chacun sait bien que le Blanc le plus pur, placé dès son bas âge au milieu des Chinois ou des Australiens, ne parlera que leur langage et que la réciproque est également vraie." In contrast to Agassiz statement, that thrushes always sing 'in thrush song', is that of Wallace.[1] "It is found that young birds never have the song peculiar to their species if they have not heard it, whereas they acquire very easily the song of almost any other bird with which they are associated." Darwin, too, holds that birds[too,] have a natural and an artificial language; as one may judge from the following passage. "The sounds uttered by birds offer in several respects the nearest analogy to language, for all the members of the same species utter the same instinctive cries, expressive of their emotions; and all the kinds that have the power of singing exert this power instinctively; but the actual song, and even the call notes, are learnt from their parents or foster-parents. These sounds, as Daines Barrington has proved, 'are no more innate than language in man'. . . . Nestlings which have learnt the song of a distinct species, as with the canary bird educated in the Tyrol, teach & transmit their new song to their offspring." But if it is possible to doubt that birds away from their parents reinvent their song, we must yet admit that birds have an instinctive knowledge of the cry of their natural enemies - just as the young of animals seem to recognise their

1. A. Russel Wallace. Essays on Natural Selection) p.220. 2. Darwin. Descent of man i. p.55.

[1] "A young turkey which I had adopted when chirping within the uncracked shell, was, on the morning of the tenth day of its life, eating a comfortable breakfast from my hand, when the young hawk, in a cupboard just beside us, gave a shrill chip, chip, chip. Like an arrow the poor turkey shot to the other side of the room, and stood there motionless with fear, until the hawk gave a second cry, when it darted out at the open door . . ." "So old is the fear" says Spalding[2]. "between the cat and the dog, that the kitten knows its enemy before it is able to see him and when its fear can in no way serve it. One day last month, after feeding my dog, I put my hand into a basket containing four blind kittens, three days old. The smell my hand had carried with it set them puffing & spitting in a most comical manner." In my own case heredity did not play the part it might have been expected to do in the acquirement of language. Learning English & French simultaneously, from my parents and from my nurse, I learnt French more rapidly and for some time 'thought in' French, while talking English; thus using such expressions as 'shut the door to key' instead of 'lock the door'. M. Perez discusses at length in individual cases the course of evolution both of the natural and artificial languages. He quotes various authors to show that children do actually invent words to signify their wants, which they do also, as did the patient 'macassa', by the inflections of their babble.

1. Spalding. Macmillan's Magazine p.288. 2. 'Nature'. Oct. 75 p.507.

[1] "This infantine babble is of astounding flexibility and variety of meaning, and every shade of emotion, – astonishment, gaiety, vexation, sadness, etc., – is expressed in its various tones."
For the details of the progress of children in acquiring 'artificial' language I merely refer to M. Perez chapter on the subject, in which numerous references are made to other works on the same subject. He refers particularly to the observations of Darwin, M. E. Egger and M. A. de la Calle. I think I have said enough to show, that while instinct and heredity and 'invention', may have to do with a child's powers of acquiring speech, yet instruction and imitation are the agencies by which, as a matter of fact, a child acquires what is popularly known as its 'mother tongue'. Before passing from this subject of the acquirement of language by children, I quote M. Perez opinion in regard to children learning words without understanding their meaning. I quote it the more willingly, as it, so far, corroborates an opinion I have long held, with much diffidence, – it is true, – that there is a certain risk in teaching children to learn things by rote. For Dr. Arnold of Rugby has said "It is a great mistake to think that they should understand all they learn; for God has ordered that in youth the memory should act vigorously, independent of the understanding – whereas a man cannot usually recollect a thing unless he understands it." What M. Perez says is to the effect[2] "that it is the dominant impressions which translate themselves, as general and individual ideas, into the words most easily and firmly retained. Other words are useless to the child; they do not interest him, and signify nothing to him. If he is forced to learn them

1. Dean Stanley's Life of Arnold. 10th Ed. i. 123.
2. loc. cit. pp. 261 et seqq.

like a parrot, he forgets them more easily than those which represent something to his intelligence. These facts show that we should be much mistaken in considering rapidity in progress in speaking — setting aside the question of the organs — as a sign of precocious intelligence; the contrary indeed seems to me often true". He gives instances of this and continues "the more intelligent a child is, the less he uses words, the more necessary is it to him that words should signify something if he is to learn them, and this is why he only learns words in proportion as he gains ideas about objects. With children of little intelligence.. words precede ideas, & often take their place.... When the children come to understand the sense of these words so long pronounced for their sound, they find that their minds are filled with other people's ideas, whereas intelligent children, slow in learning to speak, have got a large store of original ideas, which have come to them, not through the channel of words, but by means of direct observation and experience". Another phenomenon, to which I may be allowed to refer, as it has its counterpart in the aphasic state, is the rhythmic babbling of children, (which may be noticed in them long after the age of three — which is the period covered in M. Perez' volume.) He has explained this in regard to some words by "the fact that certain ideas and sounds take possession of children. We may also notice in the most intelligent of them a mania for jabbering strings of meaningless syllables, jumbled together at hazard." He succeeded in reassuring a father, who had come to him fearing his child's brain was softening, by stating, that the feebleness of

his intellectual organs, overexcited at the time of his first attempts at speaking, cause him to seek rest and amusement in those mechanical babblings which he has no trouble in producing, and which do not excite his brain, and which, moreover charm and please his ear. Savages in like manner will go on for several hours at a time making a monotonous melopeia"... and so also the idle peasants in the South of Europe .. will repeat a refrain a hundred times in the same afternoon." These remarks are suggestive of Professor Gairdner's metaphor of barrel organisms, and of the mind 'becoming intoxicated' with a letter. There is certainly something sedative in mere rhythmic monotony. I think a large part of the sedative effect usually ascribed to tobacco is due to the rhythmic movements of smoking. The dreamy condition induced by this monotony, has been amusingly described by Mr. Stevenson[2] with his usual felicity, where he tells of his paddling down a French river, counting his "strokes and forgetting the hundreds the happiest animal in France."

1. Transactions. Phil. Soc. Glasg. vol vj. p. 107. 2. R. Louis Stevenson. An inland voyage pp. 201.

In treating of the aphasic state, in one of those papers, which have largely influenced subsequent writers on this subject, Dr. "Hughlings Jackson admits the impossibility of any proper classification of aphasia based at once on its clinical & psychological aspects. Dr. Bastian seems to find a similar difficulty; for in his article on Aphasia, in Quain's "Dictionary of Medicine," he arranges his varieties of cases in clinical groups; while in his volume on "Brain as an organ of Mind" he rather gives etiological divisions — though these two classifications might, in part at any rate, coincide if, to use a geometrical figure of speech, the one were 'superimposed' on the other. Professor[2] Jaccoud rather attempts to combine these two methods. Before going further, however, I shall give in a tabular form some of the various ~~forms~~ methods of classification which have been proposed.

Professor Jaccoud gives the following clinical table

Aphasie
- j. Par hébétude.
- ij. Par amnésie verbale.
- ijj. Par logoplégie.
- ij Par glossoataxie.
- v. Par glossoataxie.

or in "un exposé pathogénique"

I. Abolition de l'idéation verbale	Hébétude. / Amnésie verbale
II. Abolition de la transmission verbale	Logoplégie.
III. Abolition de l'expression verbale.	glossoataxie / glossoplégie.

1. Brain. vol 1.

2. Traité de Pathologie Interne 1883. vol 1. p. 208.

He explains his tables as follows.[α] "Pour parler il faut: — 1° une pensée;
2° la traduction, le revêtement de cette pensée par les formules verbales; c'est
la ce que j'ai appelé l'idéation verbale; —
3° la transmission des incitations verbales à l'appareil moteur qui en
accomplit la projection au dehors; —
4° la coordination harmonique des mouvements complexes nécessaires
pour cette projection.
5° l'exécution de ces mouvements par les agents périphériques. Ces
cinq actes successifs peuvent être ramenés à trois opérations fondamentales,
l'une de formation, la seconde de transmission, la troisième ~~de transmission~~.
d'expression". He failure accordingly of any one of these five processes
gives rise to aphasia and will fall naturally under one or other heading of
his tables. Dr. Bastian's clinical[β] groups are as follows

Cases with defects of an aphasic type only;

1. Loss of power, both of speaking and of writing. (Typical Aphasia)

2. Loss of power of speaking, but power of writing retained. (Aphemia)

3. Loss of power of writing, but power of speaking preserved. (Agraphia)

Cases where aphasic & amnesic defects are combined in the same individual

4. Loss of power of speaking with an amnesic defect in writing

5. Loss of power of writing with an amnesic defect in speaking.

Cases where mere amnesic defects alone may exist in speech, in
writing, or in both modes of expression.

Dr. Bastian also[δ] tabulates his cases "to show their mutual relations both
as mental & Neurological processes" as follows: —

α. loc. cit. p. 207. β. Quains Dict. of medicine. article Aphasia. γ. Brain as an Organ of Mind p. 618.

I. Defects of Verbal memory, that is defects in the Associations of Ideal Things or of conceptions with ideal words.

A. Amnesia verbale (sic)

(a Paralytic variety: b. Incoordinate variety)

1. Diminished Excitability of the Auditory Word-centres.
2. Defective Action in the Visual Word-centres.
3 Damage to Visual Word-Centres and of Afferent fibres to Auditory Centres; together with certain defects producing incoördinate Amnesia.
4. Damage to Commissures between Auditory & Visual Word-Centres.

II. Defects in the Association of Ideal words with Verbal movements for Speech and Writing, or for either of them singly.

B. Aphasia.

5. Damage to first parts of outgoing tracks leading from Cerebral Word-Centres to left Corpus Striatum.

C. Agraphia.

6. Damage to first parts of outgoing tracks leading from the left Visual Word-Centre

D. Aphemia

7. Damage (a) to first parts of outgoing track leading from the left Auditory Word Centre.
or (b) to some lower parts of the same track
or (c) to the actual Motor Centres for Articulation.

Group A would fall under the head of what Dr Ross* terms Sensory Aphasia and the rest under what the same author terms Motor Aphasia.
these may be found together and form cases of Sensory & motor Aphasia.

* Medical Chronicle Jan. 1886.

As an autonomous process, says,[α] Kussmaul, speech consists in articulation and diction. .. All lesions of articulation may be styled dysarthric. Disturbance of diction may be called dysphasia. (Those Dysarthric disturbances, due to gross mechanical defects in the external apparatus of speech and their motor nerves, he terms dysglalia.) Disturbances in the formation of thoughts are excluded by Kussmaul from consideration as these would open up the whole question of mental disturbances: these, however, he terms dysbogia or logopathy.

[β] Dr Bernard's groups fall under somewhat the same heads as do Dr Bastian's. He treats in successive chapters of

1. La cécité verbale
2. La surdité verbale.
3. L'aphémie
4. L'agraphie
5. Aphasies complexes. (Troubles divers du langage.)

In his treatise on Nervous diseases [γ] Dr Hammond makes little or no mention of any sensory aphasia. He groups his cases according as they fall under one of two heads of

1 Ataxic Aphasia.
2 Amnesic Aphasia.

Dr [δ] Broadbent in large measure follows Dr [ε] Bastian in his divisions:

His cases are either amnesic (or amnemonic)
or ~~aphasic~~ Ataxic (or aphasic)

α. Loc. cit. p. 612.
β. Loc. cit. passim.
γ. Diseases of the Nervous System vij Ed. p. 217
δ. Brain vol Med. Chirurg. Transact. Feb. 1872. p. 174.

In each case, according to W Broadbent the functional derangement may be either 1. paralytic

or 2. incoördinate.

Thus in Paralytic amnesia words are forgotten but can be repeated when heard: while in Incoordinate amnesia there are plenty of words but these are wrongly and unconsciously used.

In Paralytic aphasia the power of utterance is lost patient cannot repeat.

In Incoordinate aphasia the patient may use words which are wrong, but which have some connection in sound or sense, and he may be conscious of his mistakes.

He distinguishes ataxic and incoordinate cases from the one set arising from destruction of grey matter or white fibres, while the other arises from instability of cortical cells.

"Trousseau treats of Amnesia of Speech

Amnesia of speech & writing

Amnesia of speech writing and gesture

1. Clinical Medicine. Bazire trans. vol. 1. chap vii

Cases of aphasia as met with are usually more or less complicated and no two cases of aphasia can be called identical – varying as they must both on account of the extent, and so on, of the lesion and on account of the differences in regard to the original mental powers of different individuals. It is perhaps questionable whether any scheme of classification will prove adequate for clinical purposes. In his chapter on Aphasia in his recent work on Nervous Diseases 'Professor Grainger Stewart does not formally classify his descriptions, but rather, by means of illustrative cases shows what phenomena may be expected according as the lesion exists in this or that portion of the afferent, central and efferent apparatuses employed in the production of language. Dr. Bernard, so far, avoids many of the difficulties by his group of 'Aphasies complexes.'

I shall in the first instance describe some of the more prominent features in those disturbances of speech arising from lesions on the afferent and perceptive side – those cases which are in Dr. Ross's group of "Sensory Aphasia." I do not attempt to enter upon the history of Aphasia nor of any of its forms. This part of the subject is discussed at great length by such authors as Kussmaul, Hammond and Bernard. The latter in particular gives full details, both in regard to Aphasia generally and to the several divisions. He refuses to admit the claims of priority laid on behalf of the Drs Dax (Marc & G. Dax, father & son, of Montpellier) and gives all the credit possible to M. Broca – of whose unedited manuscripts he has had the privilege of using.

Cases of disorder of Speech, due to lesion auditory perceptive apparatus alone, are rare:— Excluding of course cases of deafmutism.
In cases of pure 'worddeafness' the patient hears but is unable to understand the words addressed to him. Such cases are undoubtedly rare, though possibly some are overlooked, and the phenomena ascribed either to simple deafness or to insanity — or, as in [1] Trousseau's patient Paquet, to defective intelligence. This patient was unable to imitate the movements of playing a clarinet, when told to do so. He accomplished these movements, however, when they were gone through before him. Trousseau as already mentioned thought this was due to that loss of intellectual power which he maintained usually accompanied the aphasic state. [2] Kussmaul quotes the case as one of 'amnesic amimia.' [3] Bernard quotes it as one of worddeafness, which seems the more probable view. Another feature of the case was that the patient was unable to turn over the page at the proper time when Trousseau was reading aloud. Bernard quotes several cases; the most complete is one recorded by [4] Gireaudeau and is of special value as the post mortem appearances are given as well as the clinical features. This patient, named Boquinet, was evidently not deaf as she could hear the ticking of a watch at the normal distance. She was however quite unable to understand any words addressed to her, as a rule, though occasionally she seemed able, after a considerable time, to make out what had been said. She was however able to understand writing to which she replied either by writing or viva voce. She spoke little and with some hesitation

1. loc. cit p. 269. 2. loc. cit 762 p. 3. loc. cit 147 p. 4 Revue de Med. '82. vol ii. p 446.

But there seems to be no mention of her having used words wrongly.

Another case recorded by Dr Bernard is of equal interest. Louise Jeannot aged 49, was a patient in M. Charcot's wards. She was admitted to the hospital suffering from obliteration of the abdominal aorta. Six years previously she had become hemiplegic and aphasic. For two months she could say only 'yes' or 'no.' The speech gradually returned. On admission to hospital her speech was as correct & intelligible as in a person who had never lost it. She had always been able to read. She was then able to answer spoken questions which she understood perfectly. She was however for a short time, at the period of her first attack unable to understand what was spoken to her — "Les paroles n'étaient plus pour elle qu'un bruit indistinct, pareil à celui des conversations dans une foule." Her neighbours considered her deaf but she heard all ordinary noises quite distinctly. She was taken to hear a military band, but did not hear any musical sound, though she knew when the band was playing. She died shortly after admission to hospital. The point to which I would draw attention in the first of these two cases is, that there is no mention of mistakes in word being made in speaking — or paraphasia as Kussmaul calls it — There is no mention of such a phenomenon in the second case but the history is taken from the patient's own account. Dr Bernard lays emphasis on the confused noise heard by the patient when addressed. He objects to Kussmaul's comparison of the patient hearing, as it were, a foreign tongue, for that sounds articulate, though it is not understood. Dr Bernard quotes two cases from MM. Bourdin[1] & Valentin[2] in which there was paraphasia. He also refers to a patient of M. Charcot's named Hug.

1. Gaz. des hôpit. 1864. p. 202. 2. Rev. méd. de l'Est. 1880. t xii. n°6.

who could hear the clock striking but could not count the strokes. A case of note-deafness, quoted from 'Mind', in illustration of Jeanniot's inability to hear music, need not detain us, as it has no direct bearing on disturbances of speech. Of more interest are some[2] cases in which comprehension of one language was lost and of another preserved. For example One patient understood his patois but not French;[3] another had forgotten German but remembered French & Russian.

In a series of articles, published since this paper was commenced, Dr. Ross[4] records a case of pure word deafness. The patient presented the symptoms of the two cases already described but in addition there was well marked paraphasia. He called most things 'public house' or 'a glass of beer.' He did not obey verbal commands but obeyed written ones. He did not, for example, know whether ~~xx~~ or not he were 100 years old, when asked viva voce, but understood at once when the question was written. Curiously enough, he sometimes understood somewhat complicated communications. His intelligence did not seem much impaired. His son in law volunteered the statement that the patient's judgment was very good. Dr. Ross considers that word deafness is probably always associated with the wrong naming of objects, or with inability to name objects; though the converse of this is not so; for patients may present both these symptoms yet not be word deaf.

Careful post mortem examinations were made in the two cases, already quoted from Dr. Bernard. "L'hemisphere gauche" – in the case of Jeanniot – "est le siège d'un ramollissement étendu qui a détruit le cap et le pied de

1. Grant Allen. loc. cit. ap. 1878.
2. Ord. Bull: Acad. de Méd. 1878. 2°S., t vij. p. 1183.
3. Charcot's case.
4. Medical Chronicle. March 86.

la troisième frontale, tout l'insula, toute la première temporo-sphénoïdale et une partie peu étendue du lobe pariétal inférieur. Au niveau de l'insula et de la troisième frontale, la substance cérébrale est réduite à l'état de membrane jaunâtre, ne mesurant pas plus de ½ cent. d'épaisseur. En examinant la pièce par la paroi ventriculaire, on constate la destruction de toute la tête du noyau caudé et du tiers antérieur de la couche optique. La coupe de Flechsig montre la destruction de l'avant-mur et du noyau lenticulaire moins une partie postérieure touchant au carrefour sensitif qui est intacte, comme la partie attenante de la couche optique et la queue du corps strié. Tout le reste de la capsule interne et des parties antérieures des ganglions est réduit à l'état de membrane jaunâtre, comme nous l'indiquons plus haut" The right side of the brain was healthy.

In Giandeau's case the lesion is more limited. A tumour of the size of a nut was found occupying the posterior part of the first and second temporo-sphenoidal convolutions, bestriding (à cheval sur) the parallel fissure. Dr Bernard quotes other cases where a lesion, similar to this last one, was found.

The other chief variety of Sensory Aphasia is word-blindness, and it has many features analogous to those of word-deafness. Numerous cases are now on record, but it is evident that our knowledge of the subject is far from complete. Though Bernard on this, as in regard to most of the questions on this subject, lays down the law dogmatically. The statements of authors are however somewhat confusing:

[1] Kussmaul warns us not to confuse word blindness with inability to read from deficiency in the field of vision; especially from right hemianopsia, which by preventing the patient from seeing the end of the word hinders his reading. He explains by this confusion of cases the paradoxical phenomena observed by Wernicke "the patients e.g. read off, while passing, the names upon the tavern-signs on the street, but are nevertheless incapable of reading letters or words with a steady gaze". Bernard on the other hand maintains that in every case of word blindness – properly examined – there has been found hemiopia, or at any rate restriction in the field of vision. It is difficult to understand how mere restriction in the field of vision should, by itself, prevent one from reading altogether. There are many cases, described as word blindness, in which the patient could read by spelling out the letters of the word as a child might. Such cases may be due to restriction of the field of vision. In reading "at distance", the field of vision, clear enough to read words, is small even in health, and does not take in much more than a word of 8 or 10 letters, with medium type. If an attempt be made to read, looking through a diaphragm with a small central opening, it will be found that fluent reading is hindered so soon as the field is restricted to syllables. And when the field is still further reduced to single letters the word must be spelt out slowly; but can by this means be read. There is, then, obviously, something beyond this restriction in the field which causes the word blindness. Any experiment with an artificial hemiopia would be difficult to carry out, but

1. loc. cit. p. 775. 2 loc. cit. Chap V. passim

But I am told by an ophthalmologist that – a right bilateral homonymous hemiopia, such as might be produced by lesion of the optic tract – does not cause wordblindness. In the face of records of wordblindness without other impairment of vision it is difficult to accept Bernard's statement without much fuller evidence. At the same time, it must be admitted that hemiopia or restriction of the field of vision is easily overlooked in the examination of a patient, and is sometimes difficult to determine. In a speechless child's case I spent some time trying to discover whether the field of vision were complete or not. I had come to the conclusion that it was considerably restricted on the right side, when I found he could, in that region, see pennies quite clearly! In one of Dr. Bernard's own records there is no mention of hemiopia from beginning to end (Case IIIrd) though the oculist's report is given (Dr. Abbadie)
In all the cases recorded by Dr. Ross, in his recent papers, there was complete right bilateral homonymous hemiopia. The subject of hemiopia evidently requires farther investigation – especially in its relation to word blindness. Professor Jaccoud[2] in his treatise on the practice of physic – merely mentions in a foot-note, the occasional occurrence of hemiopia in along with aphasia. (He also quotes Wernicke's observation on sensory aphasia but does not discuss them) Two such recent works as those of Professors Grainger Stewart[3] and Dr. Gowers[4] refer to hemiopia and to word blindness, but in no way connect the two symptoms.
The chief symptom of this condition is as the name implies an inability on the part of the patient to distinguish written or printed words – or graphic

1. Med. Chronicle. Feb 1886.
2. Loc. cit. vol 1. p. 212. (5) p. 219.
3. An Introduction to the Study of Dis. of the Nerv. System. 1884.
4. Diagnosis of Diseases of the Brain. 1885.

symbols. As before mentioned the patient may sometimes be able to spell out a word letter by letter just as in some cases a word deaf patient may be able to understand a word if it be uttered syllable by syllable. In some cases the patient is still able to read figures (Arabic numerals), possibly because these are fewer in number than the letters of the alphabet, and therefore better organised. Sometimes the ability to read figures may be alone lost. Some patients can decipher units but not 'tens' or higher powers. In one case the power of reading musical notation was alone lost at the beginning of the disease. This patient subsequently became completely aphasic and died paralysed.

As is natural, the power of writing is much interfered with as the patient cannot read what he writes. If he lifts his pen he at once 'loses the place' – in the sense of not knowing what is the last word he has written. Some of the features of the condition are due simply to the hemiopia. For instance the patient may write only on one half of the page. One patient who used his left hand found it easier to write his lines vertically, from above downwards – this writing did not differ from ordinary handwriting. Some patients are able to copy letter by letter, or even copy printed character in 'current character.' In a case of pure word blindness a patient writes very much as does a person with his eyes shut. In fact with some patients, shutting the eyes does not affect their handwriting.

It had been noticed by M. de Caffeville that curiously enough some patients could read manuscript but not print. This is, in some cases,

1. Marseille Médical, 1880.

at any rate, due to a curious stratagem by which the patient get over their difficulty to a certain extent. Bernard gives a very remarkable example, observed in M. Charcot's practice. I made allusion to this case in speaking of kinesthetic impressions earlier in this paper.

This patient M. H.[1] had some time previously become hemiplegic, with disturbance of speech of a paraphasic type. From this he so far recovered. One day, on wishing to transact some business, he wrote a letter and was on the point of posting it, but wishing to make a correction he found to his astonishment that he could not read a word of it. Some time later he attempted to play billiards, but found that he could not see the right half of the table — nor even the right half of the ball he was trying to strike with his cue. On Examination

Il écrit sans hésitation son nom et son adresse, une longue phrase et même une longue lettre, sans fautes notables d'orthographe, sans passer de mots. "J'écris" dit-il, "comme si j'avais les yeux fermés, je ne lis pas ce que j'écris." De fait, il écrit aussi bien les yeux fermés. Il vient d'écrire son nom, on lui dit de le lire. "Je sais bien" dit-il, "que c'est mon nom que j'ai écrit, mais je ne puis plus le lire." Il vient d'écrire le nom de l'hospice, je l'écris à mon tour sur une autre feuille de papier et je le lui donne à lire: il ne peut pas d'abord; il s'efforce de le faire, et pendant qu'il se livre à ce travail, nous remarquons qu'avec le bout du de son index de la main droite il retrace une à une les lettres qui constituent le mot et arrive avec beaucoup de peine à dire: "La

1. loc. cit. pp. 53. 54.

Salpêtrière'. On écrit 'rue d'Aboukis' l'adresse de son ami, il trace avec le doigt dans l'espace les lettres qui composent le mot et après quelques instants il dit: "C'est la rue d'Aboukis, l'adresse de mon ami." This patient could read print very slowly in the same way - much more slowly than manuscript. If a pen was placed in his hand, and he was made, by passive movements, to write a word he could 'read' his movements as before. A similar case is quoted by Kussmaul[1] from Westphall.[2] The converse of this condition may also exist. Dr. Grasset[3] record a case in which the patient has lost the power of reading manuscript but could still read print. M. Bernard quotes a case recorded so far back as 1676 in which the patient could not read even his own writing and there was distinct paraphasia or paralexia - 'substituebat enim vocabulum unum pro altero' Some patients seem usually able to decipher pictorial riddles. In a case of pure word blindness recorded by Dr. Ross,[4] the patient seemed to think he could read, but what he seemed to read had no connection whatever with the text. For instance when shewn a paragraph in the newspaper "The Bishop of Manchester is slightly indisposed" he read "the money market has been brought to a close." He could name objects quite correctly. In fact speech does not seem to be much affected in cases of pure word blindness, but this condition is usually complicated by some word deafness, or by motor aphasia, in the earlier stages at least. The pathological lesion probably lies[5] 'sur l'hémisphère gauche dans la partie postérieure du lobule pariétal inférieur.' Broadbent[6] has described a case in which there

1. loc. cit. p. 776.
2. Zeitschrift f. Ethnologie 1874.
3. Montpellier Méd. 1884. p. 14
4. Med. Chronicle. Feb. 88.
5. Bernard. loc. cit. p. 144.
6. Med. Chir. Trans. LV. Feb. '72.

was a lesion of the region corresponding in situation with the posterior end of the fissure of Sylvius externally – and the junction of the descending cornu with the body of the ventricle internally.– In fact it occupied the thickness of the brain substance separating the extremity of the fissure of Sylvius from the ventricle.

I shall not, in this place, refer further to the condition of deaf mutes nor of totally blind persons.

A condition of 'paraphasia' is found in those further lesions in Dr Bastian's 3° and 4th groups. Mistakes in words are made as in word deafness, and there may be curious inversions of words, as when the patient says 'tuple' for 'flute.' It is unnecessary here to describe cases of absence of speech occurring in the course of insanity – cases of what Jaccoud calls 'aphasie par hébetude' such as we find in dementia; or cases in which the patient keeps an obstinate silence, from the influence of some insane delusion. Such cases are common in lunacy practice. Nor need hysterical aphasia – a condition to be distinguished from hysterical aphonia – detain us. Such cases usually improve under judicious treatment. Galvanism, locally applied, sometimes acts like a charm. But even in such cases a guarded prognosis must be given, for what appears to be a purely functional disorder may be found to be followed later by grave organic mischief.[1] – Malingering is sometimes difficult to detect. A medical friend tells me that he recently 'cured' a case of complete 'aphasia' in a young girl, by the production of the family 'taws'

1. Kussmaul. loc. cit. p. 800.

In treating of motor aphasia, as we have seen, Dr. Hammond[1] makes a division of his cases according as the aphasia is Amnesic or Ataxic Aphasia. And he lays stress on this distinction as being clinically, psychologically and pathologically a rational one. "In all the cases of which hemiplegia formed a feature, the aphasia was of the ataxic form, while when there was no hemiplegia the aphasia was amnesic. In the one the individual was deprived of speech, because he could not coördinate the muscles used in articulation, in the other because he had lost the memory of words." Dr. Hughlings Jackson[2] similarly remarks that the making of frequent mistakes in words is nearly always produced by local cerebral softening and is unaccompanied by hemiplegia; while ataxy of articulation is produced by cerebral hæmorrhage and is associated with hemiplegia. Dr. Bernard[3] thinks this division is arbitrary and unscientific. Kussmaul[4] too uses this distinction under protest. "Before we begin this task" he says "however, with a description of ataxic and amnesic aphasia, we must again premise the remark that we regard both of these designations, against which we have already raised objections, and which we retain only for objective reasons, as not happily selected. Ataxic aphesia is in a certain sense also amnesic, and amnesic aphasia ataxic." Professor Grainger Stewart[5], too, seems to consider this distinction unsatisfactory.

1. loc. cit. p. 217.
2. Brain. I. p. 308.
3. loc. cit. p. 11.
4. loc. cit. p. 750.
5. Lectures on Nervous System p. 195.

Dr. Hughlings Jackson's description of the aphasic patient's state has done so much towards forming the currently received opinions on this condition that I shall now give a brief summary of it, as given in his articles in volumes I and II of 'Brain'. Dr. Jackson adheres to the customary distinction drawn between intellectual and emotional language. To the higher process he applies the term propositionising. Words may be used propositionally or not; that is with a particular meaning suitable to the existing circumstances, and a meaning to be conveyed by the words themselves apart from the tone of voice or accompanying gesture. For Example the word 'yes' may be used propositionally as a direct affirmation; in ordinary speech it is frequently used otherwise – as an interrogative particle, or simple Exclamation. He gives an amusing Example to illustrate his meaning of a word being spoken propositionally, which was understood at once both propositionally and nonpropositionally. A gentleman at a foreign table d'hôte called out 'Eau!' The waiter understood him but his friend thought he was in pain. I might quote a somewhat similar instance. A Scottish Gentleman was on his way to the South of France, and on landing from the steamer at Bordeaux tried to get lunch at an hotel, but every time he called 'waiter' the attendant brought him oysters (huitres). "There is no "faculty" of speech or "power" of speech apart from words revived or revivable in propositions any more than there is a faculty of coordination of movements apart from movements represented in particular ways." He makes a similar remark in regard to memory. There is no faculty of memory apart from things being remembered. The printed or written words and letters are images but they differ from the images of objects in being artificial and arbitrary

in being acquired later: they are acquired after speech and have their meaning only through speech; written words are symbols of images. It would be entirely beyond the scope of this paper to enter at length on the question of memory. But the following quotations may be made from Ribot as they bear out Dr Jackson's argument. "Memory is, per se, a biological fact – by accident a psychological fact". He describes it further as "a peculiar modification impressed upon the nervous elements 2 An association, a specific connection established between a given number of elements." [β] The use of the word memory in a general sense is perfectly justifiable. It designates a faculty common to all sentient and thinking beings – the possibility of conserving and reproducing impressions. But the history of psychology shows that it is too often forgotten that this general term, like all others of its class, is of value only when applied to particular cases, and that memory may be resolved into memories, just as the life of an organism may be resolved into the lives of the organs, the tissues the anatomical elements which compose it." These quotations from Ribot's volume on Diseases of memory are sufficient to show the line of argument which he adopts in his essay.

Dr Jackson makes several statements in regard to the Aphasic patient's state, both as regard his positive and his negative condition. Taking the latter first we find that:–

1 The aphasic or speechless patient does not speak. To this general statement there are however various exceptions, to which we shall recur

α Diseases of memory. IInd English Ed." p.10. β. loc. cit. p.138.

in talking of the aphesics "recurring" or "occasional utterances."

2 The speechless patient does not write. D^r Jackson seems to state his opinion in regard to this quite clearly for says [α] "The following dicta may be of use to beginners. Using the popular term "talk", we may say that if a patient does not talk because his brain is diseased, he cannot write (express himself in writing) and can swallow well; if he cannot talk because his tongue lips or palate are immovable, he can write well and cannot swallow well." But this is meant to be something more than a dictum for beginners, for he says a few pages further on [β] I submit that the facts that the patients do not talk and do write and do swallow are enough to show that there is no disease at all, in any sense except that the patients are hysterical (which is no explanation) or that they are pretending. There can be no local disease at any rate." Heals. says that if such a case were to occur he would say that the patient had internal speech. That is of course obvious, but that such cases do occur seems to be denied by D^r Jackson. We must admit with him that few of the cases, where there is a record of speech being ~~absence~~ lost and writing retained, bear investigation. But still such cases though rare do undoubtedly exist. The case, commonly quoted in support of this, from [γ] Trousseau may fairly be challenged as being probably a case of simple hysteria though D^r Bastian quotes it as one of pure motor aphasia. The case is that of a young man, a carman of the Paris Halles. He consulted M. Trousseau and made signs that he

α. Loc. cit p. 320 vol i.

β. Loc. cit p. 329. vol i.

γ. Loc. cit. p. 261.

he could not speak, and handed me a note, in which the history of his illness was detailed. He had written the note himself and worded it well. A few days previously he had suddenly lost his senses, and had been unconscious for nearly an hour. When he came round, he exhibited no symptom of paralysis, but could not articulate a single word. He moved his tongue perfectly – he swallowed with ease, but, however much he tried, he could not utter a word. . . He completely recovered his speech five or six weeks after the invasion of the complaint [Faradisation was ineffectually applied for a fortnight.] It is very remarkable that during the whole course of this very singular affection, he could manage all his affairs, continue them even in a certain measure, by substituting writing for speech." Apart from the resistance of the case to faradisation it looks like a case of hysteria. Professor Grainger Stewart says "I have heard of a gentleman who suffered from aphasia with loss of speech, but retained the power of writing, and so was able to retain an official position, and discharge with ability and success its somewhat complicated duties." Mr. Ross[2] says "A man may be totally unable to express his thoughts by articulation words, yet be able to write with tolerable freedom to express his wants by pantomime". He then goes on to narrate a case seen by him along with Mr Sutcliffe. This patient was quite unable to articulate a single word, but he could write with great readiness pertinent replies, and give instructions about his business on a slate: and although the writing was not very good Mr Sutcliffe could decipher it without much difficulty.

1. loc. cit. p. 190. 2 Med. Chronicle. Jan. 1886.

Dr Hammond[1] describes a similar case. "the patient suddenly lost the power of speech – he had previously been entirely hemiplegic – but his mind remained perfectly clear, and though he could not utter a word he understood well everything that was said to him. The arm and leg on the right side were profoundly paralyzed. In this case there was no loss of the memory for words, and no dificulty in writing." It is somewhat difficult to reconcile this last statement with the fact that there was profound paralysis of the right side. Dr Bernard records a case of M Charcot's. The patient[2] (Hug.) would say only "ha! ha! ha!" "Il écrivait très convenablement de la main gauche et la reconstitution de son histoire fut des plus faciles." Dr Bastian quotes several cases. One[3] is that of a young scholar of Trinity Coll: Dublin who had an apoplectic fit one day after bathing in a lake. He became sensible in about a fortnight but remained speechless. He spoke but what he said was quite unintelligible – so that he was thought to be speaking in a foreign tongue. He perfectly comprehended every word said to him. He perfectly comprehended printed language. He expressed his ideas in writing with considerable fluency; and when he failed it appeared to arise from confusion merely, and not from inability, the words being orthographically correct, but sometimes not in their proper places. His general mental powers seemed unimpaired. He wrote correctly answers to historical questions – he translated Latin sentences correctly. His power of repeating word after another

1. loc. cit 210. 2 loc. cit. p. 151. 3. Osborn. Dublin Journ. of Med. & Chem. Sc. iv. p. 157.

person was almost confined to certain monosyllables.

[1] A steward of a steam packet, at 36, after complaining of severe headache had several epileptiform fits. He became stone deap and lost the faculty of speech entirely. He was also completely paralyzed. He gradually improved in some respects but on admission to hospital Eight months later he could not speak a tale; he could not articulate a single sound. He could perform all the possible voluntary movements with his tongue, cheeks, lips &c. He was perfectly intelligent and comprehended what he read as well as what was addressed to him. He was able to keep up a conversation, he writing on a slate and his interlocutor speaking. He wrote with remarkable facility a very excellent and legible hand, expressing himself with point and accuracy, Except for an occasional error of spelling, due evidently to defective education. He was eventually taught to speak again. [2] Bouillaud records the case of a man who, in answer to questions, replied by words which had no connection with the question. But he gave correct answers in writing. He could write to dictation but misread what he had written. He named things quite wrongly. Dr Finlayson tells me that he has seen several such cases, where he was able to exclude the possibility of hysteria or malingering. One of these is described in the [3] Glasgow Medical Journal. Three years previously she was seized with slight right sided paralysis, 10 days after her second confinement. Her speech was entirely lost. After some time she regained the use of the word 'yes' & 'no' and of a

1. Dr Bristowe. Trans. Clin. Soc. 1870. p. 92. 2. de l'Encéphalite 1825. p. 290. 3. vol xii. p 179.

few isolated words. After the next confinement she lost the use of even those few words. She occasionally uttered a short sharp little cry but no other sound. "She evidently understands what is said to her, she knows the right word and assents eagerly to them when we suggest them; She can turn up passages in the Bible, not only by the name of the chapter or verse, but she can find the passage wanted by giving her the opening words of some well known psalm or chapter. Further she can read short paragraphs from the newspapers and can stand an Examination on them. She has had a fair education and could write down readily an answer to our questions when we chose to ask her to do so, instead of suggesting replies and getting affirmative or negative motions of the head. All this shewed that though unable to speak, her knowledge of words, both spoken and written was almost perfect, and her memory of words was evidently not lost for she could write down short replies with the word she wanted. .. She suffered from difficulties in the use of written language. She wrote down with the utmost ease answers that could be expressed in single words, or even in two or three words; but when I asked her to sit down and write a letter she shook her head in despair." Dr Finlayson is quite convinced that there was no deception in this case, nor any hysterical affection. Dr Innis Smith of Govan in whose practice the case was, concurred in Dr Finlayson's opinion of it. The retention of the power of writing, even in a limited degree, is of interest in this case, for the loss of speech was unusually complete – even to the use of 'yes' or 'no'.

There is another case recorded by [1] Bouillaud, in addition to the one I have already quoted. It is of importance as an abscess was found in the brain after death, proving conclusively that there was local disease. This patient died in the surgical ward of Phil. Boyer. He had received an injury, which had forced the left eye out of the orbit and caused suppuration. During the eight days that he survived, the power of speech was entirely lost, although he could still move his tongue. He understood what was said to him but was unable to answer. On the other hand, he wrote down his wishes on paper, and stated in writing that he remembered but could not utter the words. In a case recorded by [2] Boinet an abscess, of traumatic origin, was found in Broca's convolution. After the healing of a wound made by the trepan, the patient had regained consciousness, intelligence, memory, but not the power of speech. He made himself understood by gestures, played with his companions, copied from dictation and wrote out his own thoughts. We may laugh with Dr Bernard, when he makes fun in his flippant French way of the writers "who quote all the ancient classics to prove the existence of aphasia in early days. Homer and Isaiah, Herodotus & St John the Evangelist are by them looked upon as authorities. Les écrivains médicaux ont rappelé à l'envi et rappellent encore souvent, en traitant ce sujet "ce frère lubin, ce vrai croque-lardon" qui découvre dans Ovide les sept Sacrements de l'Evangile." At the same time an accurate record of cases is of an interest no matter when there were observed. The history of the congenital aphasia of the son of Croesus and its sudden disappearance under the influence

1. Bull: de l'Acad. méd. T. xxx. p. 625. 2 Gaz. des hôpit. N° 30. p. 325.

of Emotion, is as valuable - if authentic, as is a similar case recorded by D^r Bastian. D^r Bernard himself gives the story and also quotes an inscription to show the existence in early Greek times of mirror writing. He even, for his own purpose quotes lay writers, such as M. Zola, who in one of his novels gives a realistic account of an aphasic patient. Such descriptions from unbiassed laymen are undoubtedly of value, if given by competent observers. Against M. Zola I might venture to refer to our English novel of "The Golden Butterfly". But a description of the aphasic state from the patient himself is of special value. The cases of Rostan & Lordat are quoted by most of the authorities, but that of the equally illustrious Johnson seems to have escaped the attention it deserves. His case has the additional merit of being written shortly after, if not during, his attack. So that, although it is no doubt familiar I give his account in this place; for it bears on the question of the preservation of the power of writing when the power of speech is gone.

"To M^r Edmund Allen. Dear Sir,

It has pleased God, this morning, to deprive me of the powers of speech; and as I do not know but that it may be his further good pleasure to deprive me soon of my senses, I request you will on the receipt of this note, come to me, and act for me as the exigencies of my case may require. I am Sincerely yours Sam. Johnson. June 17. 1783.

To the Reverend D^r John Taylor. Dear Sir,

It has pleased God, by a paralytick stroke in the night, to deprive me of my speech. I am very desirous of D^r Heberden's assistance, as

1. The Life of Samuel Johnson D.D. by James Boswell, Esq. 7^th Ed. 1793. vol 3. pp 481 et seqq.

I think my case is not past remedy. Let me see you as soon as possible. Bring Dr. Heberden with you if you can; but come yourself at all events. I am glad you are so well, when I am so dreadfully attacked. I think by a speedy application of stimulants much may be done. I question if a vomit, vigorous and rough, would not rouse the organs of speech to action. As it is too early to send, I will try to recollect what I can, that can be suspected to have brought on this dreadful distress.

I have been accustomed to bleed frequently for an asthmatick complaint; but have forborne for some time by Dr. Pepys's persuasion, who perceived my legs beginning to swell. I sometimes alleviate a painful, or more properly anxious oppressive, constriction of my chest, by opiates; and have lately taken opium frequently, but the last, or two last times, in smaller quantities. My largest dose is three grains, and last night I took but two. You will suggest these things (and they are all that I can call to mind) to Dr. Heberden. I am, &c Sam Johnson." June 17. 1781.

Though not describing his condition I have given these two letters in full as they were written on the morning (early, as the text shows) of the night in which he was attacked. The following letter describes his condition.

"Two days after he wrote thus to Mrs Thrale.

On Monday, the 16th, I sat for my picture, and walked a considerable way with little inconvenience. In the afternoon and evening I felt myself light and easy, and began to plan schemes of life. Then I went to bed; and in a short time waked and sat up, as has been long my custom, when I felt a confusion and indistinctness in my head, which lasted, I suppose, about half a minute. I was alarmed, and prayed God, that however he might afflict my body, he would spare

my understanding. This prayer that I might try the integrity of my faculties, I made in Latin verse. The lines were not very good, but I knew them not to be very good; I made them easily, and concluded myself to be unimpaired in my faculties.

Soon after I perceived that I had suffered a paralytick stroke, and that my speech was taken from me. I had no pain, and so little dejection in this dreadful state, that I wondered at my own apathy, and considered that perhaps death itself, when it should come, would excite less horrour than seems now to attend it. In order to rouse the vocal organs, I took two drams. Wine has been celebrated for the production of eloquence. I put myself into violent motion, and I think repeated it; but all was in vain. I then went to bed, and, strange as it may seem, I think, slept. When I saw light, it was time to contrive what I should do. Though God stopped my speech, he left me my hand, I enjoyed a mercy which was not granted to my dear friend Lawrence, who now perhaps overlooks me as I am writing, and rejoices that I have what he wanted. My first note was necessarily to my servant, who came in talking, and could not immediately comprehend why he should read what I put into his hands. I then wrote a card to Mr Allen, that I might have a discreet friend at hand, to act as occasion ~~might~~ should require. In penning this note, I had some difficulty; my hand I knew not how nor why, made wrong letters. I then wrote to Dr Taylor to come to me, and Mr Heberden; and I sent to Dr. Brocklesby, who is my neighbour. My physicians are very friendly, and give me great hopes; but you may imagine my situation. I have

so far recovered my vocal powers, as to repeat the Lord's Prayer with no very imperfect articulation. My memory, I hope, yet remains as it was; but such an attack produces solicitude for the safety of every faculty." A fortnight later he was able to speak well but "the nerves are weak" he says, "and I cannot continue discourse long."

It is impossible without a fuller history to state Exactly what power Dr. Johnson had lost: but we may presume that he had (on the negative side) at least lost the power of making himself understood by spoken language; and it is obvious that he did retain internal speech, and did retain the power of Expressing himself in writing. Both of these faculties slightly defective, it is true, but sufficient to enable him to compose and criticise his Latin verse, on the one hand; and to give orders to his servant, on the other hand.

From these twelve cases which I have quoted in this connection, I think it may safely be assumed that Dr. Jackson's dictum, that the speechless patient does not write, must, in a measure, be qualified. And this is only what might, a priori, be expected. M. Ribot[1] very clearly points out the inequalities that exist in the strength of a man's various memories, even in health. So that it is but natural that one may suffer more than another. He instances Mozart's wonderful memory for musical sounds, which enabled him to write out the 'miserere' after hearing it played twice in the Sistine Chapel. And again the graphic memories of Horace Vernet and Gustave Doré which enabled them to paint portraits from memory. It is then easy to understand

1. loc. cit. p. 137.

the statements of various writers that in aphasia the disturbances of speech, pantomime and writing are not equally profound – or need not be, and do not progress pari passu. These remarks apply equally to Dr. Hughlings Jacksons third or fourth statements of the speechless patients negative condition. These are that he

3. Cannot, in most cases, read at all: and

4. The power of making gestural signs is impaired.

It might be supposed, from the quotation made above from Ribot, that power of making signs might alone be impaired. This condition, however, seems to be unknown. For, as we shall see when we come to Dr. Jacksons explanation of the speechless patients positive condition, these signs are highly organised or automatic and involuntary, in large part at any rate, and are therfore less affected.

Dr. Hughlings Jackson goes on to describe the positive condition of the aphasic patient. In regard to this also he makes four propositions 1. He can understand and remember what we say or read to him. This as we have seen is not true of those patients who are affected with word deafness.

2. His articulatory organs move apparently well in eating and in his occasional utterances. I remark here that an aphasic patient may be unable to protrude the tongue voluntarily, but may do so in order [α] to pick up a crumb, or even [β] to lick his lips to facilitate the process.

3. His vocal organs act well. He sings. Of this there are

1. Dr. Jackson. Croonian Lectures 1882. 2. Dr. Gowers Diseases of the Brain p. 126.

numerous cases recorded – by Trousseau, Charcot & others; and curiously enough, the patient may in singing articulate the words of the song quite clearly. In one instance a man who was completely † speechless joined in singing the first verse of "I dreamt that I dwelt in marble halls" and then, by himself, sang the second verse.

4. The aphasic patient smiles, laughs, frowns, &c. As we have seen Dr. Jackson considers some of the expressions of the emotions as really parts of the emotion itself.

Dr.* Hammond directly denies Dr. Jackson's conclusion that what is lost in Aphasia is merely the voluntary power of using words to express ideas. After quoting at length a passage from Dr. Ferrier's West Riding Asylum reports – he says – "it is very evident, however, that the view of Dr. Jackson thus enunciated and endorsed by Dr. Ferrier, is not of universal application to the phenomena of aphasia: for though in some cases there is no loss of the memory of words, but merely a loss of the voluntary power to utter them, there are many other cases in which the patient has lost the memory of words, and has not lost the voluntary power to utter them. Thus, the person who speaks of his "boots" as "topsails" has not lost the voluntary power of saying 'boots,' for he can utter the word when asked to do so, an act which would be clearly impossible if he had no voluntary power to say boots. I have witnessed several cases in which the patients could say any word they

*. loc. cit. p. 220. †. Gowers. Diseases of the Brain.

were told to say, but who could scarcely articulate a syllable when not prompted. The fact appears to be, that the only cases in which the voluntary power of articulation is lost, are those which are described in the present chapter as instances of atonic aphasia." I shall not attempt to argue this point, but merely remark, in passing, that it by no means necessarily follows that, because a patient can repeat words, that he therefore has a power of uttering them voluntarily. Persons may repeat what is said, automatically — or one might almost say reflexly[1]. Professor Grainger Stewart gives an amusing illustration of this in his chapter on aphasia. A barrister was prompted, by some malicious wag, to add a clause to the peroration of his speech, asking that the accused might be "whipped at the tail of a cart" — after being found not guilty. But this automatic repetition may be found in persons perfectly healthy, such as sailors that are accustomed to repeat all orders given them. I have heard a young sailor told to "go aloft" — "go aloft, aye, sir!" — "and stay there all night, Peter!" — "Stay all night, aye, Sir."

It is hardly possible to say that a man actually has a power of using something, apart from the possession of that something to use. It is not, I think, straining a metaphor too far, to say that a man has lost the power of paying his hotel bill, for example — if his pocket book has been stolen. Though he may still mechanically give a small coin to an importunate beggar, and may have the power of passing on a bank note to his landlord if a friend should lend him one.

1. Jaccoud. Clinique. med. 1874. p. 65. This explanation is given at length by Kussmaul, loc. cit. chapp. xvii. xviii.

Dr. Hughlings Jackson devotes an article to the consideration of the exceptions to his first proposition, in regard to the speechless patients negative condition:- namely that he does not speak atall. Dr. Jackson divides these into Recurring and occasional utterances.

The recurring utterances usually remain unchanged throughout the course of the illness, but this is not invariably the case. The recurring utterances may be grouped under the following heads as 1. Simple Jargon - such as "Gabby", "macessa", "cousisi", "Sacon."

2. Words used singly without propositional meaning, these are really jargon. Ex.gr. 'One', 'man', or some oath as "damn."

3. Some phrase without propositional value, as used in the utterance though of highly propositional form. 'Come on to me' 'List complete' or frequently an oath, such as 'Hell to pay', in a case recorded by Dr. Hammond,[B] or 'Sawmeleg off'

4 "Yes" and "No" may be retained. These words may be used a. as simple interjections.

b. meaning affirmation and negation.

c. simply repeated when the patient is told to do so.

The occasional utterances may be similarly divided into

1. Utterances which are not speech.

2 Utterances which are inferior speech.

3. Utterances which are real speech. Superiority in speech means precision of application to new relations of

α. "Brain" vol ij. pp. 208 et seqq. β. loc. cit pp.208. 213.

Dr. Finlayson mentions a patient who could seldom or never repeat even the simplest things dictated to her, she occasionally said some words, and even short sentences by accident as 'he will come on Saturday'. Glasg. med. Journ. XII. 1879. p. 182.

things. 1. Many examples of these occasional utterances are given by various authors. Dr. Jackson instances patients who under the influence of emotion such as 'Oh, dear!' One patient said 'damn' when his daughter came in late one night.

2. Of the 'inferior' speech utterances Dr. Jackson gives an example in the case of a groom who said 'Wo! Wo!' to his horse. This was a distinct proposition though not in the propositional form of ordinary articulate language.

3. Some patients, otherwise completely speechless, occasionally surprise and delight their friends by utterances of high propositional value. The friends are apt to think that speech is about to be restored. The daughter of Dow- the patient who said 'damn' when she came in late, was so pleased that she said she would always stay out late if it would only make her father talk.

These highly propositional utterances are of great interest but are difficult to explain. One man who could say only 'Pooh! pooh!' one day asked for his daughter and said "How is Alice getting On?" Another patient in answer to his sons enquiries concerning where he had left his tools, replied 'master's'. Another patient, in the middle of some incomprehensible jargon, said 'Surely you must know what I mean'. Another patient was annoyed at the examination he was undergoing and exclaimed "What is all this bloody nonsense about?" Many other examples might be given.

"There is no demonstration by these cases that the patient retains organisation for any other words than those he actually utters" says Dr. Jackson - (loc. cit. II. p. 222) "but is it a likely thing that

1. see opposite page.

Trousseau's patient, who said 'merci' when a lady picked up his handkerchief, had just that word, or a few such words, left?

Dr. Jackson maintains that loss of speech follows the course of loss of nerve power generally: and he applies in detail to speech the principles he has enunciated elsewhere in regard to the evolution and dissolution of the nervous system. "Evolution," he says,[1] "is a passage from the most to the least organised;— that is, the process is from centres comparatively well organised at birth up to those, the highest centres, which are continually organising through life. Evolution is a passage from the most simple to the most complex— from the most automatic to the most voluntary. The highest centres, the organ of mind, are the least organised, the most complex and the most voluntary. .. Dissolution is the reverse of this process. It undergo dissolution is to be reduced to a lower level of evolution." He, further, applies and extends Dr. Broadbent's hypothesis of the bilateral action of the brain, in highly organised, automatic movements, which permits these to go on after injury to one side of the brain. The application of these principles is tolerably simple up to a certain point. He suggests advances the hypothesis that words are in duplicate: the nervous arrangements for words used in speech lie chiefly in the left half of the brain;— that the nervous arrangements for words used in understanding speech (and

1. Croonian Lectures. 1884.

in other ways) lie in the right also. This statement, he says later is too abrupt. The mentation is dual:- physically the unit of function of the nervous system is double the unit of composition. The speech possible by action of the right side of the brain is inferior. Thus when the right side of the brain is uninjured the patient has words remaining. He has lost the memory of words serving in speech and retained the memory of words serving in other ways.

This theory readily explains the retention of emotional and interjectional language – the swearing when annoyed, the saying merci, or adieu or yes or no under appropriate circumstances. But does not explain the occasional, highly propositional utterances, nor the recurring utterances in propositional form such as 'Come on to me.' 'List complete.' 'I want protection.' Dr. Jackson supposes that these words were being said or were about to be said at the time the patient was attacked by his illness. This he maintains is a condition interfering with the process of dissolution. "'Come on to me'" represents not only the last proposition en permanence but is to be looked on as on the physical side, a keeping up of activity (of a greater readiness to discharge) of certain nervous arrangements, which normally exist only temporarily and only on special occasions in particular combinations, and which in health soon go out of function, (practically out of function, not actually). Certain nervous arrangements remain permanently in a state of discharge-ability far above normal." This phrase 'Come on to me' was the

utterance of a signalman struck down by disease on the railway. 'I want protection' was the utterance of a man hurt in a street brawl. 'List Complete' that of a man whose illness came on after some hard work in writing a catalogue. 'Gee Gee,' that of a woman whose illness came on while riding.

Dr. Jackson, further, insists that the disease must, in no way, be called the cause of these utterances. It merely permits them, from the loss of control of a higher over a lower centre. The disease in the left side permits the increased dischargeability of the right half of the brain.

In regard to what has just been said in regard to nervous arrangements going practically but not actually out of function, he instances two cases in which operations remained in abeyance. A groom, taken ill while attending to his horse, on recovering consciousness began to hiss as grooms do at their work. Similarly a lady taken ill while playing cards, remained unconscious till the third day, when she suddenly asked 'What is trumps.'

In explanation of the intrusions of word or sentences, that sometimes occur aphasia, as well as in temporary embarrassment of speech from emotion and so on, — he advances what at first seems a somewhat startling proposition: namely that images and words are subjectively revived in an order, the reverse of that in which images and words are finally arranged — and from want of control, in aphasia, or in the hurry of emotion, they, so to speak come over

prematurely. This proposition is however quite in accordance with phenomena observed in investigations of quite another sort. Dr. Ireland, among others, has made interesting observations in regard to the so called 'mirror writing' of (left handed) idiots. Mr. Myers[2] discusses this question of the action of the right side of the brain in automatic or 'Planchette' writing. He adopts Dr. Hughlings Jackson's theory in explanation of the backward writing so often seen:- the operator is often quite unconscious of what is being written; so that the action may, according to Dr Jackson dictum, be considered purely automatic. "The less and less consciousness attends abstract processes the more and more they become automatic, subject and object propositions become as it were fused". It is impossible to follow out this subject in such a paper as this, but it seems probable that much light may yet be thrown on the processes of speech by a careful & scientific observation of the automatic phenomena observed by such methods or during a natural or artificially induced, condition of hypnotism.[3]

Aphasic patients, we have seen, may be able to copy writing though not able to read nor to write (express themselves in writing). Some may even copy print into writing without understanding it at all. In this connection Dr. Jackson says - the aphasic patient cannot express himself in writing because he cannot speak, but the nervous arrangements for these arbitrary images which are named letters are intact, and thus he can reproduce them as mere drawings, as he can the images, although with more difficulty, they, besides lacking

1. The blot on the brain. 2. Trans. Soc for Psych. Research. VIII, 1885 (May)
3. Bernard. loc. cit. p. 236

their accustomed stimulus, being less organised. He can copy writing and he can copy print into writing. When he copies print into writing obviously he derives the images of letters from his own mind (physically his own organisation) he does not write in the sense of expressing himself, because there are no words reproduced in speech to express."

This explanation does not hold good for cases of pure agraphia. That is cases in which the patient has lost the power of writing though he may speak perfectly, read aloud, draw figures (geometrical) copy writing and perhaps write with the left hand — yet be unable to write with the right hand, though all ordinary movements can be gone through with it. Such a case is described in detail in Dr. Bernard's volume. This patient suffered from right hemianopsia but could read quite well. Such cases are undoubtedly very rare. The[2] pathological lesion causing agraphia is possibly one occurring in the foot of the second left frontal convolution. Such a condition is difficult to understand. In such cases, as those to which Dr. Jackson's explanation applies, it is easy to see that there need be no affection of other movements such as those of drawing, knitting, sewing and so on.

2. Lamburini et Maschi. Rivista sperim. di freniatria .. IX. fase. II. III. p. 282.

1. loc. cit. Chap viij. 2. Exner. Localisation der Functionen. Wien '81. p. 57.

Another condition, to be considered as affecting the course of dissolution, is the rapidity – as also the gravity of the lesion taken in conjunction with the external circumstances.

It is usual in describing the processes of speech to say that "language must possess a subjective and an objective value or do must fulfil an impressive and an expressive function," thus applying to speech what Herbert Spencer says of movements generally, as when he talks of one having a dream of the arm being outstretched before we extend it. So Dr. Jackson[2] says that every proposition occurring during activity of the left side of the brain is preceded by a revival of the words of it during activity of the right half of the brain – subjective followed by objective. Verbalising consists in the whole process subject proposition plus object proposition. The subject proposition is probably a 'survival of the fittest' – that is to say of the internally fittest. Emotional, temporary speechlessness may be due to this fiercest struggle for the survival of the fittest, where nearly equally balanced forces are in conflict: or such a struggle may give rise to exhaustion of the centres.

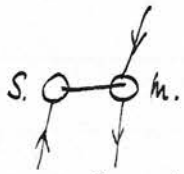
In his explanation of the intellectual & mental processes of speech, Dr. Broadbent[3] adopts Dr. Bastian's views with

2 Brain. ii p. 327. 1. Dr. Ross. Med. Chron. Jan. 86.

3. Med. Chi. Trans. LV. p. 181 et segg.

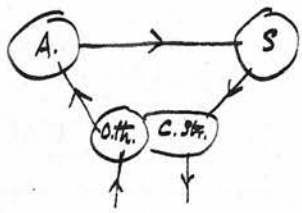
some modifications. Quoting from Dr. Bastian he says, "certain definite parts of the brain are called into ~~operation~~ action in mental operations, and these are always the same.
The same parts as before, are concerned in the recollection of past impressions or ideas.
The several sense centres, at the base of the brain and in the medulla are connected each with its own set of cells in the cortex. These cells along with the sense centres form the perceptive centres. In the perceptive centres the primary impressions made upon the organs of sense are converted into 'perceptions proper.' [Dr. Ross seems to give to this process the term of 'apperception', borrowing the term from Kant] that is to say they receive their intellectual elaboration, and this elaboration implies an intimate cell fibre communication between each perceptive centre and every other perceptive centre, since one of the principal features of a perceptive act is that it tends to associate, as it were, into one state of consciousness much of the knowledge which has been derived at different times and in different ways concerning any particular object of perception. Dr. Broadbent modifies this by dividing the process into two parts. There is a primary rudimentary perceptive act by which external causes as such are recognised by the form colour and so on. There is also a higher degree of elaboration in which by the combination or fusion

of perceptions derived from the various organs of sense a conception or idea of an object as a whole is obtained. This is a new and distinct process, and is usually accompanied by the affixing of a name to the object. Dr. Broadbent has made this clear by a schematic diagram. In this are mapped out the various sensory and intellectual centres which are supposed to come into play in speech. He supposes that we have a sensory and motor department — a receptive and emissive: and that the one gives guiding impressions to the other — while higher centres employ the motor group: or diagrammatically thus



where S. M. represent sensory & motor.

The cells set in action in speaking form a word group — [hypothetically located in the corpus striatum guided by auditory impressions through the optic thalamus. The convolution of Broca may be considered the 'way out' for intellectual speech though the higher centre is not localised. The auditory-perceptive or guiding centre may be located in the infra marginal gyrus of the Sylvian fissure, which registers words as heard — as we have seen in treating of word deafness. Putting this in the form of a diagram we have

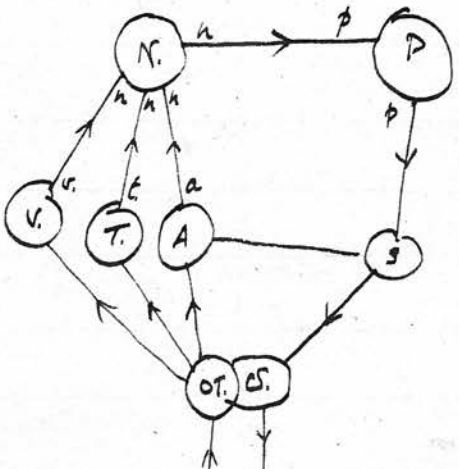


where A = Auditory Centre
S = Speech ..
O. th. = optic thalamus
C.S. corpus striatum

1. 'Brain.' vol. 1

Applying this to disorders of speech we find that lesions of S. would cause simple aphasia, in which the patient understands, and tries to speak: automatic speech would remain.
In lesions of the line of communication A–S, the patient would make mistakes in word of which he would, however, be conscious. In lesions of A. he would make similar mistakes unconsciously.

He then draws a centre from for the higher perception of which we have spoken, ~~with its correlative motor~~ or naming centre, with its correlative motor centre which he terms the Propositionising centre, in which names are set in a framework of other word for outward expression. In this a proposition is realised in consciousness and mentally rehearsed. It is in this propositionising centre that Dr. Broadbent would localise the seat of the faculty of language, rather than in the convolution of Broca. Expressing this by a diagram we have V. the visual centre (located in the angular gyrus by Ferrier) A the auditory centre (in the supra marginal gyrus of the Sylvian fissure) T. the tactual centre (in the uncinate gyrus.)



If S. be intact and P. destroyed the patient cannot frame the simplest phrase, but can repeat words to dictation.
Conversely a proposition may be realised in consciousness but may not find expression.
If P. is injured a patient may still be able to utter names but cannot put them together – he has no syntax. Dr Broadbent gives an example of this in the case of a gentleman who said, "Brothers, America, two brothers, letter." While if N. is injured the patient has no memory for names.
As in a case already mentioned, one patient could talk well and repeat words, but could not name objects nor read even his own writing: in such a case on is damaged. In the case quoted a lesion was found underlying the angular gyrus.
In lesion of A or an we have word deafness.
N. probably lies in the sensory areas of the brain, P in the anterior part of the cortex. S may, as a provisional guess, be located in foot of ascending frontal (first ascending parietal gyrus). P. may be in Broca's convolution. N in the collateral lobule, or under surface of temporosphenoidal near its junction with the occipital lobe, as fibres from all the perceptive centres converge to and in its grey cortex.

Reading would in the diagram be represented by connecting AV and possibly VS. When the act of reading becomes automatic the graphic symbols convey ideas directly

to N. without the intervention of S. or A— probably.
Dr. Broadbent would insert a centre W. for writing close to S.
It may possibly be identical with S or controlled by a common higher centre. Dr Broadbent has not seen any patient who could write and not speak and seems to doubt if such cases have occurred. I think however that some of the 12 cases I have quoted may be considered as conclusive evidence. Exner as we have seen localises W. in the foot of the 2nd frontal on the left side.

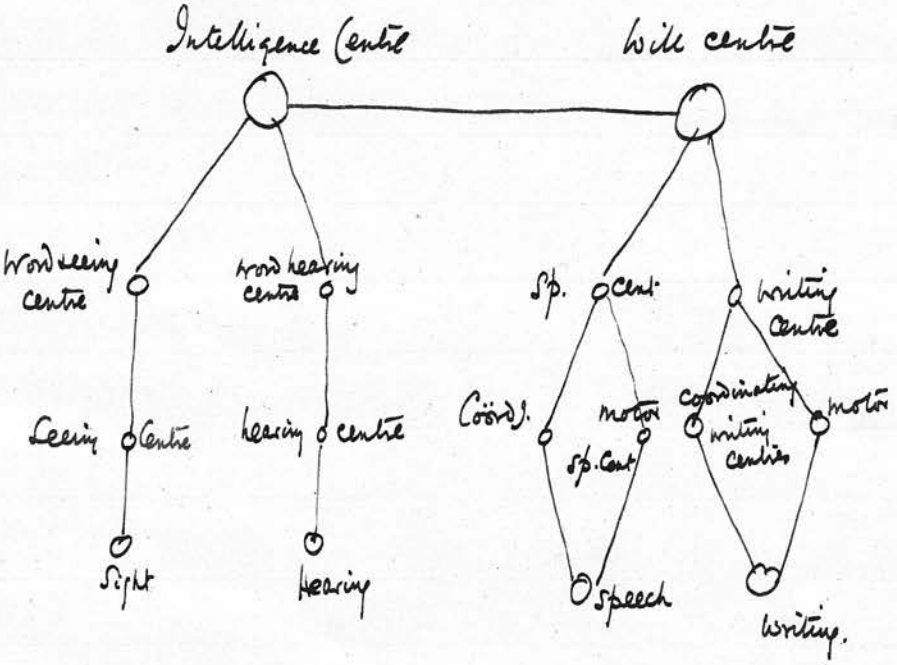
Such an attempt to explain cases of aphasia must after all bring us only to approximate conclusions, and enable us to form a sort of 'working' hypothesis till our knowledge of the subject is more accurate. Besides the tracks figured in the diagram there must be numerous others. For example, the patient Dunford whose case is referred to on the page before this one — the patient who could not name objects at sight but could name them in ordinary conversation — could explain by periphrasis that he knew what an object was which he was yet unable to name. There must therefore have been some track open from V. to S. through the "apperceptive" centres — or as in Dr. Broadbent's diagram through N. to P. yet without as it were receiving any modification in the naming centre.

[1] Professor Grainger Stewart's diagram is somewhat similar to Dr. Broadbent's though the names applied to the different various regions are somewhat different, and a coordinating centre for speech is

1. loc. cit. p.p 187. 188.

inserted apart from the motor centre. This certainly makes the explanation of some ataxic cases more easy, but it seems doubtful whether two such downward tracts exist apart from each other.

The diagram is so familiar in the Edinburgh School that I merely insert it without any explanation; though, in fact, from the naming of the parts of the diagram no explanation is necessary

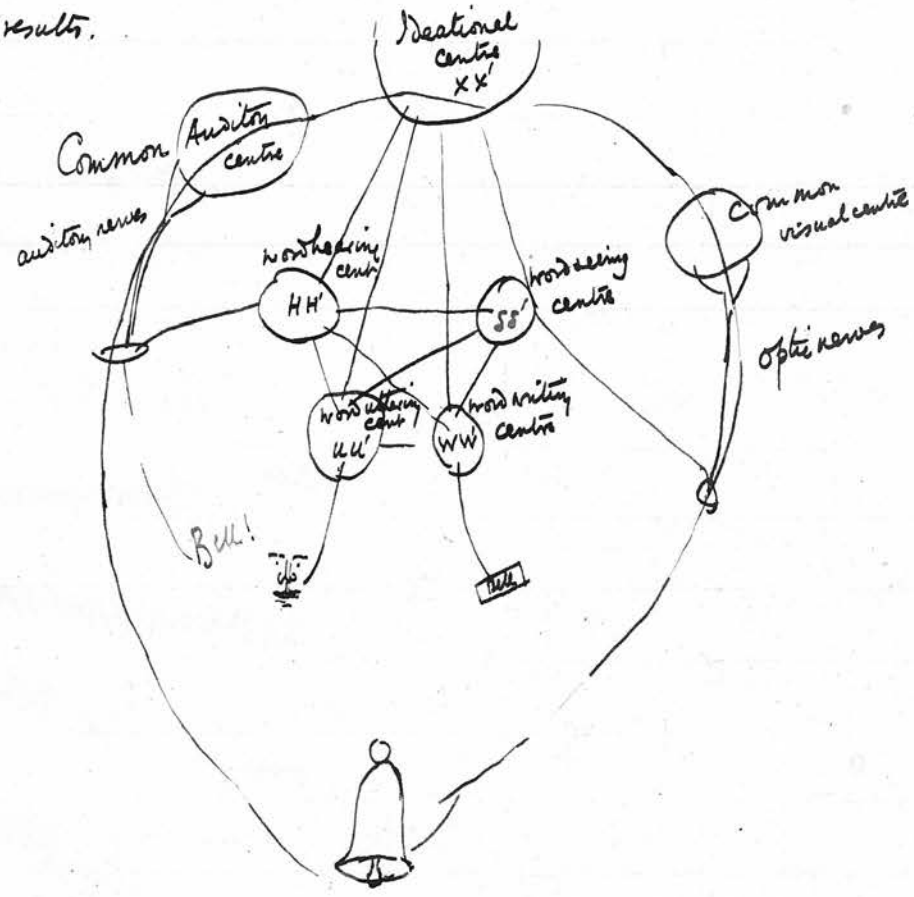


1. Kussmauls Diagram is much more complicated. It is constructed on the same principle so far; but in it the downward tracks pass through the word seeing & word hearing centres to the coordinating centres. I do not here reproduce it. It is to be found in Kussmauls elaborate treatise on the disturbances of speech to which reference has

1. loc. cit. p. 279.

frequently been made in the course of this paper. Kussmaul also adds another perceptive-image centre to explain the acquirement of speech by deaf mutes.

Charcot's diagram is somewhat similar to Kussmaul's. It has not the merit of clearness like those of Dr. Broadbent and Professor G. Stewart. It is figured in Dr. Bernard's work. The same diagram is employed by Mr. Myers[2] in his explanation of the phenomena of automatic writing. I give the diagram with the English names and with the addition of letters which Mr. Myers uses to formulate his results.



1. loc. cit. p. 45

By means of these letters Mr Hughes has composed some highly ingenious formulae, so as to represent the various conditions in a concise form. This method is so far of use that it compels one to form a definite idea in his own mind of the kind of case with which he is dealing, but it is of little value for any further purpose. And it has the disadvantage of giving in a semi algebraical or mathematical form, an opinion on a subject of which the very premises are in large part hypothetical – and consequently hypothetical conclusions may be taken for proved facts. He makes the letter with the dash (Ex. gr. X') represent the right half of the brain. For example he lets XX' + HH' + VV' represent normal speech

then XX' + HH' + V' represents pure aphemia

or XX' + HH' + VV' represents pure word deafness

and XX + VV represents congenital deafness.

It is doubtful if such formulae could be applied successfully in the representation of some of the more complex cases

Enough has been said, in the course of this paper, to show that no general formula can be given in regard to the mental condition of an aphasic patient. As in the case of the insane, each case must be judged of on its merits. Some aphasic patients are perfectly able to conduct their business - either by means of writing, or gestures, or by giving assent to leading questions. Such patients would be quite capable of making a will. In a case of pure word deafness a patient might make his will in writing if there were not word blindness along with it. But a patient both word blind & deaf might be quite incapable though his intelligence and judgment might be little if at all impaired. I recently had the opportunity, by Dr. Finlayson's kindness of seeing the shorthand writer's report of the evidence of a young man given in the Court of Session. He had been completely aphasic as a child, and was at that time under Dr. Finlayson's care. His case was reported in the Glasgow medical Journal & Obstetrical Journal for 1876. He was to a certain extent reëducated and could speak a little. His evidence was chiefly in the form of answers to leading questions. He was able to take the oath, repeating it after the judge word by word as he was unable to do so clause by clause. This case is of importance also from the point of view of prognosis.[1] "Permanent aphasia in Children from disease of the left hemisphere is almost

1. Gowers. Diseases of the Brain p. 125

unknown. The loss of speech rarely lasts longer than a week. Then the child speaks almost as well as ever. Hence it is probable that speech-processes go on more equally in the two hemispheres in childhood than they do in adult life." This statement must I think be taken with some reservation. Dr. Bernard describes at great length a case of aphasia occurring in a boy of 8. The case began after an attack of scarlatina with otorrhœa. It came on suddenly with a convulsion after which the child was hemiplegic on the right side. His power of speaking more than two years later was very defective. Dr. Graves[2] record a curious case of aphasia in a child of six, followed, on recovery of speech a few days later, by dreadful stammering: this however entirely passed away on the onset of what seems to have been tubercular laryngitis with hoarseness. I refer to the case partly to show how little seems to have been known of aphasia even so late as that time. Dr. Graves rather implies that the loss of voice was laryngeal in the first instance though he had lost all power of articulation. I have already referred to the onset of apoplexy after even hysterical aphasia (not aphonia). Dr. Graves[2] record a case, showing how guarded should be the prognosis in every case of aphasia even if at the time unaccompanied by paralytic phenomena. The case is that of a barrister who one day met an old friend from the country. He tried to ask for family news and to his surprise found himself speechless,

1. Loc. cit pp 111–117. 2. System of Clin. med. Dublin 1843. pp. 688. 689.

though he had, a few moments before, been chatting with various friends. Vertigo and slight hemiplegia came on later on the same day. At the end of three weeks he had partially recovered but in two months he died of apoplexy.

There are many varieties of affection of speech, which occur in the course of diseases, due to lesions of the efferent nervous system. We have for example the thick, badly articulated utterance of General paralysis. I have observed a somewhat similar indistinctness in a case of progressive muscular atrophy which had advanced so far as to involve the muscles of the tongue, and then became stationary. In multiple sclerosis the speech is often of a scanning character, Kussmaul explains this, by irregularity of the nervous impulses caused by their having to overcome an unaccustomed resistance. In myxœdema also there is a scanning utterance. The speech may be much affected from disease of the medulla or pons: either occurring gradually as in the progressive disease called bulbar paralysis, or coming on suddenly from apoplectic lesion. Such a case is described by Dr Wilks. A lady had a fit during dinner. She did not lose consciousness but was quite speechless. There was no paralysis of the limbs but she swallowed with difficulty and the saliva ran from her mouth (showing that her lips also were probably affected, though this may have been due to her inability to swallow)

1. Quoted by Bastian. Brain as an Organ of mind. p. 672.

She remained quite speechless. At her death two years afterward an old brownish cyst was found in the pons. Even complete ablation of the tongue, however, does not cause so much disturbance of speech as might be expected. Such cases are mentioned by Prof. Annandale as having occurred in his own practice and that of his Syme.

Kussmaul discusses most causes of disturbance of speech in his treatise on that subject. More recently de la Tourette[2] has described a very curious condition, due apparently to instability or excessive irritability of the speech- and other motor-centres. A case of this sort has been described by Dr. Railton[3]. In his patient the first condition observed was an involuntary movement of the right arm, accompanied by a short inarticulate cry, like that in "clearing the throat" "hem!" This gradually passed on to a more gestural movement and the cry was replaced by an obscene oath. This character of the disease led de la Tourette to call the condition copprolalia. In the winter of '82-'83 there was a male patient in the wards of the Salpêtrière who exhibited a somewhat similar condition, he used suddenly to make a violent gesture with his right arm and give a loud shout. M. Charcot called the condition chorea of the diaphragm. The shout was inarticulate, but

1. MS. notes of clinical lectures.
2. Archives de Neurologie. Sep. 1885.
3. Med. Chronicle Ap. 1886.

whether it afterwards became articulate I am unable today.
Dr Railton says a somewhat similar condition exists among the
Malays of the Straits' settlements, where it is known as 'Latah'.
It also resembles the 'jumping mania' of the lumbermen in Maine,
and the more especially the 'myriachit' in Siberia.
The nervous centres seem to be too excitable, so that
the nervous energy is discharged with or without external
stimulation. One patient, a lady, said it was the extreme
desire to avoid using the foul oath which kept it, so to speak,
on the tip of the tongue.

I have thus endeavoured, in treating of the relations of
speech, to deal so far as possible with matters of fact,
leaving aside all mere theories believing - in the words
recently quoted by Prof. Virchow from Goethe that

Ein Kerl, der Spekulirt,
Ist wie ein Thier, auf dürrer Heide
Von einem bösen Geist im Kreis herum geführt.