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Part First.

ORIGINAL COMMUNICATIONS.

I.—THE DISORDERS OF SPEECH.

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Speech in its Relations to Insanity—*Continued.*

(*Continued from p.* 715.)

Reflex and Automatic Forms of Speech, exhibited by Insane Patients.—(1.) *Echolalia.*—The simplest form of reflex speech is Echolalia. As we have already seen, echolalia is exhibited by all healthy children at a certain stage in the process of learning to speak. We have also seen that it is often retained permanently by such imbeciles as have never got beyond the first steps of that process. It consists simply in the echo-like repetition of words that have just been heard. They are mechanically repeated as sounds, without any attempt being made to attach meanings to them. Every parrot that speaks does so by echolalia. Only a few parrots of very superior intelligence (see Darwin and others) have apparently advanced a step further, so as to be able to attach the right meanings to a few of their words and expressions. Words and phrases learned by echolalia are repeated by a parrot automatically, when it is in lively humour.

If we wish to hear Echolalia practised by the insane, we must go to cases where the mind is decayed; in other words, we must go to cases of Dementia. In all forms of dementia, Echolalia is common. In my recent visits to the Royal Edinburgh Asylum, I found it typically exhibited by one of the patients who was the subject of adolescent dementia. I may refer again to the subject when I come to treat of the speech of dementia, and shall also have something to say about it in connexion with aphasia.

(2.) *Conventional Replies.*—A higher development of reflex speech is also often met with in cases of dementia,—especially, it would appear, in cases of senile dementia. It consists in the giving of Stereotyped or Conventional Replies to ordinary conventional questions. "How do you do?" says the questioner. "Quite well, thank you," says the answerer, though he may be

very ill indeed. This is a sort of reply we all make sometimes, when we are absent-minded. The poor dement is always absent-minded; his mind is gone. Such conventional answers are so often repeated in the course of a lifetime that the speech-centres learn them by rote, and can repeat them automatically, if only the stimulus of the conventional question be supplied. Some would have us believe that the process is entirely reflex, and that the consciousness has nothing to do with this kind of speech in dements; but, for my own part, I am inclined to think that there must be a little mental consciousness in all these cases, roused into activity, perhaps, by the question; and some feeble glimmering of the meaning of the question, though the answer given may be so far from true. How low the consciousness may have sunk in some of the dements who exhibit this form of reflex speech is demonstrated by such a case as that recorded by Dr George M. Robertson, senior assistant in the Royal Edinburgh Asylum, in a paper which has attracted attention.[1] The patient was an old man with senile dementia, so mindless that he "was dirty in his habits, would not touch food if it was placed before him, never made a single request for food or anything else, and would not do the simplest thing that was asked him." When left to himself he was in the habit of talking to himself automatically, thus:—"If you would just come be—with the way—what now!—oh dear, dear! Oh, that is the whole closh—that's what! Oh dear, dear me—an it is the other macock or macockiness—See! Who is what?—that—is it? oh age." Yet this patient, when conventional questions were asked him, could answer them "reflexly" with some semblance of intelligence. Here is a bit of Dr Robertson's conversation with him:—

"It's a fine day, Ross." "It is that." "It's a wet morning" "Oh, no, not now." "It's a rainy day." "Yes, it is." "Ross!" "I hear, sir." "You're an old rascal." "Yes." "How are you this morning?" "Oh, very well, thank you."

(3.) *Other Forms of Automatic Speech.*—(*a.*) Patients who are the subject of advanced dementia are frequently occupied in talking to themselves, sometimes in a drawling monotone and sometimes in a whisper. The words of these Monologues are sometimes distinctly articulated, as in the specimen that has just been given. Often, in dementia of long standing, they have become for the most part merely semi-articulate sounds, that have only a superficial resemblance to words. But, whether they are composed for the most part of articulate words, or of mere sounds like words, it is impossible, as a rule, to detect any meaning in them. A little study of these monologues is apt to suggest to one's mind that the mental faculties of the patient have little or nothing to do with their production. It seems rather that, in these monologues, the organs of speech are taking exercise on their own account.

[1] "Reflex Speech," *Journal of Mental Science*, April 1888.

(*b.*) In connexion with certain forms of Mania, with great volubility of incoherent speech, the question has of late years been debated, whether each incoherent fragment of a sentence represents an incoherent fragment of thought; or, if it is not rather the case that the speech-centres themselves participate in the general excitement of the brain, and display their excitement by pouring out automatically the words and phrases whose images are stored up within them. The term "Verbigeration" is now coming into use among alienists. It is a term meant to designate that noisy, incoherent, and meaningless speech so often met with in certain forms of mania. The term seems specially suitable for the speech of such cases when this is largely composed of the constant repetition of a very few words or phrases.

(*c.*) In the foregoing notes upon pyscho-motor word-hallucinations, as described by Séglas, it was indicated that such an hallucination, when very vivid, is apt to become an Impulsion, which compels the patient to exteriorize the hallucination by pronouncing the word. This again may perhaps be taken as an example of automatic action on the part of the speech organs. Some regard it as a kind of co-ordinate spasm in the motor word-centre, the motor disturbance resulting in the involuntary ejaculation of a word. The condition has by some authorities been termed Logospasmus Choreiformis; but when the words thus ejaculated are habitually of a dirty and disreputable character, the term Coprolalia is generally preferred. It is suggestive of the nature of the condition to find that, in coprolalia, a convulsive movement (spasmodic tic) of the arm or face is frequently associated with the ejaculation of the word. Professor Charcot, however, seems inclined to refer coprolalia to a deranged condition of those higher centres that are the organs of ideation, rather than to a mere local disturbance of the lower centre for speech production. I have already made a short reference to coprolalia in the second paper of this series (see *Edinburgh Medical Journal* for November 1891). It is worthy of remark that in some of these cases the patient is so much possessed and tormented by the word-hallucination, as to feel it as a "veritable foreign body loading his stomach," which he tries to expel by efforts of spitting.[1]

Superstitious Significance attached to Words by some Insane Patients.—Everyone knows that among peoples who are savage, ignorant, and superstitious, words have often a mysterious and superstitious significance attached to them. Some are held to be lucky, and others unlucky; and forms of words, often meaningless in themselves, are used as spells, invocations, or incantations. One is therefore not surprised to find that similar superstitions abound among the Insane; who are held by some authorities to

[1] See Séglas, p. 163; also a paper by Charcot and Magnan, "De l'Onomatomanie" (*Arch. de Neurologie*, 1885).

exhibit in some ways a kind of retrogression towards the savage state. Sometimes new words (neologisms) are invented by the insane, to give expression to the delusions which have taken possession of them. Lucky and unlucky words, spells and incantations, are also met with among them. Without going into further detail on this subject, I may quote the answer which a patient in the Royal Edinburgh Asylum gave us, a few weeks ago, when we asked him how long he had been in the Institution:—"By the time of *sane*, I have been here six years; by the time of *fuisographic*, I have been here ten years; fourteen years by what they call *penance*." He explained that "fuisographic" is "how your life is put together."

Agonizing Search for a Name, Word, or Number that has been forgotten.—Under the name Onomatomania (name- or word-madness), MM. Charcot and Magnan have, in a very important series of papers,[1] grouped together the phenomena connected with word-possession, word-impulsion, and superstitious interpretation of words, that we have just been examining. In the group they include also a form of Onomatomania that I have not yet alluded to. It is the form in which a person who has forgotten some name, word, or number, cannot prevent his mind from searching for the word in his memory, though the search becomes more and more painful, and even agonizing to him. In the agony of search he may become intensely excited, or even furious; be seized with a constrictive pain, and a sense of suffocation, about the chest, and break out into profuse perspiration. The symptoms are at once relieved if the word is at last remembered, or is communicated to the patient.

This condition is sometimes met with among those who are the subjects of pronounced insanity; it is common also among people who, owing to bad heredity, are on the verge of insanity. It is one of the *stigmata* by which an unstable mental equilibrium, due to bad heredity, may be recognised; being in that respect like the other eccentricities manifested by such individuals, such as the fear of pins, or of cats, or of thunder, perversions of the sexual instinct, dipsomania, etc. The authors of the papers have recorded several interesting cases.

Embololalia.—This consists in the frequent interpolation into speech of a useless or meaningless word or syllable. Like "hemming and hawing," it is a phenomenon occasionally displayed by sane people. Kussmaul[2] has recorded a number of curious cases, among others that of an old general in whom this peculiarity made its appearance after a sunstroke. In his case the word interpolated was "mama." He said, for example, "This miserable—

[1] "De l'Onomatomanie," *Archiv. de Neurologie*, tom. x., 1885, p. 157, also Nos. 70 and 71, 1892.

[2] *Op. cit.*, p. 813.

mama—fellow has expected—mama—other people to—mama—pick his chestnuts out of the fire—mama." Sometimes it is not a word that is interpolated, but a syllable, which is attached as an affix to other words.

Séglas (p. 63) states that these various forms of embololalia are met with occasionally among the Insane.

Logorrhœa and Bradylalia.—I have already, in a former paper, made some reference to these two conditions of speech. Neither of them can be said to be unknown, or even very uncommon, among people who are not insane; but the best examples of both are probably met with among the insane. The "Verbigeration" of the maniac is a kind of logorrhœa; and the condition is typically presented by some garrulous and rapidly speaking Imbeciles. Bradylalia (slowness of utterance) is met with most frequently in connexion with conditions of depression. It is, as already indicated, common in cases of Melancholia with stupor.

Formation of Sentences, and Articulation of Words, in Insanity.—It has already been shown that in some forms of mania with exaltation and excitement the ideas may, for the individual, be unusually brilliant; and they may be expressed with unusual felicity of diction, and with perfect articulation. But such cases are somewhat exceptional, the more common characteristics being voluble incoherence and mere noise, with incomplete and often ungrammatical sentences. Sometimes, again, when excitement is not so great, and speech is more deliberate, there may still be defects in grammar (agrammatismus), which the patient did not exhibit when sane. He may return to a kind of baby-speech, and use *me* for *I*, convert the terminations of irregular verbs into those of regular ones, or use the verb only in the infinitive; or, like a child, he may speak of himself only in the third person; or, in obedience to some delusion about his personality, he may, in referring to himself, always use such an expression as "the person of me." Such errors in syntax and prosody are common enough.

As to Articulation, I think we may say that in the earlier and more active stages of insanity articulation of individual words is usually perfect. In chronic cases also it very often remains perfect throughout. Even when insanity sinks into partial dementia, there is often nothing special to remark about the articulation of the words, however barren of meaning the patient's use of them may be. In Advanced or almost Total Dementia, however, as already indicated, the maundering and mumbling Monologues in which the patient often indulges, besides being destitute of meaning, are often articulated in so slovenly and careless a manner that the individual words, if they are words at all, cannot for the most part be recognised as such. It is a careless and imperfect kind of speech that puts one in mind of the scamped articulation of lalling imbeciles. Yet if such a patient can be roused to reply

to questions, the articulation of his replies may be normal, or almost so. There are, however, exceptions to this rule. In Senile Dementia there may be noticeable a paralytic slurring in the patient's replies; and in the dementia of General Paralysis of the Insane there are, along with this slurring, other peculiarities, which indicate that the motor apparatus of articulation is undergoing changes which are paralyzing both its motor power and its power of co-ordination. I shall have something to say about these paralytic peculiarities of speech in the next part of this paper. The existence of this paralytic element in the articulation is of grave significance prognostically.

The Writing of the Insane.—This is a subject which has been treated of by Séglas and others at considerable length, and there are many points of interest in connexion with it. I can only afford, however, to make a very few notes about it. (1.) It will be readily understood that the incoherence, the verbigeration, and the delusions of the patient, are made quite as manifest in his writings as they are in his speech. Some of the insane (graphomaniacs) would write for ever, if allowed to do so; and a few, if not prevented, would have their writings printed for the information of the public. The Inventors would have their inventions made known for the sake of humanity, and the Persecuted would appeal to the public in print for succour from their tormentors. (2.) All kinds of fantastical peculiarities are met with in the Handwriting of letters written by some of the insane. The *t*'s may be doubly barred, the *i*'s doubly dotted. Punctuation may be wholly absent, or practised in excess; the words may be underlined or doubly underlined to a most unusual extent; and capitals may be used in unnatural profusion. (3.) A paretic or paralytic element may be betrayed in the tremulousness of the handwriting. This may be due to functional debility, as in the handwriting of some melancholics, and of some hysterics; but it may also be due to organic changes in the motor centres for writing, as in the tremulous writing of many cases of senile dementia, and in the still more tremulous and disorderly writing of patients suffering from general paralysis of the insane. In the latter condition the characters may be converted into irregular zigzags, and so crowded together as to be totally illegible.

Aphasia among the Insane.—This is a subject which I propose to defer the consideration of until I have discussed the subject of aphasia as produced by coarse organic lesions of the brain. I shall here only say that aphasia, in all its forms, is of not uncommon occurrence among the insane. In some cases it is a functional and temporary complication of the insanity. In other cases a gross lesion of the brain has caused the aphasia, and, it may be, has also led to the development of the insanity.

Speech in Dementia.

Permanent injury of the mind is a common result of an attack of insanity. In not a few cases the damage amounts to total disablement and destruction of the mental faculties. The sad and hopeless condition of Secondary Dementia, exhibited by so many of the patients in every lunatic asylum, is thus brought about. I know few sights more impressive than that which one sees on visiting, at a lunatic asylum, the day-room set apart for these hopeless dements. There they sit, wrecks from the fires of the various forms of insanity. Passive and inert, inattentive even to the calls of nature, they take no notice of each other. They sit still for the most part, and many of them would never move from their seats if not made to get up, and taken out for exercise. In some, the fire of insanity is quite burnt out, and the mental faculties are totally extinct; in others, it smoulders on in the form of some enfeebled remnant of the delusions with which the mind was once all ablaze. Some of the patients exhibit curious forms of automatic activity. One may constantly rub his hands together; another may stand upon the floor and perform perpetually a curious swinging or balancing movement; and some may be constantly engaged in muttering to themselves those curious automatic maundering monologues already described, in which few articulate words, and no definite meaning, can be detected. Among this assembly of people deprived by insanity of their mental faculties, are usually a few who owe the deprivation to the disease known as General Paralysis of the Insane. In these cases, the terrible disease of which they are the subjects will soon destroy life itself. In this day-room the wrecks left by most of the various severer forms of insanity will be found collected together. Some have been Melancholic; a larger number have been Maniacal; others are Epileptic; others have been Alcoholic; some are cases of Senile Dementia; and others are the subjects of General Paralysis of the insane. The hopeless condition of Secondary Dementia may be the consequence of any one of the graver forms of insanity.

It is among these patients with dementia that the Reflex and Automatic forms of speech already described are so often met with. Echolalia is common among them, especially when dementia is far advanced. The reflex speech, exhibited in the giving of Conventional Replies to conventional questions, is also often met with. Their automatic maundering Monologues have already been described: in some of the cases of advanced dementia to be presently noted, these monologues will be found to have become so degenerate as to have lost all resemblance to words, and be comparable only to the babbling of infants.

Even in patients, however, in whom the monologues have been reduced to mere babbling, it is very striking to find that if by any means the attention can be roused, and the patient got to reply to

a question, he will reply to it in words whose articulation is practically perfect. I am, of course, speaking now of cases where the dementia is pure, and not complicated by motor paralysis. The speech-centres thus evidently retain their store of verbal images, even for many years after the mental faculties have almost ceased to employ them.

A. Cases of Simple Dementia without Motor Paralysis.—When treating of the Speech of Imbecile Children (*Edin. Med. Journ.*, Feb. 1892), I gave, from notes taken at the Larbert Institution, a series of cases showing a gradual ascent in intelligence and speech-power, from mental zero up to an almost normal level of intelligence. These were cases of Amentia, in which mental Development was more or less incomplete. In dealing now with cases of Dementia, in which the mind has become enfeebled or been annihilated, it might be possible to give a somewhat similar series of cases. They would begin with cases of slight enfeeblement, not far removed from the normal level; and descend, step by step, until the last case displayed a condition of mental zero. But in order to make up a complete series of this kind, one would require to look for the slighter cases, not in asylums, but at their private homes. The short series of cases of dementia which I now present, having been selected at the Royal Edinburgh Asylum, is therefore incomplete, none of the slighter grades being represented. But, such as it is, it may be of use, as showing gradations in intelligence and speech-power. I select, for the series, exclusively cases of the secondary dementia that so often results from Adolescent Insanity. Dr Clouston, who is the chief authority upon this form of insanity, points out that the dementia resulting from it is very often total, and that it is usually pure and uncomplicated, being much less frequently than the other forms of secondary dementia associated with paralytic or other conditions that might obscure its symptoms.[1] It is a form, therefore, better suited than any other to show the effects of Dementia, pure and simple, upon the speech of the patients.

Case I.—*Replies in absent-minded manner to questions, occasionally reads, but does not understand what he reads. Exhibits Echolalia. Generally sits silent and still all day, unless told to move. Is cleanly.*—W. C. (male), æt. 27. Admitted three years ago, suffering from Adolescent Insanity with melancholia. Heredity very bad. In reply to most questions, says, "No, Sir." Occasionally, "Yes, Sir." Can give his name and age. Asked where he is, says, "I don't know, Sir." Then says he lives in Edinburgh. Says this place is Hell. Occasionally reads a newspaper, and sometimes does so aloud, but probably does not understand what he reads. Asked why he reads, says, "Because it pleases

[1] See Dr Clouston's paper on "Secondary Dementia," *Journal of Mental Science*, October 1888.

me." "Do you read any other paper?" "I don't remember." Has gradually spoken less and less with advance of dementia. Now, would sit still in one place all day, unless told to move. Occasionally exhibits Echolalia. Occasionally sings to himself in good tune.

CASE II.—*Patient in much the same condition as Case I., only a little worse. Echolalia. Babbling monologues. Is dirty.*—I. A. A. (male), æt. 28. Heredity very bad. Adolescent Insanity (mania) at 23. When this passed off, dementia set in. At first the patient read a good deal, and seemed to understand what he read. Now he never reads, but he often looks at the pictures of the *Illustrated News*. When spoken to, sometimes repeats the last words spoken to him by Echolalia. Sometimes laughs and grunts to himself in a silly way. Sometimes he babbles to himself unintelligible sounds in a whisper. To-day, in reply to every question, he replies "elves," in a whisper. He varies a good deal, being sometimes very silent, and sometimes babbling to himself for a long time in baby-like fashion.

CASE III.—*Deeply demented, being dirty in habits and eating anything she can pick from the floor. Babbles to herself. Can, however, do a little simple house-work; and, when attention is roused, can give her name; and can name correctly, and with perfect articulation, a number of articles shown to her.*—M. M. (female), æt. 32. The dementia is now of some years' standing. Has a good head, face, and figure; looks healthy; and at first sight looks intelligent enough, eyes being clear and bright (though rather restless), and there being an upright wrinkle between the eyebrows, as if from habit of thought. Patient, however, mutters (babbles) to herself unintelligible sounds in a whisper. Can be got to do nothing useful, except to brush the floor with a long brush. Would eat anything she can pick up (cat's meat for example), if not prevented. When a bag of sweetmeats is brought to her, would eat up "bag and everything." Never speaks except when spoken to. Gives her name, and names correctly and with perfect articulation, a watch, a chain, a key, cuffs, a penny, a handkerchief, etc. Requires assistance in dressing and undressing. Is dirty. Never shows affection for any one. Does not sing.

CASE IV.—*Speech production nil; but understands simple orders, and is able to dress himself and keep himself clean. Is quite taciturn, and is dull and listless. No emotions.*—J. M. (male), æt. 33. Admitted eleven years ago, suffering from Adolescent Insanity in its maniacal form. From the first beginning of the dementia, he spoke little; but he sometimes whispered to himself, and his replies to questions were always given in a whisper. At present he never speaks, and has not been heard to do so for years. Never laughs or gets angry; emotions seem gone. Is generally sedentary,

but sometimes wanders about the room, picking things off the floor. Is able to dress himself and keep himself clean. Understands and obeys simple orders; moving from chair to chair, for example, when asked to do so. When looked at, keeps his eyes shut. When asked to put out the tongue, protrudes its tip slightly beyond the edges of the teeth. Never sings.

CASE V.—*Dementia complete. Habits dirty. Never speaks. Cannot understand anything. Babbles incessantly to herself. Sings well! and in singing is said to pronounce the words perfectly.*—C. T. (female), æt. 20. Dementia came on after an attack of adolescent insanity. Was formerly a bright girl. Is well grown and developed, and, physically, appears healthy. She has a vacant but not unhappy expression. Is quite heedless as to evacuations. Sitting in her chair, she occupies herself almost incessantly in doing one of two things, or both of them together. (1.) She rubs the flexed fingers of her right hand rapidly upon the extended palm of her left. (2.) She babbles to herself continually, looking before her, or to one side, as if addressing some one in conversation, and nodding her head from time to time as if to give emphasis to what she is saying. At a little distance one would suppose that she was talking to an imaginary companion; but, on listening more closely, it is found that the monologue is composed of babbled consonant and vowel sounds, very similar to the sounds produced in the babbling of babies, only that the execution is more rapid and vigorous. I tried to write down some of the sounds, but found it very difficult to do so, owing to the rapidity of their utterance. I got, however, **th, man, th, what, whe, tan, m, m, hi, i.** At my first visit the only words I could catch were **man** and **what,** as shown above; but I was told that occasionally bad words appeared in the monologue; and this observation was verified when I saw the patient for the second time, several such words being then pronounced with unmistakable distinctness. The monologue in this case has thus degenerated to a stage almost as low as it is possible for it to reach,—to a stage far lower, for example, than the really verbal, though meaningless, monologue of Dr Robertson's case of senile dementia already quoted. The emotions of this patient are gone. She never shows affection and never gets angry. Occasionally, instead of rubbing one hand upon another, she tries to tear her dress; but her dress is now of such material as to resist tearing. *She sings well.* As it is generally in the night-time that she sings, I did not hear her; though the nurse kindly tried to entice her to sing, by singing to her her favourite song. The song is "Love's golden dream is past," which, the nurse says, she sings in perfect tune, and with perfect articulation. There is positively no other way in which the patient's attention can be aroused. She never pays attention to anything else, and never replies even to the simplest question.

To hear a patient in the condition of advanced Dementia sing well is very startling. It is even more so than to hear the good singing of imbecile children. How is it that the musical faculty is thus often preserved intact, or almost so, when the mind has been laid in ruins? I do not know that physiological science can yet answer that question. To find the faculty intact in such a case as this last one, produces in one's mind the same kind of feeling as one would experience, if, in searching in the ruins of some dwelling-place that had long since been destroyed by fire, one found some pretty domestic ornament, unbroken among the débris.

It is not only in the dementia resulting from adolescent insanity that the musical faculty is thus able to maintain itself intact. It may be found equally so in dementia resulting from many other forms of insanity. Thus, there is at present in the Royal Edinburgh Asylum a man now far advanced in dementia, in whom the condition resulted, in middle life, from repeated attacks of mania brought on apparently by alcoholism. This patient was once a clever workman, and used to play the violin. Although now dull and stupid, he wakes up a little when asked to give his favourite musical performance. This is an imitation of the notes of the bugle, which he does with his mouth, placing the right hand vertically against the right side of the mouth. The performance is surprisingly good and tuneful, the notes being wonderfully like those of the bugle.

B. Dementia with Paretic or Paralytic Elements in the Articulation of Words.—The leading element in this paretic articulation is Slurring, which renders the speech thick and slovenly. Apart from insanity, there are many conditions which may cause the speech to be slurred and slovenly. During Inebriation, for example, the speech may be slurred. A few glasses of wine may make it risky for the individual to attempt the articulation of such an expression as "mutual eligibility"; and we know what becomes of "British Constitution" when there is distinct inebriation. Other conditions may, in like manner, impair the articulation for a time. Great Mental Fatigue or Depression may cause, for the time, a little carelessness and want of precision in the articulation of difficult words. The symptom is also a common one, and may be permanently established, in many cases of Organic Disease of the Brain, due to coarse lesions. But I do not wish to look at these conditions at present. I want now to speak of this symptom, and other associated peculiarities of speech, as they occur in certain forms of Dementia. The two forms of dementia in which it is most commonly met with are—(1), Senile Dementia, and (2), Paralytic Dementia—the General Paralysis of the Insane. In both of these the symptom is of ominous significance. It shows

that paralysis is creeping down from the higher mental to the lower motor centres in the brain. This downward march is apt to proceed until the functions of the brain that are concerned with the maintenance of life itself are finally involved. Referring to this paretic element in the articulation of dementia, Esquirol has said—"L'embarras de la parole est un signe mortel." The axiom applies with double force when the form of dementia is that of General Paralysis of the Insane. Let us then consider the two forms of Dementia in which this paretic element in articulation is specially exhibited.

(1.) *Senile Dementia.*—When age is far advanced, the mind is naturally more or less enfeebled. This is the rule, though we all know that, in exceptional cases, the mind remains wonderfully strong and vigorous long after the ordinary term of human life has been overpassed. When the mental feebleness, natural to extreme old age, is exceptionally well marked, the case may be reckoned as one of Senile Dementia. This may set in prematurely, owing to a bad heredity, or to former habits of intemperance or over work, or of hard living of any kind. It may be predisposed to by atheromatous degeneration of the cerebral vessels. It may be rapidly established after an attack of senile melancholia, or a passing attack of mania, or in consequence of the depressing influence of a great sorrow, or of a mental strain of any kind. In some cases the dementia is total, or almost so; and in these the Monologues, and some of the forms of Reflex Speech already described, will generally be exhibited by the patient: but in a great many cases there is marked enfeeblement rather than abolition of the mental faculties. The old man passes into his second childhood. As in all other forms of dementia, the memory is one of the first of the mental powers to suffer deterioration. New impressions are not retained by it. Though the old man may be able to live in the memories of the past, and to tell long stories of the events of his youth, he is apt to forget such simple things of the present as the day of the week, or what he had for breakfast. It is the exceptionally severe cases that one finds in asylums.

Passing over the features which are common to this and the other forms of dementia, let us look for a moment at the Intonation and Articulation of speech in senile dementia.

In extreme age the Voice loses its former volume, its depth, and its variety of intonation. It tends to become monotonous, and of higher pitch than it was wont to be.

> ". . . . . his big manly voice,
> Turning again towards childish treble, pipes
> And whistles in his sound."

But this change in pitch is due rather to physical than to mental decay, and it is not usually met with in cases where senile dementia sets in prematurely. Much more closely associated with

the dementia are the changes observable in Articulation. In the articulation there is usually observable a distinct element of Slurring. Here is what Dr Clouston, who has made a careful study of this form of speech, says about it:—"No one can look to a man in his extreme dotage talking without perceiving that the motor apparatus of articulation is as much affected as the mental apparatus. When looked at carefully, we see, in the first place, that there is a certain amount of slowness, indistinctness, and hesitancy of speech—a paresis, in fact. Then, in some cases, we see that, like the general paralytic patient, there is a certain amount of convulsive tendency, seen in the tremor of the labial and lingual muscles. The first words of a sentence, or the first syllables of a long word, are far more distinctly enunciated than the last, showing an easily exhausted stock of nervous force, as well as a paresis. Then there is a want of co-ordinating power. The words having many *th* sounds are not properly enunciated, *e.g.*, the patient cannot say, 'The astonishing thing is that those thieves should think this.' The power of rolling the *r*'s is deficient too. There is also a distinct tendency to reversion, in the resemblance of such speech to that of a child learning to speak. Finally, there are well-marked aphasic symptoms in some rare cases. I have a woman now in the Royal Edinburgh Asylum who when she wants to say, 'Now you take that,' says, 'Now you ter ter ter.'" There are thus features in senile speech which relate it to the speech of general paralysis of the insane; but there is not on this account much risk of error in diagnosis. General paralysis is very rare at the advanced age when senile speech appears; and, as Dr Clouston remarks, "A close study of the speech will usually determine the difference. There is not the true general paralytic trembling, or the spasmodic convulsions of the smaller facial and labial muscles."[1]

(2.) *General Paralysis of the Insane.*—Every one knows the terribly fatal character of general paralysis of the insane. On the average it runs its course in two or three years. The stages of the malady in its common form are also familiarly known. First there is the stage of Mental Exaltation, with its extravagant notions of grandeur, and its foolish and sometimes criminal actions; also with its slight tell-tale disturbances of speech, which the alienist looks to specially, in trying to distinguish the case from one of ordinary mania with exaltation. Then, in the second stage, with persistence of the exaltation, there is more distinct loss of memory; more evident affection of speech; and the appearance of incoördination in such other complicated movements as those of walking, washing the hands, and buttoning the dress. Lastly, in the third stage, the mind is sunken deep in dementia; the speech totally inarticulate; and the body paralysed, not only in its powers of voluntary movement, but also even partly in its reflexes, so that

[1] Dr Clouston on "Disorders of Speech in Insanity," *Edin. Med. Journ.*, April 1876.

feeding must be carefully performed, lest the patient should choke, owing to paralysis of the reflex for deglutition. Utter ruin of both mind and body could not be more terribly exhibited. Mercifully, in a great number of cases, before this stage is reached, life is cut short by one of the "congestive" or epileptiform attacks that tend to occur in the course of the disease, with increasing frequency from the first stage onwards.

In this typical course, the disease proceeds, as it were, from above downwards—first mind is affected and then motion; and the mind displays the typical exaltation that has been referred to. But there are many cases in which the typical course is not strictly adhered to. In the first place, there is a group of cases that never display the typical exaltation with delusions of grandeur. In these the mental failure sets in with simple loss of memory and mental power, and often with depression of spirits. But these cases present the same speech peculiarities, and run ultimately the same course, as cases that have the delusions of grandeur. In a third group, the motor symptoms may appear before the mental, and keep in advance of them almost throughout. When I was making my notes of cases at the Asylum, one poor man in this condition was pointed out to me. His motor functions were deeply involved and his speech much affected, but his mind remained comparatively clear, and he seemed to realize his own sad condition in a manner that is rare among general paralytics.

It is well known that the victims of this disease are generally men in the prime of life, and often previously of fine physique. Hard living and dissipation, especially if associated with hard work, physical or mental, are usually regarded as its most potent causes; the influence of heredity being by no means so marked as it is in the case of other forms of insanity.

Before proceeding to attempt a more detailed analysis of the defects of speech in General Paralysis that can be detected by the ear, let us, in the first place, take note of an associated symptom that is perceptible to the eye: I mean the presence of abnormal movements in the lips and features, and in the tongue.

The most characteristic of these movements are occasional quick, momentary Twitchings or Shiverings in the upper lip, or in the naso-labial fold, or sometimes in the muscular fibres of an eyelid. They occur most markedly when the patient is speaking, or is otherwise moving the lip, as in opening the mouth to protrude the tongue. A portion of the Levator Labii Superioris, or of the Orbicularis muscle of the mouth or of the eyelid, or of a muscle in the chin, suddenly and slightly twitches from time to time. In most cases these slight twitchings do not exhibit themselves when the features are at rest: it is when a voluntary movement is made, as in speaking or opening the mouth, that they appear. With the slight twitches there is often associated, during speech, a general trembling of the lips, like that sometimes seen in the lips of a

healthy person during great emotional excitement. The twitching and trembling in the facial muscles may sometimes be brought out with special distinctness if the patient be asked to open the mouth and protrude the tongue, especially if the mouth is not widely opened, and the tongue is only half protruded.

In the tongue, when it is protruded, there is generally much movement. There is often trembling and general restlessness of the whole organ, and there are also, as a rule, wave-like contractions in bundles of its muscular fibres; yet in some cases, when the mouth is merely opened, and the tongue is not protruded but allowed to lie in position, the movements are absent, the tongue being then quite still.

I take it that these wave-like contractions and tremblings in the features and tongue, appearing as they do almost exclusively during voluntary movements of the parts, are due to disease in the motor cells of the Cortex. But as the motor cells of the Medulla are also often involved in General Paralysis, I think we should also, in some cases, find small fibrillar movements going on constantly in the muscles, even when they are otherwise at rest. These fibrillar movements, of medullary origin, should be associated with wasting. We see such wasting and fine fibrillar movement in the tongue, when it is becoming paralyzed owing to the disease in the motor nuclei of the medulla known as Glosso-Labio-Laryngeal Paralysis. I do not suppose that anything comparable, in degree, to the wasting exhibited in this disease will be met with in the general paralysis of the insane; but one would expect fine fibrillar movements of the same kind to be exhibited, when the disease has involved the motor cells of the medulla. The twitchings in general paralysis certainly for the most part involve larger bundles of muscular fibres than do the fibrillar movements of glosso-labio-laryngeal paralysis. They may be termed fascicular rather than fibrillar; and, for the most part, they appear only during the performance of voluntary movements. The question whether true fibrillar movements, associated with wasting, ever occur along with them, my own observations do not yet enable me to answer.

As the disease advances, these movements of the features and tongue, very slight, if noticeable at all, at the beginning of the first stage, become more and more marked; and, at the same time, Paresis of Movement in the features and tongue becomes more and more apparent. In the features, the upper lip sometimes assumes a flaccid and pendulous appearance, as if it were imperfectly supported by its suspensory muscles—the "veil-like upper lip." In the tongue, impairment of voluntary movement soon becomes very evident. Dr Clouston says:—"In the second stage of the disease, the want of co-ordination is very choreic in its character, but with the convulsive tendency in addition. Tell a paralytic patient in the first stage to put out his tongne, and he at once does so; but

you see quiverings running down groups of the fibrillæ of its muscles. Tell the same man in the second stage to do so, and he puts it slowly out, the whole organ being pushed about in a very unsteady way, through its muscles not acting harmoniously towards the desired end. Tell him, in the end of the third stage, to do so, and the only response is his moving the organ about a little, without being able to protrude it beyond the mouth. Any one accustomed to see much of the disease can often diagnose it, and the stage it has reached, from the tongue alone."[1] But, at the beginning of the first stage, perhaps the little occasional shivering or twitching in the upper lip or naso-labial fold is more important and distinctive, in a diagnostic sense, than even the quiverings that run down the muscular fibres of the tongue.

Coming now to the consideration of the Defects of Articulation in General Paralysis, we have to note:—

a. The Slurring of difficult consonants, like that so distinctly exhibited by inebriates. At the beginning of the first stage it is often absent, or, if present, may be only exhibited in such test-words as **truly rural, British Constitution,** or **mutual eligibility**; but it becomes, with the increasing paresis, more and more marked as the disease advances. In the first stage, it may sometimes be brought out by causing the patient to repeat one of the above expressions several times over. Often after a few such repetitions the limited supply of nerve force gets exhausted, and slurring becomes evident. Similar fatigue and slurring may be induced by causing the patient to repeat an alliterative sentence. At the Royal Edinburgh Asylum, the favourite sentence for this purpose is:—"**Round the rugged rock the radical rascal ran.**" There are few cases, even in the first stage, that will repeat this sentence once or twice without at last getting into a sort of inarticulate slur about the end of it.

b. Even more diagnostic than slurring is the derangement of articulation termed by Kussmaul Syllable Stumbling. For the purpose of testing patients for this defect, the favourite test-words at the Royal Edinburgh Asylum are **Hippopotamus** and **West Register Street.** Here is what one of the patients made of Hippopotamus:—"Tahippotapotapos." **West Register Street** is in like manner often put into some such condition as "West Regigistrerer Street." Kussmaul recommends the use of the test-word **artillerie,** and tells how it is often converted into "artrallerie" or "rartrillerie." He adds that **Peking** may be converted into "keping," and **guten morgen** into "goten murgen."

What does the evident incoördination of speech in this Syllable Stumbling depend upon? It is probably, as Kussmaul suggests, a defect in the formation of the psycho-motor word-images; the images being most imperfect when the words are complicated and

[1] "Disorders of Speech in Insanity," *Edinburgh Medical Journal*, April 1876.

difficult. A word is composed of letter-sounds arranged in sequence. If the sequence of the letter-sounds is imperfectly remembered some of the letters may be sounded in the wrong places. This is one of the two characteristics of Syllable Stumbling: the other being a stumbling and rapid repetition of one or more of the syllables. In Slurring, on the other hand, one may suppose the image to be perfect, and that the defect is merely in the power of exteriorizing or executing it.

Syllable Stumbling may be exhibited in the articulation of difficult words even in the earliest stage of general paralysis, before any slurring can be detected. Kussmaul says:—"Syllable stumbling may make its appearance in the *earliest stage of general progressive paralysis*, at a time when the motility in general does not present the least sign of diminution, and when the movements required for the production of sounds, and for all other voluntary objects, are still perfect (Parchappe, *Bull. de l'Acad. de Méd.*, t. xxx. p. 702)."[1] It becomes more and more marked as the case progresses.[2]

c. Owing to increasing difficulty of articulation, the utterance of the patient, in the advanced stages, often becomes Slow and obviously Laborious. It may even, for a time, assume something of a "Staccato" character. Ultimately, about the end of the third stage, speech may become totally Inarticulate.

d. The above being defects displayed specially by the Oral Articulative mechanism of speech, we have now to remark that the Vocal mechanism does not wholly escape. In the advanced stages, the voice is apt to become monotonous and sometimes high-pitched, and to assume a peculiar Ægophonic Trembling. It has, in fact, been likened to the bleating of a goat.

e. It should be noted that the failure of memory which is so marked an element in the symptomatology of the disease may be displayed, when the disease is advanced, in the difficulty the patient experiences in committing a few words to memory. I tried hard to get one poor man to repeat accurately after me the lines, "Mary had a little lamb, Its fleece was white as snow," but he could not master perfectly even the first line; although, in former times, when he was in health, he had often repeated the verses to his children. I remarked, in this case, that any emotional expression, such as "Oh dear me," "This is very sad," was much more perfectly articulated than anything the patient said that was not

[1] Kussmaul, *op. cit.*, p. 808.

[2] It is to Syllable Stumbling more especially that Esquirol's axiom as to the deadly significance of embarrassment of speech applies. Slurring is met with even in the monologues of Adolescent Dementia: and these cases notoriously often live for many years. I think Slurring in Dementia should be regarded as a symptom of advancing *physical* decay only when it is exhibited in the patient's speech even when his attention is fully roused, as in replying to questions. In the Monologues it is due to absence of mind and want of attention, not necessarily to disease in the articulating centre.

dictated by emotion,—another instance of the power of an emotional stimulus.

f. Lastly, it may be added that temporary Aphasia is common in general paralysis, especially after congestive attacks.

In the whole range of the disturbances of speech that are met with in connexion with Insanity, there are none of so much practical significance as the disturbances in General Paralysis of the Insane. That is why, in the above notes, I have ventured to treat of these disturbances in some detail. A knowledge of their earlier manifestations is important, not only to the alienist, but also to the ordinary physician and the general practitioner.[1]

I cannot conclude this paper without making most grateful acknowledgment of all the kind assistance I have received, during the past year, in studying the speech of the insane at the Royal Edinburgh Asylum. Dr Clouston granted me free permission to visit the Institution as often as might be necessary; Dr Robertson, his senior assistant, selected suitable cases for me; and Dr Middlemass, one of the junior assistants, helped me greatly in taking notes of them. Without these opportunities for study, and the assistance so courteously given, I could not have written this paper.

(*To be continued.*)

II.—NOTE OF A CASE OF ACEPHALIC ACARDIAC FŒTUS.

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This fœtal monstrosity, whose external appearance is well represented in the accompanying Drawing, I had sent to me some little time ago. It consisted of a somewhat oval trunk, to the narrow end of which was attached a rudimentary distorted lower right extremity, with no semblance whatever of a head. The trunk was not bilaterally symmetrical, the side to which the rudimentary extremity was attached being rather the larger. On its anterior and lateral aspects the trunk presented a transverse groove about its middle; three-quarters of an inch above this groove the umbilical cord was attached, while extending upwards for about two inches beyond

[1] It should here be remarked that, while in almost all cases the peculiarities of speech and the other symptoms in General Paralysis render the diagnosis comparatively easy, there are two other morbid conditions which sometimes produce the very same symptoms, viz., Chronic Alcoholism, and Syphilis of the cerebral cortex. But these cases often recover under treatment.

more or less unfavourably upon the other. The union, indeed, is so intimate, that, as we have already seen, there are philosophers who would have us believe that there can be no thought without speech and no speech without thought. That view, however, is not one that seems to me to derive any support from the study of the language of imbeciles, deaf-mutes, aphasics, and insane persons. The study of such cases, on the contrary, seems distinctly to strengthen the more generally accepted view, viz., that, however natural it may be for thought to embody itself in speech and in the other forms of expressional language, and however difficult it may be to draw a line of demarcation between the one and the other, they are yet in their essence distinct. Thought, intelligence, mind, are terms which we use synonymously to indicate the highest endowment of the brain. Language, though so wonderful in itself, must take a lower place. It is the instrument of thought, the magic mirror in which a man may look and read the thoughts of another person, or into which he may cast his own thoughts for another's information. It was by the mind's own efforts that the mirror was originally polished and made efficient; and it is only by the mind's constant attention that it can be kept in good order for daily use. When the mind is damaged, the mirror truthfully reflects a damaged and distorted image. When the mirror is damaged, the reflected image of the mind is not a good and true one; it is blurred, if not distorted, owing to fault in the reflecting power of the mirror.

There are facts, however, in the relationships of the two that this familiar metaphor gives us no help in understanding. Such, for example, are the Morbid Activities that are assumed, in certain cases, by the Cerebral Organs of Speech, independently of the will, and sometimes in spite of any inhibitory power that can be brought to bear upon them. When the strong correcting and controlling influence of a healthy mind is no longer exercised upon the organs of speech, a variety of Speech Hallucinations may be developed. Voices may be heard, or Writings may be seen upon the wall; or Motor Hallucinations may be developed in the motor centres; and these last may become Impulsions, and compel the patient to ejaculate words or phrases involuntarily, or even in spite of every effort to suppress them.

It is further to be noted, that, in conditions of Dementia (loss of mental power) the function of thought seems often to decay more rapidly than the function of articulate speech; so that even when thought has been reduced almost to zero, the speech organs may yet retain their articulative power, and be able to produce, automatically, words and phrases that had been stored up within them in happier times. Here, again, the disorder of speech does not quite keep step with the advancing disorder of the mind.

But these semi-independent actions and changes in the speech organs, though important in themselves, play, on the whole, but

a secondary part. In the majority of cases of mental disease they are not prominently exhibited. The function of language, in the majority of cases, shows little independent activity of this sort. Its activities are, for the most part, in strict correspondence with those of the mind, whose disorder it mirrors with striking fidelity. Still, these independent or semi-independent activities of the speech-organs deserve to be carefully studied, as they are not only important but extremely interesting. They, however, render the subject that we have now to consider more complicated than it would otherwise be. On their account chiefly it will be expedient for us to look at the Speech of the Insane from several different points of view. I propose therefore:—

(1.) To make the Mind our first standpoint, and to give a few illustrations of the faithful manner in which the disorder of the mind is mirrored in the speech of the patient.

(2.) To treat of Speech-Hallucinations and other disorders of action that are met with in insanity in connexion with disturbances of the cortical speech-centres.

(3.) To treat separately of the affections of speech in Dementia; showing how, in such cases, the decay of speech is slower than the decay of thought; and how, in some of them, the disease of the mental cortex spreads downwards into those cells of the cortex that form the executive motor centres for articulation, thus causing the appearance of an ominous paralytic element in articulation, that is of the greatest significance both diagnostically and prognostically.

Illustrations of the manner in which Language mirrors the condition of the mind.

"Observation," says Griesinger,[1] "shows that the immense majority of mental diseases commence with a state of profound emotional perversion, of a depressing and sorrowful character. Guislain was the first to elucidate this highly interesting fact, and make it at all serviceable. Of its general correctness, there can be no doubt; and we can have no hesitation in speaking of a *stadium melancholicum* as the initiatory period of mental disease. Of course, there are exceptions. Thus in senile dementia, in periodic mania, in meningitis, in the mental diseases consecutive to typhus fever, pneumonia, cholera, sunstroke, etc., the outbreak of mania is generally observed without being preceded by melancholia; but the cases are much more frequent in which the *stadium melancholicum* only *appears* to be absent, because it was less intense, and was not then recognised as a stage of mental disease."

Probably many persons have had experience of the *stadium melancholicum*—the debatable land between sanity and insanity—

[1] *Mental Pathology and Therapeutics* (New Syd. Soc.), p. 210.

who yet have never passed over the border into the state of pronounced insanity. When the disastrous passage is made, the patient may either, on the one hand, sink deep into the depression of true Melancholia, or, on the other hand, pass into the condition of Mania, and become unnaturally exalted in his thoughts and emotions. In some cases, again, there is a rotation which presents alternately the conditions of melancholia and mania, the *Folie Circulaire*. In others the mind goes wrong only in some limited and partial way: there may be Moral Insanity, for example, in which deterioration is exhibited chiefly or solely in the sense of right and wrong; or there may be Monomania, in which a single delusion on some particular subject alone betrays the insanity.

A. Melancholia.—In true melancholia all forms of outward expression exhibit the profound mental suffering of the patient. The condition has been aptly described as one of mental pain, and in acute cases the suffering may be most pathetically expressed. "The patient," says Griesinger, "bewails himself, heaves deep sighs, and is engaged in prayers and supplications, but always on the same subject."[1] Often there is much motor excitement. "The patients," says Dr Clouston, in speaking of excited (motor) melancholia, "rush about, are violent to those about them, wander ceaselessly, walking up and down like tigers in a cage; or roll on the floor, or wring their hands, or shout or groan, or tear their clothes, or in their cries, attitudes, and motions express loudly their mental pain. In short, the muscular expression of the prevailing emotion is strong, and uncontrollable by volition."[2] In chronic cases, the same features may be presented, although their manifestations are less violent. The patients may continue to bewail their condition for years. In the Royal Edinburgh Asylum I was lately shown a case of this kind, the patient being a middle-aged woman with prematurely gray hair. Her constant cry is to be taken to jail, where she may expiate, by suffering imprisonment, the fearful crimes she imagines herself to have committed. The tones of her voice are curiously deep and strong,—so much so, that when I first heard them from a neighbouring ward I could not tell whether it was the voice of a man or of a woman. They had evidently been deepened by their habitual expression of painful and sombre emotion.

But there are many varieties of phenomena exhibited by different cases of melancholia, according to its degree of intensity, and to the various kinds of delusion and hallucination that are associated with it. These varieties of type I shall not attempt to enumerate, but I think it may be well to make note of one special type that in its expressional manifestations contrasts remarkably

[1] *Op. cit.*, p. 227.
[2] *Clinical Lectures on Mental Diseases*, p. 90.

with the violence and excitement of ordinary acute melancholia. I mean the variety of melancholia known as "Melancholia with Stupor;" a condition that sometimes supervenes upon the acutely violent type, and sometimes is developed primarily. In this variety the sufferer is the picture of silent despair. He seems lost in a fearful dream, and sits silent and immobile, perhaps listening to the internal utterances of the evil spirits by which he often imagines himself to be possessed. He may not utter a single word even for years. If he do reply to questions, it may be slowly, and often in a whisper. There is often a pause before his reply, owing to the feebleness and slowness of all mental action that is not devoted to the delusional ideas with which the mind is possessed. Sometimes the enfeebled will is not capable of producing even a whisper, though in the attempt to speak the lips may slightly and silently move. Often there is no response at all, not even this slight movement of the lips. The attention cannot be roused from without; it is wholly concentrated within, upon the mental suffering, or upon delusions or hallucinations. Such a case, on superficial examination, might be mistaken for one of dementia; "but the glance of such a patient," says Griesinger, "does not indicate the nullity proper to dementia; it expresses a painful emotion—sadness, or anxiety, or concentrated astonishment."[1] I saw lately, in the Royal Edinburgh Asylum, a female patient suffering from this variety of melancholia. She was silent, but her eye was not vacant of expression. I was informed that if the nurses left the patient for a moment she would immediately attempt to commit suicide. She had many times been caught in the act of making such attempts. Melancholia with stupor may gradually pass into the condition of true and permanent Dementia.

All classes of melancholia are peculiarly apt to be troubled with speech hallucinations. They may hear voices, or they are conscious of being prompted internally by thoughts which seem to them to be articulated within some part of their own body. I shall have something more to say about those hallucinations in the second part of this paper.

The Facial Expression in cases of melancholia varies according to the variety of melancholia that is presented, but it is always faithfully indicative of mental suffering. In acute cases the features are expressive of violent excitement and mental agony; in melancholia with stupor, they denote the condition of dull despair. Darwin has treated fully of facial expression in conditions of grief and despair; but as we do not require detailed descriptions in order to be able to recognise such expressions on the human countenance, it will not be necessary here to enter upon any description of them. I shall only make a note of one point of special interest. It is that according to Sir James Crichton

[1] *Op. cit.*, p. 247.

Browne, who contributed some observations on the point to Darwin's work on the *Expression of the Emotions*, the "grief muscles" are especially often seen to be in a state of contraction in melancholia in patients who have hypochondriacal delusions about the condition of their internal viscera.[1] These "grief muscles," as Darwin has called them, are the corrugators of the eyebrows, and their elevator, the occipito-frontalis. When these muscles act together, they form a horse-shoe wrinkle on the middle of the forehead, the convexity of which is upwards. In long-continued cases of melancholia the expression of mental suffering gets stereotyped on the countenance, and the lines expressive of it often get deepened to a marked degree.

B. Mania.—In Acute Mania the excitement is often extreme. Loud speech and violent motion of the body may be incessant Hurry, excitement, incoherence, and incessant noise are the characteristics of acute mania. The characters of the speech are well summed up by Esquirol. He says, "Speech, given to man to express his thoughts and affections, betrays the disorder of the intelligence of the maniac. His thoughts present themselves in crowds to his mind, press upon each other, push each other aside *pêle mêle*. Thus words and phrases escape from his lips without connexion, without consecutive order, and with an extreme volubility." This may be taken as the usual state of matters in the most acute cases. Referring to cases less acute, the same authority goes on to say, "Some maniacs, full of confidence in themselves, speak and write with facility, and make themselves remarkable by the *éclat* of their expressions, by the profundity of their thoughts, and by the most ingenious association of ideas. They pass, with the greatest rapidity, from expressions the most affectionate to insults and to threats; they pronounce words and incoherent phrases that have no agreement with their ideas and actions; sometimes they repeat for several hours together the same word, the same phrase, the same passage of music, without appearing to attach to it the least meaning. There are some who create for themselves a language quite peculiar; others, in speaking of themselves, never do so except in the third person. Sometimes the maniac takes a tone of bombast and vanity, and holds himself at a distance. Nothing being able to fix his attention, he yields to the fugitive desire of the moment, and directs himself towards an object that he may not be able to reach. Diverted in his course, though it be rapid and precipitate, he suddenly arrests himself, dreaming and pensive, and seems to be preoccupied with some plan. He escapes from this state of mind immediately, runs with speed, sings and cries; then he stops himself, his physiognomy takes an expression of joy, he weeps, he laughs, he dances, he speaks in a whisper, in a loud voice; in this unconquerable activity his

[1] See Darwin, *Expression of the Emotions*, p. 193.

movements are lively, sudden, uncertain. The movements and the gestures of maniacs, which appear every one more meaningless than another, are but the expression of the exaltation and disorder of the ideas and emotions of these patients."[1]

In Simple Mania the same characteristics are exhibited as in Acute Mania, but they are greatly toned down. There is incoherence of speech and inconsistency of conduct, with comparatively mild exaltation and excitement. Here is what I got taken down from the mild delirium of a middle-aged woman in the Royal Edinburgh Asylum, who sat talking to herself quietly, and laughing occasionally:—"You're not dead yet. I'll not get you. When I was in York Lane why did you not take the candidate I had then? When you was in Seafield you would not say that to Robert. That beautiful face of thine. When I forget Spittal Street I'll shine. If I'm no religious, can you lift it up in Spittal Street?" If the amount of thought that presumably suggested these sentences were put into the balance, it would evidently weigh as nothing in comparison with the amount of speech produced. This suggests a very important question, viz., the question whether in such cases the speech centres are not to a large extent displaying restless activities of their own that are almost independent of the normal stimulus of thought. I shall refer again to this question in the next part of this paper.

It is generally admitted that the condition of mania is more perilous to the mind than that of melancholia. Mania, more frequently than melancholia, causes the mind to sink into a stupor which is apt to be prolonged into permanent Dementia. Even in cases where there is apparent recovery, the patient has not often completely restored to him his former power of mind and fineness of sensibility. The edge has generally been taken off his intellect, and his affections also have been blunted.

C. Monomania, Moral Insanity, etc.—I do not think it will be necessary to treat in this paper of the speech of patients suffering from Monomania, Moral Insanity, or the other special forms of mental derangement. In fact, nothing could be said about the speech of such patients except that, as in melancholia and mania, it faithfully mirrors the mental condition of the patient. But it does so rather in the meaning of what is said than in the manner of saying it. There is one curious form of monomania, however, of special interest in connexion with speech, that I may be allowed to say a few words about. It is that in which the patient is under the delusion that, for some special reason, it is necessary that he should be absolutely and permanently *taciturn*. Such an individual, though generally insane, is not necessarily so. He may be under a religious vow never to utter a word. Thus we know that the Carthusian monks live in their monastery a life of perpetual taciturnity, and converse with each other solely by gestures and in

[1] Esquirol, *Maladies Mentales*, vol. ii. p. 151.

writing. In other cases the reason for the taciturnity cannot be discovered. Thus Kussmaul tells of a pedlar in Switzerland who, for at least 15 years, carried on his business entirely by means of signs. "For some unaccountable reason he had condemned himself to absolute dumbness." Such cases, however, must be rare. In general, when an individual condemns himself to dumbness, he does so in obedience to some insane delusion. Dr Clouston has recorded a good case of the kind. He says,—"I have a man in the Asylum, D. T. K., who for ten years has never spoken a word, but who, I may say, in all other respects behaves sanely, showing no symptoms of morbid pride or suspicion. He is about the best joiner we have. We know he has a delusion which prevents him speaking, but what it is we can't find out. If he wants instructions about his work he writes, but nothing will induce him to write why he won't speak." [1]

Speaking of this form of mutism, Séglas remarks,—"Often it is a special hallucination which is the origin of the patient's mutism. He hears, for example, an imperative voice which forbids him to speak; and, in spite of all entreaties, he keeps silence. In other cases the mutism is the consequence of a delusional idea, which, moreover, may vary in character. Sometimes it is an idea of unworthiness, of humility: the patient believes himself fallen from his position as a man, and unworthy to communicate by speech with his fellow-creatures. Sometimes it is an idea of expiation: he keeps silence to expiate the imaginary sins that he reproaches himself with. In other cases it is the fear of hurting some one,—of compromising, by speaking, some one that he loves,—that makes him keep silence. A patient under the care of M. Falret, who had shut himself up in absolute mutism, avowed at intervals that it was for fear of compromising his son by speaking. Sometimes this mutism has its source in an idea of hypochondriacal nature: if the patient does not speak any more, it is because he has the idea that he has no longer a tongue, or that his larynx is destroyed." [2]

In curious contrast to this last class of patients are those who speak incessantly, owing to the fear that if they do not do so they will lose the power of speech. "I have known," says Morel,[3] "a lady possessing a certain dose of hypochondria who, fearing to lose the power of speech, believed herself obliged to repeat the same word, the same phrase."

The Action of the Speech Centres in Insanity.

Having in the foregoing remarks endeavoured to illustrate, by a few examples, the fidelity with which the mental disorder of an insane person is mirrored by his speech, I think it may now be of

[1] *Clinical Lectures on Mental Diseases*, p. 260.
[2] Séglas, *Des Troubles du Langage chez les Aliénés*, p. 29.
[3] Morel, *Traité des Mal. Ment.*, p. 300, quoted by Séglas.

advantage to look at the matter from another standpoint. Instead of fixing our chief attention upon the mind, and observing how its thoughts are expressed in language, let us now fix our attention upon the Cerebral Organs of Speech; and observe how, in cases of insanity, these are operated upon by the mind; and how, in some cases, they seem capable of displaying activities on their own account that are almost or altogether independent of any mental stimulus.

In the brains of uneducated people there are only two centres for articulate speech: one for the Hearing of it, and the other for its Production. In educated people, two other centres in the brain have been appropriated and trained for speech purposes, namely, one for Reading, and the other for Writing. I shall say for the present as little as possible about the anatomy and physiology of these four centres, as I hope to take up the consideration of that subject in a future paper. For the present it will be enough to remind the reader that the two receptive centres (those for hearing words and reading them) belong to the class of organs that are sensory in function, whereas the two productive centres belong to the class that in function are motor. Let us then, beginning with the two centres for spoken language, take each of the four *seriatim*, and see if we can gather about each some of the chief phenomena that are, in insane subjects, displayed in its functional operations. In making this attempt I shall avail myself largely of the copious information detailed in the very valuable work of M. Séglas, recently published.[1]

Verbal Hallucinations.

1. *The Word-Hearing Centre.*—Among all the gates through which impressions may be made upon the mind from without, the Ear-gate is probably entitled to the first place in point of importance. Through it words first reach the mind, and, with words, knowledge and the possibility of intellectual development. Words that are heard, it is now known, imprint memories or images of themselves in a certain part of the brain—the centre for word-hearing. These images can be revived in the mind, by effort of attention and will. It seems probable that, in the processes of internal thought, we owe, in part at least, our distinct internal perception of the words we are using to this internal revival of their sound-images. In the sane and wakeful condition of the mind, we have no difficulty in distinguishing between a word heard from without and the same word revived from within. In dreams it is different: our critical faculties being then asleep, we dream that other people are talking to us, when we ourselves, by internal revival of word-images, are in reality making all the conversation. There seems to be little doubt that, as in dreaming, so in many forms of insanity, inactivity of the critical faculties renders the

[1] Séglas, *Des Troubles du Langage chez les Aliénés*, 1892.

mind an easy prey to auditory hallucinations. Yet this is evidently not the whole explanation of the matter. It would appear that, in some cases, in which the patient is awake, and in all respects considered sane, words are internally and spontaneously revived, and start into such prominent distinctness as to "exteriorize" themselves, and so be easily mistaken for words that are heard from without. Socrates was accustomed all his life to hear what he considered a Divine voice, which always came to him as a prohibition or warning—never as an instigation to action. Joan of Arc saw visions and heard voices from her thirteenth year; and the voices presently called upon her to act in defence of the Dauphin and her country. She lost faith in herself, as a leader of armies, only when the voices had finally left her. We do not know if Socrates and Joan of Arc, or any of the other eminent historical personages that might be cited, would have put implicit faith in the voices, had they lived in modern times, and known something of the nature of hallucinations. But we know that, in our own times, persons are sometimes met with who are afflicted with voices, although their knowledge is sufficient to inform them of their true nature, and their judgment strong enough to prevent their being imposed upon by them. Séglas records a very interesting case of this kind. After remarking that such cases are common in medical literature, he says,—"Here is a very characteristic case that we have met with in the person of an accountant, aged 38 years, who presented himself as an outpatient at the Salpetrière, complaining of peculiar symptoms which he had had for four months. At the beginning, there were hissings in the right ear; then, insensibly, he began to hear voices in both ears. At first they were confused, like a kind of whispering, now they are distinct; and he recognises usually the tone of the voice of his uncle. Sometimes, he says, he forgets himself and replies. When he is undecided, these voices counsel him. At present, when he reads, he hears pronounced that which he reads, as if some one read aloud at his side; and even when he thinks, his thought is at once formulated aloud in his ear. This phenomenon, at first intermittent, is now continuous. He is conscious of the subjective nature of these symptoms, and says, of his own accord, that they are hallucinations; but he would like to be cured, because he finds it very fatiguing always to hear spoken whatever he thinks or does; and it worries him greatly in his business as an accountant."[1]

It is, however, among the obviously insane that auditory hallucinations are most commonly found. In many forms of melancholia, especially such as are associated with delusions of persecution, in epileptic insanity, in chronic alcoholism, and in mania, nothing is more common than this particular kind of hallucination. The misery of many cases of melancholia seems to

[1] Séglas, *op. cit.*, p. 157.

be greatly due to the incessant persecution that the patient sustains from the voices. They seldom say things that are complimentary or agreeable. Often they seem to the patient to be the whisperings of enemies who are hatching plots against him. Sometimes they sound in one ear, sometimes in both; sometimes it is one voice always, often there are several; and, among them, the voices of men can be distinguished from those of women. They may sound as if speaking near the ear, or they may be heard in the far distance, perhaps in another country, and the patient may explain that they reach his ear by the telephone or some form of electricity.

Opprobrious epithets seem to be, in most cases, the burden of what is said by the voices; but in some cases friendly voices are heard, from time to time, which may take up the defence of the patient, and deny the insinuations that are being made on the other side. I had lately, in the Royal Edinburgh Asylum, an opportunity of conversing with a middle-aged melancholic woman who was troubled with voices. She had been sitting quietly in the room while we were examining other patients, and I had noticed her weep silently from time to time. I asked her presently to tell me why she did so. She told me that it was the voices, a man's and a woman's, which came to her, sometimes from the corner of the room, and sometimes from the window. She proceeded to tell me, with great frankness, what they were saying and insinuating about her; and when I had heard a little of it, I was not surprised that she was feeling aggrieved.

2. *The Word-Speaking Centre.*—This, as already indicated, is the motor centre from which in speech-production are discharged the motor impulses that pass along the speech tract to the medulla oblongata, and thence to the organs of phonation and oral articulation. Reserving, for future consideration, the more detailed discussion of the physiological and anatomical relationships of this centre, I may here ask the reader's attention for a moment to a very important conclusion regarding the function of this centre, and of the motor centres generally, that has now been arrived at by physiologists. The conclusion is that these centres are not purely motor; but are, in fact, as Hughlings-Jackson suggested many years ago, sensory-motor. It seems certain that within them are stored up the memories of past muscular acts, and that these memories are specially recorded in them by the muscular sense, whose cortical centre seems to be in the same portion of gray matter as that for the motor discharge. In building up a memory or picture of any finely co-ordinated movement, other memories are no doubt associated with those imprinted by the muscular sense. Something is contributed, for example, by the tactile sensibility of the skin or mucous membrane; something by the sense of sight; and something, perhaps (though this is doubted by some physiologists), from a memory left in the motor cells by

the motor discharges themselves. (In previous movements of the same kind the motor cells had discharged individually so much or so little nerve force; perhaps they retain the memories of these individual discharges, and are thus enabled, by training, to repeat them with exactitude almost automatically.) Without attempting to discuss the question in detail, I think we may accept the conclusion now arrived at by the most eminent authorities on cerebral physiology, that the centres in the motor cortex are not purely motor, but that they are also sensory, in so far as there are formed within them, from memories of various kinds, images or pictures of all the delicately co-ordinated movements that they are accustomed to produce. These are known as psycho-motor images or pictures, and are to be associated with the motor centres, just as the psycho-sensory images or pictures are to be associated with the sensory or receptive centres.

When we are about to perform any delicately co-ordinated action, say with the hand, we always call up in the mind the psycho-motor picture of the act before we execute the necessary movements. Having called up the picture, we are at perfect liberty either to execute the movements or to refrain from doing so. When we do execute the movements, we may be said to have *exteriorized* the picture.

Now there are conditions of motor hallucination in which these psycho-motor pictures are so vivid and obtrusive, that the patient is tempted, or compelled, to think that they have been exteriorized or executed, when they have not really been so. Everybody knows that when a limb has been amputated, the patient for a time is apt to complain of pain and other sensations that, to him, appear to be localized beyond the level of the amputation, in parts that have really been removed. These may be described as psycho-sensory hallucinations. It is not so generally known that the patient may have hallucinations of *movement* in the same parts. Weir Mitchell has paid special attention to this subject, and describes, for example, some of his patients, after amputation of the arm, as most vividly experiencing movements in the fingers of the absent hand, and as being able at will to perform these imaginary movements, even causing the hand to execute the delicate movements of writing. Of course, these patients were merely calling up the psycho-motor pictures of the movements within the motor centres for the hand and arm; but if the pictures were very vivid, the patient experienced almost or altogether the same sensations as if they were exteriorized or carried into execution.

Now, speech is a very finely co-ordinated action, rendered possible only after long training, and based, like all finely co-ordinated movements, upon the distinct formation of motor pictures. We are all conscious that when we are thinking we are apt to speak internally. Without moving the lips or the tongue, we

have the most vivid consciousness of the words that our thoughts are using; and we even recognise in them the same variety of tone and emphasis that they would present if they were spoken aloud. No doubt, therefore, we are using in part the psycho-sensory sound-images of the words; but it is equally certain that we use also at the same time the psycho-motor images. It is said that people may, on the whole, be divided into two classes: the auditory class, who in thought employ chiefly the sound-pictures, and the motor class, who employ chiefly the psycho-motor pictures. The reader can judge for himself whether, in expressing his thoughts internally, he employs the auditory or the motor image, or both combined. If he is specially motor he will have a strong tendency to exteriorize the word-images, so as, in thinking, to whisper or even to talk aloud to himself.

One of the most valuable parts of Séglas's work deals with the hallucinations which are due to the abnormal vividness of the psycho-motor word-images. It is a subject that he has, since 1888, devoted special attention to; and, of late, others have joined with him in the study of it. I can here only give a few brief notes as to the facts that have been brought out by these studies.

Séglas finds that psycho-motor hallucinations are common in various forms of insanity; and that they are especially so among those patients who are under delusions of persecution or of possession by evil spirits. He brings out, in strong relief, the contrast between the patients who are subjects of the psycho-auditory hallucinations already described and those whose hallucinations are psycho-motor. The former hear the voices, the latter do not properly hear voices at all (unless they are also the subjects of auditory hallucinations), but are conscious of internal utterances. They are possessed by spirits (good or evil, but mostly evil), or demons, or enemies, who live within their bodies. If the spirits are bad, they torment the patient by saying things that are utterly repugnant and abhorrent to him, by insulting him in every way, or by hatching plots against him (for several personalities may be represented). If good, the spirits comfort the patient by conversing with him, and inspiring him with good thoughts. The spirits may appear to the patients to live in various parts of the body. Sometimes they appear to inhabit the epigastrium, or some other part of the abdomen. Thence the utterances may appear to ascend to the mouth. Very often the spirit is supposed by the patient to live in the mouth itself—it may be under the tongue—or in the upper part of the throat; and sometimes, when the spirit is supposed to live lower down, it is felt by the patient to ascend to the mouth when it is about to speak.

The whole aspect and expression of the patient suffering from this variety of hallucination are different from those of the patient who hears voices. The latter listens intently, turning the ear to the localities from which the voices are supposed to proceed. This

patient has no need to listen with the ear. The utterances are made apparently within his own body. Absorbed in attending to them, he is often found in a state of apparent stupor, with the head bent forward, and the hand pressed upon the chest, to keep the utterances from ascending from the epigastrium.

It is extremely significant of the real nature of these utterances, to find that what is said by the supposed spirits is often (quite involuntarily) articulated audibly by the patient,—sometimes in a whisper, and sometimes aloud.

The hallucinations are really due to the involuntary formation by the patient of psycho-motor word-images; and sometimes these are so vivid that they are exteriorized and involuntarily articulated.

From Séglas's numerous examples I shall select two: one in which the hallucinations are solely psycho-motor, and the other in which such hallucinations are associated with other hallucinations of psycho-sensory nature.

(1.) "A patient, whom we have had under observation at the Salpetrière, supposed herself to be in relation with various celebrated men. At first she conversed with them mentally; they spoke to her internally, in the head, but not in the ear. At such times she felt her tongue move as if she wished to speak. Afterwards she obeyed this solicitation of the tongue, and began to speak under the inspiration of the spirits. She speaks in spite of herself. Her voice at such times is more agreeable than it usually is, and what she says is admirable. It is, as it were, a superhuman power that makes her speak. Lammenais, Paganini, Pinel, speak in this way by her mouth."[1] This is one of the rare cases in which the supposed spirits have had anything agreeable to say.

(2.) "Mlle. L. is pursued by 'injectors,' who say in her ear all kinds of insults. But a little internal voice, which comes from the stomach, puts her upon her guard, saying to her, for example, 'They are trying to poison you, mother!' This little voice makes her move the tongue and open the lips; she understands it by the movements of the tongue. She replies often to this little voice in the same way, by moving the tongue, very much as when one speaks in a whisper. When her thought is in accord with the little voice, she finds that she speaks aloud. She has since found, thanks to this little voice, that she can prophecy, discover thieves, etc."[2]

A great number of cases have, like the last, both psycho-sensory and psycho-motor hallucinations. Séglas believes that in the ordinary progress of such cases the psycho-sensory appear before the psycho-motor. The appearance of the latter he thinks indicative of a more advanced deterioration of brain function than is implied by the existence of the former alone. He holds, therefore,

[1] Séglas, *op. cit.*, p. 185.
[2] *Ibid.*, p. 187.

that the prognosis in cases of psycho-motor hallucination must always be very grave.

3. *The Word-Seeing Centre.*—I do not think it is generally known that among sane people visual hallucinations, of various kinds, are of not very uncommon occurrence in certain circumstances. They may occur, for example, at night, when the individual has reached the border-land between waking and sleeping; and, of course, they form a very important element in dreams. More rarely, a sane person may experience them with exceptional vividness if his brain be exhausted by want of sleep, or by overwork. In such a condition, he may have them when he thinks himself wide awake, if he be in the dark, or merely shut his eyes. I have myself met with several instances: some among my hospital patients, whose illness had produced persistent sleeplessness; and two in professional men, who had been made sleepless by overwork and professional worry. I quite believe that systematic inquiry would show that sleeplessness is capable of producing them in people of any class, though they be possessed of average health. In my experience, the commonest hallucination in such cases is the appearance of a kind of colourless wall-paper pattern, which may possibly be but a partial revival of the image of the wall-paper pattern of the patient's bedroom or sitting-room, but which, I think, is more probably a creation *de novo*, as it may change, like the pattern in a kaleidoscope, while it is being gazed at. In aggravated cases, all kinds of visions appear before the mental eye, and they may be so vivid as to be endowed with natural colouring. An overworked professional man whom I attended had reached this stage; but one sleeping-draught took the colour out of his pictures, and another, on the following night, banished them altogether.

Some years ago I had, in my wards at the Royal Infirmary, two cases: one a middle-aged man with aggravated neurasthenia, the other a boy with chronic meningitis of tubercular origin, which proved fatal after a course of nine months,—both of whom were troubled with visual hallucinations whenever they shut their eyes or were in the dark. In both I could call up the hallucinations by suggestion. At my ward visits, for example, I used to have such conversations as the following with the boy, he keeping his eyes closed in the meanwhile:—"Now, tell me, do you see your mother's cottage?" "Yes, quite well." "Do you see your mother sitting at the door?" "Yes." "Who is with her?" "My little sister." "Do you see the horses passing along the road?" "Yes." "Their tails are tied up with ribbands, are they not?" "Yes." "What is the colour of the ribbands?" "Blue."

I have notes of both cases, but as the hallucinations were not verbal in nature, I do not feel that I am entitled to insert them in this paper. I may add that I have also notes of a third case, in which one of the patients in my ward saw very distinctly, one

night, what he took to be the ghost of another patient recently deceased.

Visual hallucinations *of Printed or Written Words* must, one would suppose, be most common among those who are engaged in literary pursuits, and are, therefore, in their daily occupation constantly called upon to look at words, printed or written. Over-fatigue and prolonged sleeplessness in such men ought, one would think, to be capable of producing such verbal hallucinations, especially at times when sleep is being courted in vain. Here is a case in point. In a letter written during his last illness—which was attended with prolonged sleeplessness—the eminent Scottish judge, Lord Jeffrey, describes his experience of these verbal hallucinations, which used to come upon him at night when he was trying in vain to sleep. The description is so good that I shall venture to copy here in full, from Lord Cockburn's *Life of Lord Jeffrey*, the passage that includes extracts from this letter. Lord Cockburn says, "On the same evening he dictated the last letter he ever wrote to the Empsons. In reference to his old critical habits, parts of it are very curious. It was long, and gave a full and clear description of the whole course of his illness, from which he expected to recover, but had made up his mind not to continue longer on the Bench. 'I don't think I have had any proper sleep for the last three nights, and I employ portions of them in a way that seems to assume the existence of a sort of dreamy state, lying quite consciously in my bed with my eyes alternately shut and open' enjoying curious visions. He saw 'part of a proof sheet of a new edition of the Apocrypha, and all about Baruch and the Maccabees. I read a good deal in this, with much interest,' etc., and 'a huge Californian newspaper, full of all manner of odd advertisements, some of which amused me much by their novelty. I had then prints of the vulgar old comedies before Shakespeare's time, which were very disgusting.' 'I could conjure up the spectrum of a close printed political paper, filled with discussions on free-trade, protection, and colonies, such as one sees in the *Times*, the *Economist*, and the *Daily News*. I read the ideal copies with a good deal of pain and difficulty, owing to the smallness of the type, but with great interest, and, I believe, often for more than an hour at a time; forming a judgment of their merits with great freedom and acuteness, and often saying to myself—This is very cleverly put, but there is a fallacy in it, for so and so . . .'"[1]

Lord Jeffrey died, 26th January 1850, æt. 76, on the evening of the day following that on which he had dictated this letter.

Griesinger (p. 90), referring to the frequency with which such hallucinations of the senses occur in sane people, especially between sleeping and waking, and noting the fact that visual hallucinations, when vivid, may be brilliantly coloured, says,—"Nothing could be more erroneous than to consider a man to be mentally diseased

[1] *Life of Lord Jeffrey*, vol. i. p. 407.

because he had mental delusions (hallucinations). The most extensive experience shows rather that such phenomena occur in the lives of very distinguished and highly intellectual men, of the most different dispositions and various casts of mind, but especially in those of warm and powerful imagination." He instances the cases of Tasso, Goethe, Sir Walter Scott, Lord Byron, Jean Paul, Benvenuto Cellini, Spinoza, Pascal, Van Helmont, and Andral, who, for the most part, had experience of seeing visions. Mr Nisbet, however, is no doubt equally ready to quote all these instances as examples of the "Insanity of Genius."[1]

All sane people have the power of forming internal visual images of things and words, and the faculty is probably strengthened by practice in such occupations as that of an artist; but among sane people it is only in unhealthy conditions, such as those of fatigue of the mind and prolonged sleeplessness, that these images exteriorize themselves, and give the same distinctness of impression as if real objects were being looked at.

Among the Insane, visual hallucinations are exceedingly common. They may exist alone, or be associated with hallucinations of the other senses, such as that of hearing. It is only in a few cases, however, that the hallucinations take habitually the form of printed or written words. Séglas records several of these, among others the following:—

A patient under treatment in the Bicêtre Asylum, "one day at dinner could read distinctly upon the porcelain lamp the words, 'Je t'aime,' which, according to him, had been thrown upon the lamp by the aid of a mirror. Subsequently he saw letters with his eyes more and more frequently. He said that he then accustomed himself to write with his eyes, and thus to throw words into space. The letters go out from the eye: they are yellow, have the appearance of small printed characters, then they grow in size and retreat to a certain distance, after which they diminish in size and fade away. He has, since that time, been able by this means to correspond from Bicêtre with certain persons at Clichy, and he asks them, in this way, to try to get him a patent for writing with the eyes. Let us add that this patient, who, along with these visual verbal hallucinations, has other hallucinations, auditory and above all motor (mute voices), is extremely visual. When he has taken a good look, for example, at a part of the court-yard, he shuts his eyes, and the place detaches itself very neatly *en bloc*, and then fades away as it flies towards the west. This faculty of visualization is regarded by him as a special *photographic* power, which he has at command, and which excites the jealousy of his enemies. The photographs are much more beautiful, he says, when he shuts his eyes, because the eyelid acts then as a reflector; they are then clear and lively."[2]

[1] *The Insanity of Genius*, by J. F. Nisbet, 1891.
[2] Séglas, *op. cit.*, p. 181.

4. *The Motor Centre for Writing.*—It remains for us now only to consider the hallucinations which are, in some few cases, displayed in connexion with the motor centre for Writing. Such hallucinations are rarer than any of the three other varieties. They are rarer, because, in the first place, motor hallucinations are rarer than sensory, and, in the second place, because the motor hallucinations of writing can be expected to occur only in those who have been much in the habit of writing, and of course these are but a small minority of the general population.

It will not be necessary to explain the physiology of these graphic hallucinations, since almost everything that has been said regarding the physiology of the hallucinations connected with the motor centre for speaking applies equally to them. The writing-centre, like the centre for speaking, is a centre which, according to the most recent views, is not only motor in function, but also sensory, inasmuch as it is the centre for the psycho-motor pictures of the delicately co-ordinated movements of writing. The picture is first formed, and then it is exteriorized, by being imprinted, as it were, on the executive motor cells. Forming the picture, and yet refraining from exteriorizing it, we can write mentally, just as we can speak mentally; though, owing to the act being less habitual to us, it is not so easily accomplished. The psycho-motor picture of writing may, in certain abnormal circumstances, be so distinct that the patient has the hallucination that he is writing when he is not actually doing so. In other cases, the picture may become so very distinct and obtrusive as to compel its own exteriorization. It is then an "Impulsion" which causes the patient to take up the pen and write at the dictation of the "spirit" by which he supposes himself to be "possessed."

Séglas records cases of both these varieties. One of his examples of the psycho-motor hallucination of writing without actual impulsion is that of a female patient aged forty. She was the subject of other and more common forms of hallucination, "but on one occasion she exhibited, when under our observation, *a motor verbal hallucination of writing.* She had come as an out-patient to the Salpetrière, and while we were speaking, we noticed her carry her right hand to the region of her heart, become very red and tremble. These symptoms were the ordinary accompaniments of her hallucinations. At our request she explained to us that whilst we were speaking to her, she had had all of a sudden the idea of taking up a penholder that lay upon the desk. She had not done so, but nevertheless *she had felt as if her hand moved, and wrote the reply that she had wished to make to us.* The patient is perfectly conscious of all the varied hallucinations that she experiences, and that provoke in her incessant sufferings. She has no delusional ideas."[1]

Of several cases recorded by Séglas which exhibit the hallucina-

[1] Séglas, *op. cit.*, p. 247.

tion converted into an impulsion, one is that of a patient with delusions of persecution, who supposed himself to suffer, when in his bath, frightful tortures from the electrical experiments practised upon him by the spirits. He was in the habit of writing very full descriptions of these tortures. But in the midst of these descriptions, bits were interpolated in an apparently different handwriting, and these the patient declared to be the writing of the spirits, executed by means of his hand. For example, when in one passage he is enlarging upon his sufferings, the spirits suddenly interpolate the clause, "And we hope again to make experiments, and to cause thee to suffer frightfully, in contortions and contractions." [1]

I have devoted some space to the consideration of these psycho-motor hallucinations, so well described by Séglas, because the subject is a comparatively new one. It is also a subject of great importance; and the conclusions arrived at are evidently in entire harmony with the latest advances in cerebral physiology. The psycho-sensory hallucinations have been long familiarly known.[2]

A very important question now being discussed by specialists is,—What is the starting point of the cerebral disturbances which produce these various hallucinations? Is it a disorder of the mind, which acts upon the speech-centres, and produces hallucinations by exciting them in the same way as they are excited by the uncontrolled imagination of a person who is dreaming; or may the disorder be primarily situated in the speech-centre itself? In the latter case, the hallucination in the speech-centre would disturb the mind; and, if the mental balance were not very good and true, it might overthrow the judgment, and be therefore the starting point of insanity. There seems no good reason for rejecting either of these suppositions. It seems quite probable that in some cases hallucinations in the speech-centres are excited by delusions in the mind, and that in others delusions in the mind are excited by hallucinations in the speech-centres. The tendency of late has been to concede to the speech-centres a position less immediately and strictly dependent upon the mind and consciousness than they were previously supposed to hold. Their powers of storing up the images of words and even of phrases, and of producing these automatically or by rote, without

[1] Séglas, *op. cit.*, p. 248.

[2] Psycho-motor Hallucinations and Impulsions may occur in connexion with motor centres other than those connected with Speech. It would appear that they may even prompt a lunatic to criminal violence. Dr Elkins, one of the assistant-physicians in the Royal Edinburgh Asylum, has recorded the interesting case of a young man affected with homicidal mania, who on several occasions had attempted to commit murder. "A few days after admission he volunteered the statement that his muscles were urging him to do things that he knew were wrong."—*Journal of Mental Science*, January 1891.