





ON

APHASIA,

OR

LOSS OF SPEECH IN CEREBRAL  
DISEASE.

BY

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PART V.

HAVING in my last paper noticed the different forms in which loss or lesion of the Faculty of Articulate Language is met with by the clinical observer, I now propose to consider the various causes which give rise to this morbid symptom.

The study of the etiology of any disease affords one of the best clues to a clear knowledge of its nature and probable course; and as the pathology of aphasia is involved in so much obscurity, it seems especially desirable carefully to review the various circumstances, physical and moral, under which defects in the power of speech have become developed.

*Causes.*—A variety of morbid conditions may produce lesion of the faculty of speech.

1°.—It may be congenital as in the deaf and dumb, and it is one of the frequent symptoms of idiocy; the case of G. van A. which I have quoted from Van der Kolk is a good illustration of this latter condition. The subject of the loquular defects in idiots is treated in a masterly manner by Dr. Wilbur, Superintendent of the New York State Asylum for Idiots, to whose interesting treatise I would refer for more complete information on this point.\*

M. de Font-Réaulx has published the history of a deaf mute, who died at Bicêtre at the age of 60, and at whose autopsy, there was found a remarkable atrophy of the island of Reil on both sides, especially on the left; the brain itself, however, was very large with its convolutions particularly well developed, the entire encephalon weighing 1,620 grammes (57 ounces).†

\* On Aphasia, New York, 1867.

Localisation de la faculté spéciale du Langage Articulé, p. 99.

This observation is of extreme interest as contrasting with the microcephalic brains to which I shall allude hereafter.

The study of the muteness of the deaf is a subject well worthy of the careful investigation of those members of our profession who have the medical charge of institutions for the deaf and dumb, for it is now recognised that this infirmity is partly remediable; in fact, a noted French writer upon this subject says "il est possible de donner la parole à la plus grande partie des sourds-muets, car c'est le plus petit nombre, c'est l'exception qui présente des vices primordiaux ou acquis de l'appareil vocal."<sup>\*</sup> In reference to this subject Dr. Gairdner has observed that the aphasic, supposing the disease congenital, could not possibly be educated, but must remain almost an idiot—the mind of an infant enclosed in the shell of a man; he further remarks that in certain forms of cretinism, or of congenital idiocy, the primary defect may have been aphasia and thus the development of the mental faculties an impossibility.<sup>†</sup>

It has been said that intemperance in one or both parents, about the time of conception, may cause insanity in their offspring; if this be so, it is not unlikely that any morbid cerebral condition of the parents at the period of conception may give rise to aphasia in their children. A case confirmatory of this view has fallen under my own observation, the subject of it being a remarkably fine handsome boy, five years of age, but in whom the faculty of speech could not be roused into action, although he had been submitted to long and special training. Having noticed that he had a well formed head, that there was no hereditary predisposition to cerebral disease, and that his brothers and sister were by no means backward children, I was induced to push my inquiries very closely in reference to the question of cause; and I then elicited from the father that about ten months previous to the birth of this child, he had been thrown from his horse upon his forehead, that he was stunned by the fall, and that he felt confused in the head for some weeks afterwards. Without wishing to draw any positive conclusion from this case, it seems to me that I am not exceeding the bounds of legitimate inference, in connecting the shock to the nervous system of the father with the congenital defect in the son.

\* *La Surdi-Mutité*, par Dr. Blanchet, Chirurgien de l'Institut National des Sourds-Muets, tom. ii. p. 12.

† *On the Function of Articulate Speech*, p. 32.

2°.—It may occur as a consequence of direct injury to the brain; of this cause several instances have been given in the preceding pages (Lesur, Castagnon, Romberg, Bergmann, Kolk, H. Jackson). Traumatic cases may be regarded as veritable vivisections, and their study is invaluable in an etiological point of view, as contributing, perhaps more than any other class of cases, to sound ideas as to the question of the cerebral localisation of our divers faculties. Dr. Popham of Cork has quoted the following curious case of traumatic aphasia, which is not only interesting from its cause, but from the local morbid condition which coincided with recovery. A boy, aged 15, received a kick from a cow, between the nose and the forehead, which stunned him, but left apparently at the time, no other injury than a few scratches and slight epistaxis, so that he walked after it some miles to a fair. On the fourth day he was seized whilst at work with vertigo and loss of speech, his hearing, taste, and sight, as well as deglutition, remaining unaffected. A variety of remedies, amongst others mesmerism, were tried but without any benefit. He continued for twelve months as servant to a medical man, although totally mute, when he got extensive inflammation of the anterior part of the scalp followed by suppuration, and regained his speech as suddenly as he had lost it eighteen or nineteen months before.\*

The annals of military surgery are rich in instances of traumatic aphasia the result of gunshot wounds of the head, but the impairment of language is only mentioned as it were *en passant*; now, however, that the attention of the profession is being called to the localisation of the cerebral faculties, it is to be hoped that a more detailed account of the psychological phenomena attendant on gunshot wounds of the head will in future be given, and that "*Surgery Militant*" will thus make its vast resources more available for the settlement of complex and obscure questions in cerebral pathology.

3°.—Aphasia has frequently been observed as a symptom of tumours in different parts of the encephalon; of sanguineous deposits in the brain and of softening of that organ; of exostosis or of malformation of the bones of the cranium; in fact, of organic lesions of various kinds affecting the cerebral substance, especially the anterior lobes. Instances of loss or impairment of speech dependent upon each of these causes have been mentioned in the previous part of this essay.

\* Popham op. cit., p. 9.

It would seem that disease in the neighbourhood of the anterior lobes, but sufficiently near to exercise indirect pressure upon them, may give rise to aphasia. Dr. A. Voisin has recorded a case where it was caused by the pressure exercised on the left anterior lobe by a considerable hæmorrhagic clot in the temporo-sphenoidal lobe on the same side.\* Dr. Ödmansson, of Stockholm, mentions a case of tubercles in the brain, in which aphasia was a symptom during life; after death there was found hæmorrhage into the left insula.†

4°.—It may occur as a remote symptom of endo-pericarditis, where fibrinous vegetations detached from the cardiac valves have been carried into the cerebral arteries (usually the middle cerebral)‡ and have thus caused embolism; thus establishing a relationship between cardiac disease, obliteration of the middle cerebral artery, softening of the brain from loss of nutrition, and aphasia. As illustrating the above sequence of symptoms, I would refer to the history of William Lemon among my own observations, and to the cases of M. Peter and Dr. Scoresby Jackson, also mentioned in the preceding pages.

The coincidence of cardiac disease with aphasia is most common; it will be remembered that of the thirty-four cases recorded by Dr. Hughlings Jackson in the London Hospital Reports, the heart was more or less affected in twenty instances. Dr. Cesare Lombroso, of Pavia, in commenting upon the cases of Dr. Jackson, denies the construction usually placed on the coincidence of aphasia and disease of the heart and large arteries; according to him, the disease in the nervous centres would be the *cause* rather than the *consequence* of the affection of the heart and arteries, the disease in these last depending upon perverted organic nutrition, the result of faulty innervation. Dr. Lombroso further remarks that although there may be cases in which cardiac hypertrophy may determine disorders of the nervous centres, yet, as a rule, these lesions in the circulating organs are secondary and not primary.§ Although the high scientific position of the

\* Nouveau Dictionnaire de Médecine et de Chirurgie Pratique, Article Aphasie.

† Dublin Quarterly Journal, Nov. 1868. Translated from the Hygiea, by Dr. W. D. Moore. This is a short review of the aphasic question by a Swedish physician, together with some original cases of great interest; the author, however, seems but imperfectly acquainted with the contributions of British authors.

‡ We may assume that these vegetations are more likely to pass up the *left* carotid.

§ Studi Clinici sulle Malattie Mentali, p. 9.



distinguished Italian Professor naturally claims for any statement of his the greatest possible respect, I apprehend that his views of the sequence of heart and head affections will not be unreservedly adopted by English pathologists.

5°.—It has been observed as a symptom of disease of the spinal cord, (Maty, Abercrombie, &c.); Velpeau, in the *Revue Médicale* for 1826, has recorded a case of left hemiplegia with aphasia, where after death he found in the centre of the right column of the spinal cord, and in the middle of the cervical portion, a cavity three inches long and two or three lines in diameter, full of soft matter like pus; in the left column of the same portion of the cord, there was a similar disease but to a less extent; the brain was healthy.\*

6°.—It may ensue as a nervous symptom; many persons under the influence of anger, joy, or excitement of any kind, are seized with a temporary incapacity to speak. Dr. Todd, under the head of emotional paralysis, mentions the case of a man between fifty and sixty years of age, of an irritable temperament and hypochondriacal habits, who, in a very animated conversation, became excited to such a degree, that his power of speech completely abandoned him; there was no paralysis and the mental faculties were unaffected; he continued speechless, however, for about a week, and in a short time the power of speech fully returned.† Mr. Dunn mentions an instance of aphasia occurring during the latter months of pregnancy, after a sudden and painful shock.‡

Dr. Panthel, of Limburg, has furnished the following curious illustration of the effect of nervous excitement upon the power of speech.

A peasant boy twelve years of age, previously in good health was very much affected at the grave of his father, whom he had unexpectedly lost. During the interment he threw himself down, and was carried home unconscious. The fainting lasted about a quarter of an hour, when he awoke in the undisturbed possession of all his faculties, sensory and motor, except that he was unable to produce any sound. Dr. Panthel having been summoned, noticed that the intellect was unaffected, that he suffered no pain or uneasiness—as indicated by the motion of the head—but that he had lost his speech and voice, and could utter no sound whatever. He could move the tongue and lips

\* Abercrombie. *Diseases of the Brain*, p. 357.

† *Clinical Lectures on Diseases of the Brain*, p. 278.

‡ *Medical Psychology*, p. 77.

in all possible directions, and the functions of deglutition and respiration were unaffected. On being questioned and urged to speak, he seemed confused, and by a shake of the head expressed his inability. If he attempted to speak, violent spasms were produced in the muscles of the larynx, governed by the hypoglossal nerve—the sterno-thyroid, hyo-thyroid and sterno-hyoid. On Dr. Panthel's compressing these parts with the hand, the cramp immediately ceased, and in answer to the question whether he could speak, he instantly replied, with cheerful countenance: "Yes, speech is my greatest delight!" When the pressure was removed, the inability to speak reurred; the power of utterance being instantly restored by again applying the hand to the supra-laryngeal region. This singular condition lasted three days, when he was again in undisturbed possession of speech. A fortnight afterwards, being in a field, a brace of partridges suddenly flew past him, when the speech defect above described returned for two days. A week later, in consequence of some strong mental emotion, another relapse ensued, which lasted only a few hours. After this no fresh attack occurred, and the lad continued perfectly healthy.\*

Instances of suspension of the power of utterance from great mental emotion, are of daily occurrence, and the great writers of antiquity who seem to have been such close observers of nature, have not failed to shew their knowledge of the psychological results of any sudden and unexpected shock upon the nervous system. Everybody is familiar with the lines of Virgil in which he makes Æneas describe the psychical effect produced upon him by the appearance of the ghost of Creusa:—

*"Obstupui, steteruntque comæ; vox faucibus hæsit."*

7°.—The epileptic condition seems to be a frequent cause of aphasia. Leborgne, Broca's patient was an epileptic, as were also the subjects of several of the cases I have recorded, and the term *epileptic aphemia* has been applied to them. M. Delasiauve has recorded the case of an epileptic woman, in whom aphasia alternated with epilepsy—thus, she would be aphasic for a week, when on the occurrence of a fit of epilepsy, the power of speech would return, paralysis of the bladder, however, ensuing; by and by, she would again lose her speech and the same sequence of symptoms would ensue.

A curious instance of the coincidence of aphasia with epilepsy is recorded by Dr. Ödmansson, where the epilepsy occurred after a blow on the vertex; the aphasia was transient,

\* Deutsche Klinik. Jahrgang, 1855. S. 451.

but frequent; on every occasion that several attacks occurred soon after one another, the power of speech suffered in a greater or less degree, and was gradually completely lost. When the attacks ceased or became less frequent, the power of expression soon returned; at the same time, both intellectual disturbances and occasionally also paralytic phenomena, set in and disappeared, but the aphasia always preceded them and was the last to cease.\*

8°.—It would seem that aphasia is not an uncommon accompaniment of neuralgia and hysteria. At the meeting of the Société Médicale des Hôpitaux, at Paris, April 12, 1867, three cases of loss of speech were mentioned as a symptom or accompaniment of facial neuralgia. The subject of one of them (that mentioned by M. Guyot), was a lady aged 34, who for fourteen years had suffered from facial neuralgia, and who was suddenly seized with aphasia which lasted half an hour and then ceased; the loss of speech recurred under similar circumstances, when both it and the neuralgia were removed by sulphate of quinine. At a subsequent meeting of the same society, aphasia was spoken of as a frequent accompaniment of hysteria.

Dr. Graves has quoted a case observed by Dr. Richter, of Wiesbaden, of an hysterical female who regularly became speechless every day at four o'clock, p.m.; consciousness did not appear to be at all impaired, but there was a feeling of weight about the root of the tongue, and the paroxysm went off with a large evacuation of watery urine, accompanied by perspiration and sleep. This periodical aphasia was cured by large doses of quinine.† Another most striking instance of the connexion between loss of speech and hysteria is recorded by Dr. Wells, the subject of it being a woman aged forty-three, who had been subject to fits of an hysterical character for a long time; on recovery from one of these she found herself entirely deprived of the power of speaking, or even of making any noise whatsoever with her voice, though she was at the same time in full possession of every other faculty, both mental and bodily; strange to say, her recovery of speech coincided with the occurrence of the next hysterical fit, which took place ten days later.‡

“There is,” says Dr. Bergmann, “a fixity of thought, as well as a flight of thought, an intellectual catalepsy and

\* Ödmansson op. cit., p. 493.

† Dublin Journal of Medical Science, Jan., 1834, p. 419.

‡ Medical Communications, vol. 2, p. 501. London, 1790.

chorea." The same may be said of the process by which these thoughts are communicated to the outer world, for it would seem that loss of speech may occur as a cataleptic symptom. Some years since, I attended the widow of an eminent physician, who would sit for hours together with the head forcibly extended on the cervical spine, and who whilst in this position never spoke a word. The intellectual powers of this lady were unimpaired.

9°.—Reflex action. Dr. Brown-Séguard in his course of lectures delivered before the New York Academy of Medicine expressed the opinion that aphasia was a reflex phenomenon. Sauvages, under the name of *Mutitas Verminosa*, mentions the case of a child in whom loss of speech was due to the presence of worms; anthelmintics having been administered, thirty-six lumbrici were expelled, when speech was restored with the exception of a difficulty in pronouncing the letter B.\*

Hoffmann also mentions a similar case where the cerebral irritation from reflex action was more permanent and accompanied by opisthotonos. The occurrence of the aphasia was sudden, but although the administration of anthelmintics soon resulted in the expulsion of fifteen worms, it was only after an appropriate treatment of many weeks that the power of speech began to improve.† The same author says elsewhere that he has frequently seen and cured cases of loss of speech from the presence of worms.

Dr. Gibson, of Hull, has also recorded a case of aphasia with complete paralysis of the extremities, caused by *Trichocephalus dispar*, and cured in twelve days by appropriate treatment.‡

10°.—Several instances are on record in which loss of speech supervened on atmospheric changes, or on application of cold or heat to the head. In the case I have quoted from Dr. Jackson, of Pennsylvania, the aphasia occurred after a check to the cutaneous perspiration from exposure to the night air; Dr. Banks records an instance of aphasia and deafness occurring after fatigue on a *very cold day*; and Abercrombie mention a case of a young man who bathed twice in the river Tweed, and who after coming out the

\* *Nosologia Methodica*, Tom. i., p. 779.

† *Hoffmanni Opera*, Tom. iii., cap. vii., obs. iii.

‡ *Lancet*, Aug. 9, 1862.

second time lay down on the bank and fell asleep without his hat, exposed to the intense heat of the sun. On awaking he was *speechless*, but walked home, and seemed to be otherwise in good health.\*

Ten years ago an invalid soldier came under my own observation, who five months previously, whilst at Corfu, had a *sunstroke* which caused left hemiplegia and *loss of speech for a week*. This case is of some interest, not only from the paralysis being on the *left* side, but also from my having made a note of it long before I could have had any preconceived ideas about modern localisation theories.

11°.—Certain drugs, especially those obtained from the Natural Order Solanacæ, would seem in some instances to suspend the power of speech. Sauvages, under the head of *Mutitas a narcoticis*, says that certain robbers which infested the neighbourhood of Montpellier, in order the more successfully to exercise their profession, were in the habit of drugging wine with the seeds of the *Datura Stramonium*, the effect of which was, that those who drank it could not speak for one or two days, although wide awake. He also states that he has observed the same effect from the berries of the *Atropa Belladonna* and from the roots of *Hyoscyamus Niger*. This shrewd observer has not omitted to speak of that want of control over speech produced by alcohol "*idem accidit cum temulentia inò a vini abusu balbuties orta quotidie observatur.*"†

Dr. Paget Blake, of Torquay, has published a case of poisoning by *Stramonium* (1½ drachm of the tincture), in which the patient on recovering his speech—which he had at first entirely lost—misnamed almost everything he wanted, although he was evidently quite unaware that he did so; several days elapsed ere he could mention his wants without calling something by a wrong name.‡ It will be observed that the aphasia, which was *atactic* at first, before passing off assumed the *amnesic* form.

Dr. John Ogle has recorded a case, in which opium given in small doses always caused the patient to be talkative, "to talk foolishly," as she called things by their wrong names; the peculiarity passed off when the effects of the drug ceased. There was no symptom whatever of any cerebral

\* Abercrombie, op. cit., p. 155.

† *Nosologia Methodica*, Tom. i., p. 177.

‡ St. George's Hospital Reports, 1868, p. 159, where minute details of this interesting case are given.

disease, and Dr. Ogle presumes that the effect of the opium was the result of some peculiar modification of the cellular or vascular action within the brain.\*

12°.—Septicæmia. Blood poisoning—whether from uræmia as in Bright's disease, or from alcoholism, gout, plumbism, or syphilis—is another frequent cause, illustrations having been furnished by Andral, Jaccoud, Heymann, and Auguste Voisin. The case of Anna Maria Moore reported by myself, may be considered as due to blood poisoning, for a diseased action which is set down as the result of the climacteric change, may be due to the retention in the system of certain morbid and effete matters—some irritating compound in the blood—which ought to be eliminated by the kidneys, and thus a septicæmic condition is produced.

Hoffmann mentions the case of a girl of eighteen, who, on exposure to cold during a journey at the period of menstruation, was seized with symptoms of cerebral congestion, and was dumb for four days, the mind and senses remaining unaffected; after an evacuant and diaphoretic treatment she entirely recovered.†

The suspension more or less complete of the power of speech which sometimes occurs after continued fever, is probably due to a vitiated condition of the blood circulating through the brain. It occurs more frequently after enteric than typhus fever; Dr. S. Jackson, however, mentions three cases in which typhus coincided with impaired speech;‡ Dr. Osborne has recorded three instances of gastro-enteric fever, in which loss of speech occurred without disturbance of the intellect; and Trousseau mentions three cases, one observed by himself, and two by M. Boucher, of Dijon, in which aphasia occurred during *convalescence* from fever (dothinen-terie); in two of these cases there was albumen in the urine.§ In a case recorded by M. Augier, the aphasic symptoms seem to have been due to a cerebro-meningeal hyperæmia, caused by the excessive use of cider in a person who in early youth had been a great brandy drinker.||

In the category of causes we are now considering must be classed the poison introduced into the system by the bite of venomous snakes. M. Ruftz stated at a meeting of the Paris

\* *Lancet*, Aug. 22, 1868.

† *Op. citato*, Tom. iii., cap. vii., obs. i.

‡ "Edinburgh Medical Journal," Jan., 1847.

§ *Clinique Médicale*, Tom. iii., p. 618.

|| *Gazette des Hôpitaux*, March 8, 1866

Anthropological Society, that he had seen a certain number of persons who had completely lost their speech in consequence of a bite from a serpent (*Fer de lance*); sometimes aphasia was produced instantly, and at other times, some hours only after the bite; but, what was most remarkable, those who survived the poisoning remained permanently aphasic. Van der Kolk quotes the case of a gunner in the Dutch Indies, who was bitten by a serpent called by the natives, *Oeloer*; in a few minutes he became giddy and lost the power of swallowing; *there was total loss of speech*, but consciousness was unimpaired; death occurred four hours and a half after receipt of the injury.\*

I have dwelt thus upon blood poisoning as a cause of impairment of speech, because it seems to me to have an important bearing on the question of localisation of the faculty of articulate language; for since in our days *humourism* has given way to *solidism*, there is a tendency to connect all abnormal cerebral symptoms with change of tissue, whereas temporary loss of speech, at all events, does not necessarily require for its production positive lesion of brain substance, any more than jaundice from obstruction and reabsorption of bile, need in all cases imply structural disease of the liver.

*Diagnosis.*—Having in this essay employed the word aphasia in its widest and most general sense, as applicable to loss of speech from whatsoever cause, the existence of this defect is so easy of recognition, that but little need be said under the head of diagnosis; although as regards the various forms which this defect assumes, and the pathological conditions which give rise to them, the *differential* diagnosis becomes important.

I need scarcely observe that aphasia must not be confounded with aphonia, where the voice is only suppressed, but the faculty of speech remains. Although it has been stated that this distinction was not observed by the older authors, still, from a careful study of their works, it will be seen that in many instances the confusion was only apparent, and depended on the use of a faulty nomenclature; for it is evident that the authors themselves were fully aware of the wide difference between these two morbid conditions.†

\* Dr. W. D. Moore's Translation p. 162

† Hoffmann uses the word aphonia in the description of his cases, as does also Mr. Carmichael Smith, in his extremely interesting paper in the *Medical Communications* for 1790; but it will be seen from a perusal of their clinical histories, that the authors intended to describe instances of inability to articulate.

In the form of paralysis recently described by Trousseau, under the name of *Labio-glosso-laryngeal Paralysis*, there is no impairment of the faculty of speech; it is simply a mechanical defect dependant on paralysis of the tongue, lips, and of the muscles of the larynx. Aphasia may be apparent only, instances having occurred in the Essex Hall Idiot Asylum, where children who for many years had passed for deaf and dumb, unexpectedly gave evidence of the possession of the power of speech. One boy, supposed to be a deaf-mute, was heard one night to sing a chant which had been used at public worship, pronouncing the words distinctly, and giving the tune correctly. Another boy, also passing for a deaf-mute, broke into a violent passion in consequence of something on his slate being rubbed out, and demanded of another lad why he had done it.

In an obscure subject like this we cannot afford to dispense with any of the auxiliary aids to differential diagnosis. With the view, therefore, of determining whether loss of speech depended in any particular case on softening, or whether it was the result of mechanical pressure exercised by a clot or by some morbid growth, it has occurred to me to make a volumetric analysis of the urine, upon the assumption that in cases of softening there would be more disintegration of nervous tissue, and consequently an excess of phosphorus removed from the system.\*

On referring to those among my own cases where a quantitative analysis of the urine was made, it will be observed that the results were negative, inasmuch as there was no deviation from the ordinary range, except in one instance—that of the patient Sainty—when the amount of chlorides was 10 parts per 1,000, the ordinary range being, according to Beale, from 4 to 8 parts per 1000.

Although my own experiments in reference to the urine cannot be considered as in any way conclusive—being based on too small a number of cases—I cannot but think, however, that a quantitative as well as a qualitative analysis of the urine is imperatively called for in all cases of obscure cerebral disease; and since the introduction of the volumetric system, this analysis has become much easier of accomplishment, and ought never to be omitted where the least doubt exists as to exact diagnosis. “How many cases,” says Todd, “formerly

\* I am by no means prepared to say that this assumption is absolutely correct, but whether it be so or not, inquiries in this direction cannot be otherwise than useful.



supposed to be anomalous, are now readily understood by reference to uræmic poisoning through inefficient kidneys.\*

The Sphygmograph may render essential service in affording a clue to the probable condition of the arteries of the brain, and thus enable us to form an opinion as to whether aphasic symptoms are due to structural or merely functional disease. Dr. Sansom has kindly communicated to me the particulars of a case of aphasia, in which Dr. Anstie, on applying the sphygmograph, noticed a decrease of arterial tone, and that there was a decided difference between the two sides.†

Thermometric observation may be of assistance in the clinical recognition of the morbid lesion giving rise to the aphasic symptoms. The result of Professor Broca's observations on aphasic patients has been to show *an elevation of temperature above the left ear*, in those who are the subjects of cerebral softening. According to the distinguished Parisian Professor, the increase is sometimes two or three degrees centigrade, and in that case it can be appreciated by the hand; when the rise in the temperature is less, the variation can only be recognised by the aid of the thermometer. M. Broca thinks that when aphasia is the result of *progressive atrophy of the third frontal convolution*, there is probably a decrease, instead of a rise of temperature, but this fact he has not yet verified.‡

*Prognosis.*—Some authorities have considered sudden loss of speech as necessarily indicative of grave cerebral disorder. Dr. Winslow says it is most unusual for sudden speechlessness to exist without being immediately followed by acute cerebral symptoms. Dr. Copland seems to share the same opinion, for

\* Dr. Todd further remarks that there are many other points of interest in connexion with the state of the urine in brain disease, which can only be settled by many observers, such as the variations of the phosphates, the quantity of the sulphates and the chlorides, and whether, in the marked increase or decrease of these salts or elements of the urinary secretion, we can derive any trustworthy aid to determine the inflammatory or non-inflammatory nature of the brain lesion.—Clinical Lectures on Diseases of the Brain, p. 311.

† It is to be hoped that Dr. Sansom will be induced to publish this most interesting case *in extenso*.

‡ M. Broca's method of taking the temperature in these cases is as follows:—He takes two perfectly similar thermometers, covers them with little bags of wadding and then applies them on each side of the head, fixing them by means of a circular band. It is essential that the two little bags should be of the same thickness, weight, and form. At the end of ten minutes he reads off the position of the mercury, and marks the difference.

in his work on Palsy and Apoplexy, he says that "loss of the power of articulation, except in hysterical cases, is either attendant on, or followed by, the most complete or fatal states of palsy or apoplexy." Trousseau also considers the aphasia which is accompanied by hemiplegia, of the most serious import, and alludes to its frequent termination by *apoplexie foudroyante*," giving three instances in which this fatal result ensued.\*

A glance at the observations which I have recorded in the preceding pages, will shew that loss of speech, although often of ominous and serious portent, is not unfrequently perfectly amenable to treatment, the function being sometimes completely restored in a very short time. The Prognosis, however, must necessarily depend on the cause which has given rise to the symptom; when it occurs as a sequel of continued fever, when it occurs as a neurosis, or is of hysterical origin, or when it arises from any moral cause, a recovery may be anticipated. The chances of the complete restoration of the faculty are also much greater when the aphasia is simple and uncomplicated with any paralytic symptom. When hemiplegia coexists with aphasia, the return of motor power usually coincides with a corresponding improvement in speech; this, however, is not always the case, as for instance in the observation of Sir Thomas Watson, to which I have already alluded, where, although the paralysis disappeared, there was no corresponding amelioration in the power of articulation.†

*Treatment.*—Having admitted that aphasia is only a symptom, and not a disease of itself, its treatment must obviously depend upon the cause which produces it. Still, some practical good may result from a brief consideration of the mode of treatment applicable to the various forms of loss or lesion of speech which are observed in practice; and at the same time the pathology of this obscure symptom may perhaps receive some elucidation from a brief analysis of the therapeutical measures, which have been more or less successfully adopted

\* Clinique Médicale, Tom. ii. p. 625.

† In reference to the persistence of amnesic aphasia after the disappearance of all other morbid cerebral symptoms, Van Swieten has the following passage:—"Vidi plures, qui ab apoplexia curati omnibus functionibus cerebri recte valebant nisi quod decisset hoc unicum, quod non possent vera rebus designandis vocabula invenire; manibus, pedibus, totius corporis nixu conabantur explicare miseri, quid vellent, nec poterant tamen. Malum illud per plures annos sæpe insanabile perstat."—*Van Swieten Commentaria in Boerhaave*, Tom iii., § 1018.

in the numerous cases which have now been submitted to the profession.

In those cases that are associated with hemiplegia, and where there is structural disease to account for it, there can be no special treatment for the aphasic complication; but in those instances where loss of speech is the sole or principal symptom, medical science may do something toward removing the morbid condition.

In those cases which seem to depend on the circulation of some morbid product through the brain, whether from faulty kidneys or sluggishness of other secreting organs, a treatment actively eliminatory will be found beneficial. Long before the attention of the profession was specially called to the lesion of articulate language, a remarkable instance of recovery of the power of speech after free purging, which brought away several fetid, dark-coloured stools, was observed by Dr. Richard Jones.\* A French physician, M. Mattei, has seen aphasia the consequence of constipation entirely removed by repeated injections; after giving minute details of this case, which is full of interest, he says, "*La malade a rempli en une demi-heure trois énormes vases de matières fécales, et lorsque l'intestin a été tout à fait vidé, la parole est devenue aussi précise que si la femme n'avait rien eu.*"†

As far back as 1790, Dr. J. Carmichael Smith has recorded a case of loss of speech of some months' duration, which yielded to an emetic.‡

Surely the successful treatment of such cases as the above is very significant in reference to the question of localisation, and must be a source of difficulty to those who adhere to the doctrine of a separate and limited centre for speech.

Venesection or abstraction of blood by leeching or cupping may occasionally be useful where the morbid condition is dependent on temporary congestion; in the case of Professor Rostan, as well as in that I have quoted from Dr. Jackson, of Pennsylvania, speech was rapidly restored by the abstraction of a little blood. When we have reason to infer that the brain lesion is of an irritative character—as perhaps indicated by early rigidity of the paralysed muscles, and by their

\* Edinburgh Medical Journal, 1809, p. 281

† Gazette des Hôpitaux, June 15, 1865.

‡ Medical Communications, Vol. II., p. 488. London, 1790. The particulars of this case are of extreme interest, as also those of two others described in the same communication.

extreme sensibility to the galvanic stimulus—we are justified in expecting some benefit from the abstraction of blood; where an opposite condition exists, bleeding will probably be worse than useless.

When loss of speech occurs in hysterical and highly excitable persons, or is an accompaniment of the choreic or epileptic condition and may depend on a spasmodic state of the cerebral arteries, diffusive stimulants and antispasmodics will be found of service. Crichton mentions a case in which large doses of Valerian were effectual, and Dr. Hutchison, of the United States has recorded a case where hysterical loss of speech was cured by Etherisation.\*

There are certain cases in which the aphasia seems to depend on a kind of cerebral catalepsy, and where very powerful stimulants, such as electricity, prove of great value. I have elsewhere stated that in one of my own cases, that I Sutherland, electricity had a decidedly baneful effect; and in this affection, as well as in motor paralysis, this powerful remedial agent must be used with the greatest caution. In reference to its use, we cannot do better than observe the distinction laid down by Dr. Todd—that electricity is injurious when there is an early tendency to muscular rigidity, showing an exalted polarity of nervous tissue, and probably an irritating lesion of the brain; thus, when the aphasia is an accompaniment of muscular paralysis, the result of electricity on the limbs affected may serve to guide us in our diagnosis, by showing whether the lesion is irritative or depressing.†

Strong mental emotion is often salutary in such cases; we are all familiar with the story in Herodotus of the son of Croesus, who had never been known to speak, but who, at the siege of Sardis, being overcome with astonishment and terror at seeing the king—his father—in danger of being killed by a Persian soldier, exclaimed aloud—*Ἄνθρωπε μὴ κτείνε Κροῖσον*—Oh, man, do not kill Croesus! This was the first time he had ever articulated, but he retained the faculty of speech from this event as long as he lived.‡ Herodotus is univer-

\* Medical Times, July 29th, 1865.

† In the "Lancet," for January 23rd, 1869, Dr. Marcet has mentioned a most striking instance of the benefit of electricity in a case of hemiplegia with aphasia, where, after recovery from the paralysis, the loss of speech continued. Dr. Marcet, having determined to try galvanism with Smec's battery, one of the electrodes was applied, by means of Mackenzie's galvaniser, to the tongue, and the other to the back of the neck, in contact with the spine. Speech began to return from the very first application of the galvanism, and continued steadily to improve each time it was used.

‡ Herod. Hist. I., 85.

sally admitted to be a trustworthy historian, but if it be thought far-fetched to illustrate a subject by allusion to a work written 500 years before the Christian era, I may add that such cases have been met with by other observers. My friend, Mr. Dunn, has recorded a similar one, and a few months ago, I myself was invited by Mr. Allen, of Norwich, to see with him a man, aged 37, who had been in his usual health up to the day preceding my visit, when, during a meal, his wife noticed that all his limbs were shaking, and from this time he became speechless. The suspension of speech was unaccompanied by any symptom of paralysis, and the loss of the faculty of articulate language continued for six days, when being asleep on his couch, he suddenly started up, and was heard to say three times, "*A man in the river!*" From this moment speech was restored, and when I saw him an hour afterwards, he told me that he had dreamed that a man was falling into the river; the mental shock produced by this dream was salutary, for it resuscitated the previously dormant faculty of articulate language.

In our efforts at the restoration of speech, we must not lose sight of the fact that as muscles from want of use lose their contractile power, and become atrophied, so it is possible that the convolution or portion of brain presiding over articulate language—assuming *pro hac vice* that there is such a localised centre—may, from long disuse and actual cessation of function, undergo a change of some kind, by which the patient may be somewhat in the same condition as that of a child who has not yet learned to speak; thus, one of the most interesting features in the treatment of certain cases of aphasia is the education of the organs of the speech, as it were, *de novo*.

Several instances have been recorded confirmatory of this view. M. Piorry relates the history of a merchant who had to re-learn his a b c.\* Dr. Bank's case of the gentleman re-learning Greek and Latin is a further illustration, as also the remarkable observation of Dr. Hun, which I have recorded when treating of the American contributions to this subject.† Perhaps the most satisfactory result of efforts to re-learn to speak is that recorded by Dr. Osborne, in connexion with his remarkable case to which I have already alluded under the head of *Varieties*. Dr. Osborne says:—"Having explained to

\* Gazette des Hôpitaux, May 27, 1865.

† Vide Journal of Mental Science, April, 1868.

the patient my view of the peculiar nature of his case, and having produced a complete conviction in his mind that the defect lay in his having lost, not the power, but the art of using the vocal organs, I advised him to commence learning to speak like a child, repeating first the letters of the alphabet, and subsequently words after another person. The result has been most satisfactory, and affords the highest encouragement to those who may labour under this peculiar kind of deprivation; there being now very little doubt, if his health is spared, and his perseverance continues, that he will obtain a perfect recovery of speech.”\*

However hypothetical, therefore, the re-education of the nervous centres may, at first sight, appear, there exists sufficient evidence to induce us, in all cases where cerebral loss of speech is unattended by any marked lesion of the intelligence, to endeavour gradually to rouse into action the complex apparatus, the concurrence of which is necessary for the re-establishment of man's noblest prerogative—the faculty of articulate language.

\* Dublin Journal of Medical Science, Nov. 1833, p. 169.

*(To be continued.)*

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