ON APHASIA.

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Definition.—"Inability to communicate thoughts, ideas, or names of things, either by words or writing, the intellect being more or less perfect otherwise, and the organs of phonation free of paralysis. The affection may be associated with unilateral paralysis or spasms, and be subsequent to apoplexy. There may be disease of the third left frontal convolution, or in the left anterior lobe of the brain near to this convolution, and various other lesions of no constant kind."

It will be perceived from this definition of aphasia, taken from Aitken's Practice of Medicine, that the term is intended to express the loss of the power of articulate language proceeding from other causes than paralysis of the vocal cords or other disorder of the organs of speech. It is distinguished from aphonia in that that disease is brought about usually by some affection of the muscles of the larynx from overstraining of the voice in singing or speaking, cold or sudden changes of weather, rheumatism of the parts, tumours, warty-like growths, thickening of the chordæ vocales, paralysis, &c. In aphasia no abnormal condition whatever of the vocal cords can be found—they are intact in all their parts; and, in what we may term *pure* cases, there is no want of innervation.

M. Trousseau regards the disease as a loss of memory of words. Ideation proceeds, but words, by which external manifestation of ideas is made, by which they are communicated to others, cannot be employed. The patient thinks—may be thinks as correctly as ever he did,—but is unable to make his thoughts known by articulate sound to those about him.

Language consists of sounds, which are the signs of our ideas, and it is always supposed to keep pace with them. With barbarous tribes of people, possessing but few ideas, and those of the simplest character, we find but few words constituting their vocabulary; but as they become surrounded by new circumstances, as their experiences increase and become less simple—more complex,—there results a wider range of thought, and need of a larger compass of words to give them utterance; and not only so, but there is required the ability to connect words into sentences, in order to express successive ideas associated together, and also compounds and modifications of different kinds, to set forth the different shades of meaning.

In his article on the Law of Evolution in his work on "The First Principles of Philosophy," Mr. Herbert Spencer speaks as follows with regard to language:—"The lowest form of language is the exclamation, by which an entire idea is vaguely conveyed through a single sound, as among the lower animals. That human language ever consisted solely of exclamations, and so was strictly homogeneous in respect of its parts of speech, we have no evidence. But that language can be traced down to a form in which nouns and verbs are its only elements, is an established fact. In the gradual multiplication of parts of speech out of those primary ones, in the differentiation of verbs into active and passive, of nouns into abstract and concrete,—in the rise of distinctions of mood, tense, person, of number and case,—in the formation of auxiliary verbs, of adjectives, adverbs, pronouns, prepositions, articles,—in the divergence of those orders, genera, species, and varieties of parts of speech by which civilised races express minute modifications of meaning,—we see a change from the homogeneous to the heterogeneous."

In other words, we have an evolution of language following and the result of an evolution of ideas. As one proceeds from the simple to the complex, and the still more complex, so does also the other. When the former has attained to a wide compass, and contains words expressive of the nicest shades of meaning; when the most complex relations of thought can be expressed by it; when it has become competent to set forth the most intricate processes of reasoning—the latter first have been developed into a wide range—the individual has acquired a nicety of discrimination and

ability to note differences, when previously they were not perceived, and first has discovered the relations, as the result of experiences, which phenomena present, and the deductions which must follow. Thought, therefore, it will be seen, must precede language, and in no case can there be language without thought. The former is but a manifestation and measure of the latter. They are intricately interwoven; but while ideas are necessary for words, words are not necessary for ideas. The case of Laura Bridgman, which has been quoted by writers in evidence, who was deaf, dumb, and blind, proves that it is possible to think without words, as well as to express thoughts without words, and it seems to me that every case of congenital deafness, with its consequent dumbness, illustrates the same fact.

In reply to the objection that we do think of a word before or without uttering it in speech, Dr. Maudsley, in an article in the London LANCET of last year, says, "We ought to be careful not to mistake the conventional sign for the thing signified. What we really have, as the essential factor, in the mind is, not the word, but the motor intuition denoted by the word, just as we have in the mind the conception of any other voluntary movement before making it. There is, in fact, a modified activity of the motor centre in relation to the thought sufficient to suggest the word, but not sufficient to issue in outward expression. It is well known that some persons of a dull and feeble understanding are obliged sometimes to call the actual movements of speech to their aid, in order to get a distinct conception; it does not suffice them to rehearse mentally the words, but they must repeat them aloud;—that subdued activity of the motor centres, that internal representation of the words, which is sufficient for persons of ordinary understanding, not being sufficient for their sluggish minds..... It is plain, then, that the motor intuitions, not of speech only, but of other movements, constantly and essentially intervene, more or less consciously, in our mental processes—that there is a constant interaction between the motor and the ideational centres in cerebration. In the case of speech, we mark each movement by a conventional sign or word, so that the sign comes to stand in our minds for the thing denoted by it." When we think, then, and do not give utterance to our thoughts, it is the motor intuition we have in mind, and not the word; and in the case of mutes, the motor intuition of the movements of another set of muscles besides those of the tongue, larynx, &c., is substituted. An individual instinctively associates his ideas with certain muscular contractions; and when the association has become of the strongest kind, every thought brings up its associated movement, as when an idea is associated with another idea, it cannot be excited without the other also appearing in the mind. It is stated that Laura Bridgman's fingers worked, making the initial movements for letters of the finger alphabet, not only during her waking thoughts, but in her dreams. I disagree, however, with Dr. Maudsley that a motor intuition of some kind is an essential factor of thinking, for I do not consider that it is supported by sufficient evidence, and also because, if such was the fact, there could be no increase of ideas among a people beyond what their vocabulary afforded. It is not until *after* an idea has been formed that a word or sign of any kind is constructed to represent it, so that for a time, longer or shorter, it is unassociated with any muscular movement, and only becomes so because there is a potentiality for it, and no positive proof has been adduced that this potentiality necessarily exists.

Says Claude Bernard, in his address at his reception into the Academy of France: "We designate by the term 'centres' the nervous masses which act as the medium of the points of arrival of the nerves of sensation and of the points of departure of the nerves of motion. It is in this soldering substance, which is the latest organised, that the exercise of the function opens and hollows, as it were, the channels of communication of the nerves which are to correspond physiologically. The nervous centre of speech is the first we see traced in the child. The sense of hearing is its necessary point of departure. If the organ of hearing be wanting, the centre of language will not be formed; the child born deaf will remain dumb. In the education of the organs of speech there is consequently established between the auditive sensation and the vocal motion a veritable nervous circuit which connects the two phenomena in a

common functional object. At first the tongue prattles; it is only by habit, and aided by frequent repetition, that the motions become sure, and that this central communication of the nerves grows easy and complete. Nevertheless, it is only with age the function is printed definitely in the organisation. A young child who ceases to hear gradually loses the faculty of speech which it had acquired, and again becomes dumb; while the adult man placed in the same conditions never loses speech, because in him the centre of language is fixed, and the development of the brain complete. At this period of life the functions of the acquired centre have become really involuntary, as if they were innate. Speech in the accomplished orator is, as it were, instinctive; and all of us have seen the practised musician's fingers execute of themselves the most difficult pieces without the assistance of the mind, which is often occupied by other thoughts." And it may be added that speech may continue on and on for a long time without the individual being at all conscious of it. There are very few persons who have not read aloud for an hour or more for the entertainment of others, while their thoughts were engaged in the contemplation of subjects entirely foreign to what they were doing, and unable at the close to bring into mind a single fact of the many they had just repeated with their lips. In such instances the vocal act is simply sensorimotor, the visual impression of the printed letters upon the sensorium commune being sufficient to keep up the movements of the muscles of the organs of speech.

Two essential factors, then, as Dr. Maudsley states, enter into intelligent speech—the idea, and the motor act; "the former having its seat in the grey matter of the convolutions; the latter proceeding from the nerve-centres of the motor nerves which go to the tongue and other muscles concerned in speech. The subordination of motor to ideational nerve-centre here is in conformity with the subordination of all other motor centres to the supreme ideational centres; and the muscular acts of speech proceed from their appropriate motor centres, just as the muscular acts of a limb which is accomplishing some intelligent purpose proceed from its appropriate motor centres." An idea formed in the cortical substance of the cerebrum effects an impression upon the sensorium commune—the seat of consciousness, according to Dr. Carpenter, not only of external but of internal impressions—through the convergent fibres of the medullary substance of the brain; and then, if attended by a desire or feeling, giving it a direction outwards; or, if not checked by a volition, it finds expression in language; or if hindered, or if sufficient force has not been set at liberty in the sensory centre, it only excites consciousness, without resulting in any external manifestation.

(To be concluded.)

ON A CASE OF ANEURISM BY ANASTOMOSIS, AND THE SURGICAL MEANS BY WHICH A CURE WAS EFFECTED;

WITH CLINICAL REMARKS.

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ANEURISM by anastomosis is a disease perhaps sufficiently rare in hospital practice to render instructive a retrospect of the case in Crawshay ward while the facts are fresh in our minds; since the characteristic symptoms of the disease, its recurrent tendency after operation, and the respective surgical steps which may be necessary to effect a cure, have there been severally well shown.

The patient, a small imperfectly developed woman, aged twenty-five, married, but without issue, had enjoyed good health until three years ago, when she fell downstairs and struck her right temple, which immediately swelled up, and the tumefaction lasted several weeks. Shortly afterwards lancinating pain attacked the seat of injury, and extended to the temporal, occipital, and frontal regions. Six months later a swelling, which she could then cover with the tip of a finger, appeared; this gradually increased, and was accompanied by pain of a throbbing character, first occasional,

but afterwards constant, and aggravated by exertion or excitement, and ultimately by the erect posture. At length, driven to recumbency, she sought the advice of Dr. C. Drysdale, by whose courtesy she was admitted into the Royal Free Hospital, under my care, on Dec. 10th, 1869.

She now had an anxious expression of countenance and lachrymation of the right eye, and the flushed cheek and ear-redness of the affected side contrasted with the pallor of the corresponding part of the healthy side. Toothache, buzzing of the ear, occasional earache, partial deafness, and pain chiefly referred to the branches of the upper cervical and fifth nerves, were also complained of. In the right temporal region we remarked an ill-defined pulsating tumour, which involved an area of about two and a half square inches. Its surface was somewhat irregular, being composed of sinuous prominences (apparently bloodvessels), with slight sulci intervening, thinly covered by skin, especially at one point near the centre; it presented a livid hue, the more apparent after removal of the hair. Pulsation was very distinct; and the delicate septum between the circulating fluid and external air was here and there semi-transparent. We next observed the tortuous and dilated temporal and posterior auricular arteries, traceable from their origin to their distribution, like varicose veins beneath the skin; these elongated vessels, three times their normal calibre, coursing upwards, became lost in the tumour. On manipulation a liquid thrill was detected, and the tumour uniformly expanded with each pulsation, which was synchronous with the common carotid and radial arteries. The tumour in great part was reducible by digital pressure, but on removing this it instantly returned. On auscultation we remarked a soft blowing murmur, similar to the jugular venous hum occasionally heard in cases of valvular disease of the heart. We now applied digital pressure, firstly to the arterial trunk, and secondly to the branches, with the following result: compression of the common carotid considerably reduced pulsation in the tumour, but simultaneous pressure upon the temporal and posterior auricular arteries near their origin apparently arrested it; the pain produced, however, rendered this intolerable.

Dec. 14th. — To-day we ligatured the temporal and auricular arteries close to their origin. Incisions half an inch in length were made, valvular, so as to avoid wounding those subcutaneous vessels. Immediate cessation of all visible pulsation in the tumour followed the application of the ligature, but in a few minutes a slight wave returned, which, however, yielded to acupressure of the occipital artery just above the posterior border of the sterno-mastoid muscle.

15th. — The tumour is considerably flatter, smaller, and non-pulsating.

16th. — Tumour feels solid, and gives no perceptible impulse; but on pressure at one spot a faint wave leads us to suspect an intracranial communication, and probably with the middle meningeal artery. Occipital thread slackened.

18th. — Suppuration renders necessary the withdrawal of occipital pin.

21st. — Tumour again distinctly pulsates, but is lessened in size by one-third. Ligatures have separated from both arteries.

Jan. 8th, 1870. — Wounds are healed; pulsation in tumour is increased. Supplying branches of the occipital, temporal, posterior auricular, supraorbital, and those crossing from the opposite side, were now acupressed, the pins being inserted about a quarter of an inch from the free margin of the tumour; this has apparently arrested pulsation, but produced considerable pain. Prescribed twenty minims of tincture of opium, to be given every four hours if needful.

9th. — Has passed a restless night. The tumour is non-pulsating, flattened, tense, and livid on the surface.

10th. — Tumour now feels solid.

11th. — At the thin point previously alluded to faint pulsation is felt.

13th. — We removed all pins.

20th. — Tumour is now about one-third its original size.

25th. — Pulsation is slightly increased.

30th. — Pin-holes are healed. Under chloroform, a double ligature thread was now passed beneath the tumour backwards and forwards (four times) at short intervals (half an inch); the loops were then cut, and the skin between each pin was incised about a line from the margin of the tumour;