after the operation, remains in perfect health. But such advances in operative surgery, though of importance to the world as tending to preserve life, will never alone serve to support a great reputation. Hunter was far more than a mere operation-inventor; though this, when it can be shown to have been deduced from previous observations, is not a thing altogether to be despised. He was far greater than this. He was above all the greatest surgical philosopher that every lived. He was constantly searching for new facts, and adding to his museum preparations which acted as a kind of index to those facts; and from these facts, when accumulated in sufficient numbers, he deduced general laws. Thus he worked a revolution in surgical pathology, and he raised the science of surgery from the doubtful position that it occupied before his time to a level with the sister science of medicine. Over what a desert the river of his thoughts has since flowed! How many diseases and deformities, then thought to be incurable, have since been brought within the range of surgical relief! The old lumber room filled with incurable diseases and misunderstood pathology, that was left to the care of medicine, has since been ransacked over and found to contain much that surgery could relieve or cure. Within our own time the kidney has become a surgical organ, the gall-bladder has had to yield up its obnoxious stones to the captivating influence of the surgeon's knife, the stomach and intestines, the lung, and even the brain itself, have in turn been brought within the range of surgery.

To aid us in our labours, two great discoveries have been made since Hunter's time: the introduction of chloroform, which makes operations painless, and the use of antiseptics, which renders them safe. But in spite of all the great advances made since his time, Hunter's name and Hunter's fame shine through them all. So far from detracting from the merits of his labours, they simply add lustre to his achievements. But we must not be deterred by the contemplation of his greatness from exerting such talents as we may possess in the humble sphere that we may occupy. Though it is allowed to few like Hunter to touch immortality on this side of eternity, yet let us take courage in the thought that there is nothing in Nature, however minute or obscure, that has not some power over its immediate surroundings. With this thought, let me close my address in the words of a philosopher I have already quoted: "All things are engaged in writing their history. The planet, the pebble, goes attended by its shadow. The rolling rock leaves its scratches on the mountain, the river its channel in the soil, the animal its bones in the stratum, the fern and leaf their modest epitaph in the coal. The falling drop makes its sculpture in the sand or stone. Not a foot steps into the snow, or along the ground, but prints in characters more or less lasting a map of his march. Every act of the man inscribes itself in the memory of its fellows, and in his own manners and face. The air is full of sounds, the sky of tokens, the ground is all memoranda and signatures, and every object covered over with hints which speak to the intelligent."

CLINICAL LECTURES

ON

DISEASES OF THE NERVOUS SYSTEM.

By A. HUGHES BENNETT, M.D., F.R.C.P.,

Physician to the Westminster Hospital; and to the Hospital for Epilepsy and Paralysis.

LECTURE IX.—SENSORY APHASIA.

THE manifold forms of aphasia have been variously classified by different authorities. The comparative claims of the diverse divisions of the subject it is at present unnecessary to discuss. It will be convenient in this lecture to regard the disorder simply from a dual aspect—namely, from the influence the sensory or motor elements of the nervous system have in its production. Intellectual language, taken in its broad sense, is the medium through which individuals intercommunicate. This may be effected in a variety of ways, but is chiefly carried on by means of speech, writing, and gesture. For the successful performance of these, a double attribute must exist: first, we have to appreciate and understand the indications given by our neighbours; and, secondly, we have in turn to convey our thoughts and purposes to them. As a knowledge of the former is derived through our senses, the collective phenomena involved in its production

may be called the ingoing, impressive, centripetal, or, in simpler terms, the sensory function of intellectual language. On the other hand, the latter, which, as a rule, is accompanied by the performance of a muscular act, may be named the outgoing, expressive, centrifugal, or the motor function of speech. Each of these sensory and motor functions is represented by a corresponding special nervous mechanism, which may become diseased and give rise to a characteristic disorder of speech, and which may, for convenience, be termed respectively sensory or motor aphasia. That form of aphasia which results from interrupted functional activity of the motor nervous elements includes disorder, not only of speech, but of writing and gesture; in short, of all those means by which an individual attempts to convey his wishes or thoughts to another. Each of these modes of expression is presided over by a complex system consisting of muscles, nerves, and centres in the cord, medulla, and cortex, which may be independently deranged or lost, and, in consequence, aphonia, agraphia, or amimia, is induced. These varieties of so-called aphasia are of tolerably frequent occurrence; they are, as a rule, capable of easy recognition, and so many instances have been recorded in medical literature that their existence has been amply established.

The condition of what has been termed sensory aphasia is much more complex, and uncomplicated examples are of much less frequent occurrence. It is through the senses, and especially through those of hearing and sight, that the faculty of intellectual language is acquired, and by which it is organised in the individual. The association of the senses with the acquisition of speech is effected by certain nervous elements, including the organs of sense, various conducting media, and centres in the medulla and cortex cerebri. By sensory aphasia, therefore, is understood the results of interruption or disease of any of these centripetal paths or centres which induce an imperfect appreciation of language or its symbols, and which, as a consequence, may indirectly lead to disorder of the faculty of expression. In addition to the sensory organs themselves, and the complex nervous arrangements which connect them with the surface of the brain, there must be other and more extensive cerebral structures engaged in the acquisition or formation of speech. These supply what has been termed the apperceptive faculties, or the mental attributes involved in the process of human intercourse or communication, the exact nature and locality of which is not accurately determined. Therefore, on the sensory side aphasia may arise either from disease of the centres associated with the senses themselves, and especially those of hearing and sight, or with a derangement of the nerve elements, whatever and wherever they may be, which preside over the so-called apperceptive faculty. This results in what has been termed respectively word deafness, word blindness, and word forgetfulness, or verbal amnesia, each being due to disorder of the special nervous mechanism which originates and regulates the corresponding function. Uncomplicated examples of these forms of sensory aphasia are rare; accordingly, I now demonstrate an illustrative case of each.

1. *Case of Word Blindness.*—G. L., aged 52, a shipwright. This patient complains of blindness to the right side of both eyes, and although on the left he can see fairly well, of inability to read or understand written or printed words. He states that his family history was unimportant, that he never had suffered from syphilis, and that he had always been a temperate man. For some years before he came under observation he had complained of indefinite pains in his lower extremities, accompanied with general *malaise*, neither of which, however, had incapacitated him from work. With these exceptions he was in all respects a healthy man till some twenty months before examination, when one day he suddenly fell down unconscious, and remained so for about an hour. He did not know whether or not he was convulsed. Soon after this attack he regained his former condition and returned to work, but he fancied that his right side was weaker than before, and that his eyesight was not so good as formerly. He, however, continued at his ordinary occupation till five months before coming under observation, when he gradually became incapacitated from giddiness and slowly increasing inability to read.

On examination he is found to be a robust and healthy-looking man. The organs and functions are normal, except those about to be mentioned. There is nowhere any sign of paralysis or tremor, but there is a suspicion that the power of the right side is slightly impaired; but if this is so it is scarcely noticeable. Both knee-jerks are somewhat exaggerated, especially on the right side, and here also there is imperfect ankle clonus. Sensibility is everywhere normal. The vessels throughout are somewhat hard and

tortuous. Vision is stated to be defective. The pupils are equal and normal; there is well marked arcus senilis; the movements of the eyeballs are natural. Investigation shows the presence of well marked hemiopia in both eyes on the left side, and especially in the right eye, thus inducing right homonymous hemianopsia. (Circumstances unfortunately prevented a complete perimetric examination.) The discs of both eyes are somewhat grey and ill-defined, but the fundi are otherwise normal. The patient is very intelligent, and gives an accurate account of himself and his illness. He says that he thinks his memory is not so retentive as formerly, but of this there is no definite proof, as he seems to remember all the circumstances of his life, and to intelligently describe them. The articulation is distinct and natural, and there is no trace of thickness or hesitation in speaking. The patient expresses himself in language unusually apt for his station in life, his choice of words is that of a man of education, and his words are delivered with ease and facility. He is somewhat deaf on both sides, but this is due to a chronic catarrhal condition of the ears. When spoken to loudly he understands everything that is said, and responds by appropriate answers in a perfectly rational manner. The patient cannot read a single word of written or printed matter. This is not from inability to see, as he names all individual letters correctly, the vision on the left side of both eyes being fairly good. Although he names every letter without mistake, he is unable to tell or understand a single word, no matter how short, unless he spells it out aloud like a child learning its first lesson. For example, when shown the word "cat," he cannot read it, and does not understand what it means. When, however, he spells it out c a t aloud, he at once says "cat," and recognises the meaning of the word. The same occurs with all words of two, three, or even four letters. With longer words, when they are spelt out, he is doubtful and uncertain, and frequently makes mistakes in naming them. With very long words, such as "Constantinople" and "hippopotamus," although all the letters are read in turn, the patient gets confused, and either miscalls them, or altogether asserts his inability to name them. It may also be mentioned that he cannot even read his own name. This difficulty in reading applies equally to writing and print. The patient, although he cannot read a single word, can write a letter like any educated man, and his handwriting is excellent. He can spontaneously indite and write anything he desires with as much ease and facility as formerly. I asked him for example to write out for me an account of his case. He did so in a very intelligent manner, giving a fair history and description of his complaint, and did not make a single mistake. On showing him his own letter he is unable to read a single word of it, and can only make out the shorter words by spelling them over as he does with print. When asked to copy writing or print he does so with perfect accuracy, but very slowly, letter by letter. Printed letters he transcribes into written characters. He does not understand what he is copying unless he spells the word out loud. His writing to dictation is without fault. He can read figures correctly, and his powers of arithmetic are seemingly intact.

REMARKS.—This case is an example of pure word blindness, as, with the exception of the homonymous hemianopsia, the man may be said to have little else the matter with him. On the left side of both eyes vision is practically normal, so that the inability to read is not due to an ordinary defect in sight. The patient recognises and names individual letters with facility, but cannot understand or pronounce even the shortest words except by spelling them out aloud. While totally unable to comprehend written or printed language the remarkable fact remains that he can put his thoughts into writing without any difficulty, but immediately after he is unable to read a word of his own composition. In short, his intelligence is normal; he can express his ideas in speech and writing, and he retains the power of understanding spoken language and of recognising individual written characters, but he has lost the faculty of appreciating the meaning of composite symbols, and the visible signs of words fail to revive in consciousness ideas previously connected with them. As regards reading, he is in the position of a child who can speak and who can understand all that is said to him, who, while he knows his letters, has not yet learnt to recognise the smallest words, until he laboriously spells them out aloud so as to appeal to his sense of hearing. He is also like an ordinary individual in regard to a piece of music, who, while he may be able to see or recognise the name of each printed note, is unable, like a practical musician, to feel and appreciate the harmony at which he looks. The resemblance to the child and musician

is not, of course, in all respects complete, because this patient can express himself in writing, which neither of these could do. This case constitutes an interesting example of dissolution of the faculty of reading by disease, in which the most early acquired, and, therefore, the most highly organised, functions remain, while the later and less stably organised have been destroyed. As Dr. Ross aptly puts it, "In partial diseases of the nerve centres the latest evolved structure is the most liable to injury. The inroads to disease conform, both as regards structure and function, to the law of dissolution, the mode of invasion being from the complex to the simple, from the special to the general." This man recognises and names letters, the most highly organised symbols, while he does not know words, a faculty of later development, and, therefore, of lower organisation. While unable to comprehend the meaning of words by sight, he can, by spelling them out aloud, name and understand them, showing that he arrives at this result through his auditory and not through his visual faculties, probably translating the latter into the former. In many cases of word blindness, the power of recognising even letters is lost. Between this extreme and the case under observation are various degrees, still further illustrating the law of dissolution. I have a man at present under observation, who, in addition to other ailments, is completely word blind, with the exception that he can read only his own name and the letters which compose it. When a heap of letters are placed on the table he can pick out all the g's, e's, o's, etc., composing George Smith, and leaves the a's, b's, c's, and other letters of the alphabet untouched. In short, his name and the letters of which it consists are those which have become most automatic and most highly organised, and these are retained in his memory, all the others having been forgotten. The original patient under observation can express his ideas in speech and writing, and can write from dictation. When, however, he copies he does so letter by letter, without understanding what he writes. If, however, he spells out a short word aloud, he can then write it down with a full comprehension of its meaning. This further shows that he translates visual into auditory impressions; otherwise he only mechanically copies such letters, without having any idea of the meaning of the words which they compose. No better example could be given of the remarkable phenomena of an individual who, while able spontaneously to indite and execute a well-written epistle, a few minutes afterwards is unable to read or understand a single word of his own performance. In this case there is an absence of paralysis and all other objective symptoms except the homonymous hemianopsia. It is probable that the condition is due to interference in the function of the angular gyrus and its neighbourhood on the left side, or to that portion of the cortex in which reside the elements concerned in the acquisition of written characters. This has been partially interrupted, and hence, according to the principles of dissolution, while the knowledge of individual symbols in the form of letters is retained, the memory of their combination into words is lost. All the other faculties of intellectual language remain intact, which seems to show that the lesion is limited to this special centre. If the disorder was the result of a more diffuse partial disease, by the same law we should expect that writing, which is acquired later than reading, would have been affected the first.

2. Case of Word Deafness.—Sarah G., aged 55, complains of inability to comprehend spoken language and to make herself understood by speech. Her friends state that until seven weeks ago she had enjoyed excellent health, never having had a day's illness in her life, and that her family history was unimportant. One day about this time she slipped off the step of a tramway car in motion, and fell somewhat heavily on the ground. She was raised up, felt stunned and confused, but gave her name and address, and was carried home in a cab. An hour afterwards she could not understand what was said to her, although perfectly conscious of what was going on around, and her speech also was noticed to be unintelligible; otherwise she did not appear to be any the worse for the accident. Next day she got up, physically apparently quite well; but the inability to understand spoken language and to make others comprehend what she wanted by speech continued, and has remained so ever since.

On examination the patient is found to be in every respect a healthy person, with the exception about to be described. All the organs and functions of the body are normal, and there is nowhere any trace of paralysis. The superficial and deep reflexes are normal, so also is cutaneous sensibility. The special senses are as in health, and hearing especially is acute for all ordinary sounds. The patient cannot understand a single word of spoken language,

Her friends assert that they cannot get her to comprehend anything they say, but that she is very intelligent in anything which does not require language, and quick at giving and understanding signs. Since her accident, she has performed all her household duties as before, with the exception of being unable to comprehend what is said to her, and to make herself understood. If she wishes an article, she makes signs which are sufficient to indicate her wants. For example, if she requires an egg she produces an egg cup, and points interrogatively to its inside, and so on with everything else, and she is especially ingenious in making her desires known by pantomimic demonstrations. Her friends say that they cannot discover that she understands any single word spoken in her presence, not even her own name. On examination, I cannot satisfy myself that she comprehends any word. When told to do the simplest act, if not accompanied by any clue in the way of signs, the patient does nothing, looks puzzled, evidently understands that she is being asked to do something, and although anxious to oblige, fails to comply. The slightest hint in the shape of a sign is quickly interpreted. So great is her anxiety to succeed that she often does wrong things, simply because she fancies they are required. For example: asked to put out her tongue, she does nothing and looks puzzled; question repeated, the observer looking at the patient's mouth, the tongue is at once protruded. Asked to shut her eyes, the observer as before looking at the patient's mouth, the tongue is promptly put out, and so on with all other actions, proving that the patient does not comprehend words if they are not accompanied by gesture or some visual indication, which latter she is very quick to translate. If several objects are placed on the table, and the patient given to understand that she is to give me what I call for, she never, except occasionally by chance, hands the right one, if my back is turned to the articles. If I look at them, she often selects the right one, being, like the so-called thought reader, ready to interpret my glance towards the right object. In short, various tests all combine to show that the patient is incapable of understanding the meaning of any word spoken in her presence. The powers of reading and writing cannot be ascertained, as, unfortunately, this woman is uneducated, and has never been able to do either. The patient has no affection for her vocal or articulatory organs. She talks with the greatest distinctness and volubility, all the words themselves being properly pronounced and enunciated without the slightest hesitation or error. None of these, however, are *à propos*, but constitute an unintelligible jargon of meaningless strings of words, all rightly pronounced, but, taken together, signifying nothing. She is always ready with this voluble and purposeless torrent of conversation, and is constantly making attempts apparently to explain her wants, or to reply to questions which she does not understand. The following is an attempt to describe what takes place. Doctor: "How are you to-day, Mrs. G.?" Patient (with the greatest readiness, rapidity, and distinctness of articulation): "Yes, why should I not do, for really, you know, it could be." Doctor: "Are you a hundred years old?" Patient (with the utmost gravity): "Well but then I will so, for why it is. No. Yes." And this goes on *ad infinitum*. She also bursts out into long spontaneous floods of the same incongruous speech, in which she is evidently trying to explain something, and which often end by the woman bursting into tears. Although she does not know that the words she uses are wrong, she evidently appreciates the fact that she is incapable of making others understand her explanations, and is distressed in consequence. Not only is spontaneous speech lost, but the patient is unable to repeat a single word correctly when prompted to do so. As far as can be judged from the general demeanour, the patient seems to be intelligent, and she continues to perform all her household duties as well as formerly. Her friends say that, with the exception of not understanding spoken language, and inability to express herself in words, the woman is precisely in the same condition as before her illness, and my own observations coincide with this opinion.

REMARKS.—This woman, although retaining natural hearing for all ordinary purposes, seems to be a case of pure word deafness, the accompanying paraphasia, or inability to express herself intelligently, being the result, not of any impairment of the motor functions of speech, but the secondary consequence of incapacity to associate the sounds of words with their proper execution. The motor mechanism of speech is intact, as evidenced by articulation being in every respect normal, and because a large vocabulary of words is pronounced in a natural manner. These utterances, however, are not properly applied, and, therefore, constitute mere jargon. The patient evidently knows exactly what she

wishes to say, and in response to this desire articulates a copious flow of words, but she is incapable of applying them properly, and is ignorant of the fact that they are misapplied. Notwithstanding, as far as can be determined, the intellect is not affected, for although she cannot express her desires, and does not know whether her uttered words are right or wrong, she thoroughly appreciates the fact that she does not succeed in making herself understood, and shows corresponding signs of annoyance. A suitable idea is apparent to her mind, but, when spoken, it is replaced by unfitting words unknown to the speaker; the connection of thoughts with word images is so disordered, that, instead of appropriate terms, those of a totally different meaning are used. There is ample evidence to show that not a single word is understood by the patient, who, however, is very quick to appreciate and express herself by gesture. In pure motor aphasia the sensory side may remain intact, so that a person who cannot speak is able to comprehend what is said to him. On the other hand, when sensory aphasia exists, the motor side is, as a rule, secondarily involved, although in itself unimpaired, and paraphasia results, as in the present case. An individual who cannot understand spoken language must, as a consequence, be unable to speak it, because he is incapable of mentally recognising whether or not his efforts to do so are correct; hence the volley of words in response to a desire to speak, all of which are in themselves perfectly articulated, and constituting an extensive vocabulary, but in no way expressing the meaning they are intended to convey, the patient all the time being ignorant of her failure to succeed. Hence the inability to express thoughts in intelligible spoken language, and even to repeat words when required to do so. It is a disputed point whether in such a case as the present intelligence can remain intact. Abstract thought, it is maintained, is the outcome of language; and as this has usually been acquired through the auditory perceptions, if the organs of these are destroyed, internal as well as external speech must be impaired, and the faculty of thought interfered with. The congenital deaf mute possesses his faculties of thinking intact, because he has cultivated ideas and powers of reasoning through other sensory channels. With an ordinary person, however, when the auditory centres are suddenly destroyed, there have been no such opportunities for developing these accessory paths; hence the belief that abstract thought must in consequence be disordered. A decision on this point is one of great difficulty, especially in uneducated persons, as in the case of Sarah G. It can only be said that no evidence could be produced to show that the mental powers, so far as they existed, were in any way affected, and that, with the exception of her inability to understand and be understood, she performed all the duties of life as well as before her illness. As a person who is word deaf is sometimes able to understand printed or written language, there seems to be no reason why the reasoning faculties should not be exercised without the aid of internal auditory impressions, and be translated into some other sensory channels. It is also possible that the power of abstract thought having once been acquired may be retained, even without the use of words. In this case there is no paralysis or other objective complications, and, therefore, the lesion is probably a local one, involving those centres presiding over the faculties for the appreciating of the auditory perception of speech. These are believed to reside in the superior temporal convolution on the left side.

3. Case of Word Forgetfulness.—William H., aged 70, a distinguished divine and author. This gentleman belongs to a gouty family, and has himself had occasional slight attacks of that disorder. With this exception he has been in every respect healthy all his life. He has led a very active life, both physically and intellectually, and has been well known as a man of exceptional mental capacity. For some years past he has been supposed by his friends to have gradually become very "absent-minded" and "forgetful," and latterly this has reached a high degree, in the manner about to be described. His general health remains good, and his intellectual faculties are said to be in no way affected.

On examination the gentleman (for he is not a patient) is in remarkably good health and vigour for his years. All his organs and functions are normal. His vessels are somewhat rigid and tortuous, but not to any great extent. Mr. H. is a highly-educated and intellectual man, and takes the greatest interest in his own case; and thus, although his powers of verbally describing his condition are limited, the main facts can be easily elicited by means of cross-examination. His chief, and indeed only, complaint is that he has forgotten the use of most words, and especially of nouns, places, persons, etc. From him it is elicited that

he considers his intellectual faculties to be as good as ever they were, and his reasoning powers to be intact. He can recall every object in his mind, but has simply forgotten the name of it, and of voluntarily reproducing it either in speaking or writing. Efforts, therefore, at spontaneous conversation or expressing his thoughts on paper are seriously impaired. Hearing and sight are as good as in most men of his age, and he understands spoken language and printed or written matter as well as ever he did. Although spontaneous writing is impaired, that to dictation is natural, and he copies with perfect ease; and his articulation and handwriting are perfectly normal. On attempting to read aloud his efforts are very imperfect, and words are mispronounced. The meaning of the text is understood, and he knows when mistakes are made. His difficulty consists in having forgotten his own language to a great extent, and he is exactly in the condition of a man who, having formerly been a proficient in a foreign language, has lost the art of speaking or writing it, although retaining the power of understanding it when reminded of it either by conversation or literature. In this way he cannot voluntarily repeat or write hardly any noun and many other words. He generally cannot tell his own name and age; not that he has forgotten them, but that he cannot recollect their verbal representatives. He has forgotten, as a rule, the names of his wife and children, and therefore, it need scarcely be said, of everything belonging to him. Many verbs and other parts of speech are also not remembered, and it may, therefore, easily be supposed that his powers of expressing his thoughts are very imperfect. This failure to express himself is always most marked when he makes the greatest efforts to remember anything, or when he is especially anxious to make himself understood. At other times, when listening to general conversation which he understands perfectly, he frequently joins in quite *à propos*, using appropriate language, in short sentences, as it were automatically, for, if asked to repeat what he has just said, he is unable to do so. For example, at dinner, the conversation being on politics, of which he is a keen follower, and to which he had been paying intelligent attention, he suddenly exclaimed, "We will never have peace till these wretched Radicals are kicked out." When pointedly asked what he had just said, he was totally unable to repeat it, although he perfectly recollected the nature of his remark, as evidenced by the fact that, when it was repeated to him, he acknowledged it to have been correct. In short, conversation with him is a slow, laborious, and roundabout effort to try and express himself, in which nearly every substantive and many adjectives and other parts of speech are left out. Not only are words not forthcoming at will, but, when produced involuntarily, they are often distorted, very much after the fashion of Mrs. Malaprop; of which mistakes, however, as soon as they are made, he is perfectly conscious. He might say, for example, "constitution" for "constituency," "illiterate" for "literary," and "phosphorescent" for "philosopher," and so on. Voluntary attempts to express his ideas are, therefore, so imperfect, either in speaking or writing, that the effort only makes Mr. H. annoyed and depressed, as he is perfectly conscious of his failure. For the most part he remains silent, and passes his time either in listening to the conversation of others, which he perfectly understands, or in reading books, of which he is an inordinate lover.

REMARKS.—This example of sensory aphasia is unlike the two others, inasmuch as the individual comprehends both spoken and written language, and has forgotten neither ideas nor things, but only fails to remember their names and the words which represented them. He is, in short, incapable of spontaneously reviving and reproducing by means of speech the thoughts which exist in his mind, but he recognises these when they are reproduced to him through his ear or eye. It is not an instance of mere loss of memory, because there is no evidence that either events or things are forgotten. All that is wanting is the spontaneous power of putting them into words. Although this exists to such a degree as to render voluntary conversation almost impossible, connected sentences and appropriate observations are often made involuntarily in conversation or under emotion, which same remarks immediately afterwards cannot be reproduced at the wish of the patient. If these are supplied by another person he can at once repeat them. Here the centres associated with the auditory and visual verbal mechanisms are apparently intact. There is a disorder of some higher structures in the cerebral organism, the failure of which prevents a spontaneous revival of names or words, although the ideas they represent remain. Here again it may be questioned whether an individual who cannot voluntarily

recall the names of things even in internal speech, can retain his full intellectual vigour and his power of abstract thought. In this case there is no positive evidence that either of these is in any way affected, and the patient himself, while perfectly conscious of his peculiar failing, maintains that his reasoning faculties are unimpaired, although the power of expressing them is so imperfect. As has been already stated, it would appear that ideas once acquired may remain independent of words, although, doubtless without them, or some other form of sensory impression, they never would have been obtained. If not produced spontaneously, they can be revived both by spoken and written signs from without. The patient cannot think aloud, but silent thought remains. If any impairment of intellect or memory for things exists which is always difficult to determine in such cases, it certainly is in no proportion to the loss of memory for words. Whether verbal amnesia can be localised is a matter of speculation, and we have as yet no positive information on the subject. The perceptive centre is probably a union of all the sensory centres. Perceptive conceptions and abstract thinking have all probably different levels of development and degrees of directness, one or more of which may be specially affected. It might of course be maintained that the loss of memory for certain words is only the symptom of an incipient general mental failure. A study of these cases, however, suggests that the faculty of memory for words has some more or less special position in the cerebral hemisphere, and there is no necessary relation between its loss and that of intelligence.

WHAT IS A STONE IN THE BLADDER?

By SIR HENRY THOMPSON, F.R.C.S., M.B.LOND.,

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At a lecture which I gave at University College Hospital in November last on the subject of vesical calculus, embracing a sketch of the physical and chemical characters, frequency of appearance in regard of age, etc., I observed that it was becoming desirable to consider the question, "What is a stone in the bladder?" When there was only one method of removing it, and that by the knife, there was rarely any doubt in offering a reply; but with our present facility for removing small formations, the term is sometimes loosely employed. By way of endeavouring to define it in a sense which may commend itself to the judgment of surgeons generally, I suggested that we might still retain a practice followed by our predecessors, which may be thus expressed. Any calculus which can be by any means removed entire through the urethra, including one impacted therein and removed thence by the knife, cannot be admitted to rank as a vesical stone, nor can such an operation be regarded as one for stone in the bladder. And I added that for those which are crushed, only formations of a certain weight can be fairly described by the word "stone."

It was indeed for the express purpose of distinguishing the various small formations from "stone" that the terms "gravel" and "concretion" have been long employed.

I little thought, however, that so apt an illustration of my remarks would appear as that presented by a paper entitled "A Hundred Cases of Stone in the Bladder," by Surgeon-Major P. J. Freyer, published in the JOURNAL of December 24th. I have purposely waited some weeks in the hope that someone else might raise this question, and I now write with much reluctance as a matter of duty, lest a precedent should be established which I think it is very undesirable to follow.

Among the hundred cases of stone thus reported, I observe no fewer than a dozen cases, the largest of which does not exceed 12 grains, and this not merely in children, for ten of them are adults. But what is more remarkable still is that a tiny concretion weighing only 2 grains is twice reported as "a stone" in the adult bladder, as are also two of 3 grains each, besides others of 4 and 5 grains respectively. Indeed, the total weight of the "stones in the bladder" for which in eight adult cases "the operation of lithotripsy" has been performed amounts to no more than 37 grains, an average of about 4 grains each, the total weight of the eight being only that of quite a small stone. Such tiny pro-