neck is more visible than natural; pulse 108, slightly thrilling, soft, and jerking; vomited this morning; bowels moved once only; urine acid; contains a slight excess of phosphates, and one-fifth its bulk of albumen; specific gravity 10.13. To take two pints of milk and half a pint of beef-tea daily.

21st.—She was purged very much last night; has less pain in the left side, and can now lie upon it; has still pain in the right hypochondrium; respiration bronchial over the upper half of the right side behind; pulse 88, moderately full; urine of spec. grav. 10.12, strongly acid; albumen less; phosphates in excess; no crystals of uric acid. To take an ounce and a half of chalk mixture, with 10 drops of laudanum after every loose motion.

22nd.—Slept badly; bowels moved two or three times in the night; stools darker-coloured than natural; her aspect has improved; countenance less anxious; surface hot; pulse 120, full, soft, and jerking; pain equally in both hypochondria; she vomits the beef-tea; tongue apthous; mouth not so sore as it was; urine, spec. grav. 10.14, strongly acid, contains one-seventh its bulk of albumen; omit the calomel. To take four grains of mercury with chalk and one-fourth of a grain of muriate of morphia three times a day.

23rd.—Lips perfectly blanched; skin cooler; pulse 92; tongue less apthous; she takes four pints of milk in the twenty-four hours; omit the beef-tea.

24th.—Vomited this morning a good deal of curdy fluid of a sour odour and verdigris-green colour; bowels have been moved, and the evacuation was dark-coloured; appears more prostrated; has a little pain in the left side; not much tenderness of the abdomen; pulse 96; breath foetid; gums tender; urine, sp. grav. 10.15, strongly acid; albumen about the same; omit the pills and the milk; to have two ounces of port wine and some beef-tea.

25th.—Looks very pale and much prostrated; pulse 90, small; has vomited some yellow-coloured fluid; dislikes the wine and has had some brandy; has less pain; bowels moved once only.

27th.—Appears very languid; pulse 96, small; tongue less apthous; has taken four ounces of brandy in the day but hardly any food.

28th.—Countenance anxious; complains most of pains in all the limbs; considerable tenderness of the right hypochondrium; bowels moved two or three times.

30th.—Skin cool; pulse very small; prostration of strength very great.

31st.—Continued to sink, and died at 2 A.M.

[The post mortem examination, and summary of the case, in the next LANCET.]

ON MEMORY, ITS INFLUENCE AND IMPORTANCE AS A SOURCE OF ACTION IN ANIMALS.

By J. JOHNSTON KELSO, M.D., Lisburn.

THAT several interesting genera belonging to the insect world—the ants and hive-bees more particularly—are gifted, not without obvious purpose or design, with some degree of memory, if not a species of recollection, through whose active agency, (either directly and simply in itself, or indirectly and in fundamental relation to some truly very humble and limited mental processes which they seemingly evince,) a separate and distinct class of actions, of no trivial extent and importance, are being constantly willed and executed, with a view—however faint and indistinct in many instances it may be—to certain definite ulterior purposes, whether of a self-conservative, social, or economic tendency,—is a conclusion to which we are forcibly, indeed irresistibly impelled, from a dispassionate review of the facts and considerations that have already been adverted to, not to mention many others of a similar import, that, did space permit, I might readily here adduce. Hence, in addition to those volitional movements or actions, in these or other tribes still more elevated in the scale, which have their accredited and veritable spring in the common power of instinct, on the one hand; and those which, with equal reason, may be rightly regarded as the genuine offspring either of the active or emotional feelings, or of the processes of intellectual operation, and involving, too, in some degree, an exercise of memory, on the other,—they very clearly and decidedly evince (on the same principle of reasoning from phenomena to causation, from the outward and self-interpreting organic signs or movements, and their results, to the originating and impellent influence within) a goodly category, an extensive and infinitely varied class of actions that belong exclusively to the exciting and determining agency and operation, more or less

active, of the widely diffused power of memory. And this merely is the position, it may be allowed me, for which I would in all earnestness contend; and its importance, as a matter of philosophy, may be here urged as my apology for the occasion of the present lucubrations. If, indeed, in speculative science, it were a doctrine generally received, especially in connexion with the many applications of which it is more obviously susceptible, they were quite uncalled for in this place.

However, with reference to the higher orders of animals, the influence of memory as a stimulant and regulator of a vast variety of actions that go to constitute what has been called their habits, as well as many others of a less common or incidental character, certainly cannot be rightly otherwise regarded than as reposing on evidence the most unexceptionable. But to attempt anything like an exposition of this evidence, profuse and varied as it is,—to essay a review of the more prominent and characteristic of the host of proofs supplied us in the history of their habits and incidental traits of conduct or deportment, even in the briefest possible compass, would be a labour, which, however interesting or instructive, dare not, for obvious reasons, be thought of in this place. Any facts or observations, therefore, more pertinently illustrative of the habitudes and workings of this common principle or spring of action in them, that can here be noticed, will necessarily be of a very general nature; but before proceeding to glance at these very casually, it may be as well, perhaps, at once to dispose of the question which naturally suggests itself in the outset—What is the kind or quality of memory which animals, many of them, thus so clearly share in common with ourselves? What, in the main, are its distinguishing characteristics? Do these characteristics so consort and harmonize as to betoken in all instances a common source or parentage in one and the same sort of psychical energy, or the reverse? The reply to these questions, which will exhaust, it is to be feared, all our present available space, evidently involves, in some measure, the consideration of another,—that, namely, which has reference to the higher memory, or recollection, of man, its more salient and distinctive features, the objects or subjects with which it has more especially to do, and its uses or final cause in his mental economy. With the many other topics which this question comprehends, I do not, for obvious reasons, at present concern myself; and only with those now specified, in so far as they may serve to illustrate, by contrast, the main features and bearings of the inquiry which is here more immediately to engage us.

In order to facilitate as well as simplify, perhaps, the investigation, abstruse and slippery as it is, it may be right here to state, that all memory, whether human or animal, naturally divides itself into

1. Memory of sensations or perceptions, and
2. Memory of ideas, facts, or transactions.

Memory, again, offers itself to our contemplation under a twofold aspect—namely, as either *active* or *passive*, using these terms not in an absolute, but merely in a relative sense.

Active memory, or recollection, usually so termed, whether sensory or ideal,—whether of impressions derived from the world without, or the results of processes of the subjective principle within, evidences itself, in its greater development and perfection, alone in connexion with the $\psi\upsilon\chi\eta$, or immaterial mind of man, of which it is certainly and confessedly, indeed, one of its most important and interesting manifestations. There is no animal, however comparatively elevated or varied are its psychical endowments, which possesses the power, inherent in the human mind, of voluntarily, at the instance of necessity or mere pleasure, throwing itself back, as it were, upon itself, of reviewing, deliberately and methodically, the accumulated and incessantly accumulating materials of, it may be, a vast and infinitely varied store of knowledge variously acquired, equally with the results of mental processes which they incite, and, generally at least, so largely minister to,—in search of some forgotten memory, whether of a sensation, fact, train of thought, or judgment, presuming it to be possessed of these common intellectual powers. Far less certainly is any animal endued, in any form or degree, with the supremely exquisite and soul-distinguishing faculty of moral memory or conscience, usually thus called; or even, excepting very partially perhaps, and limitedly, with the memory of the higher affections, such, for instance, as philanthropy, benevolence, gratitude, or others of the kindlier and better feelings or emotions, which, in their full and vigorous play, equally distinguish, ennoble, and adorn humanity. If, in fact, there be one point in psychology better ascertained than another, it is assuredly the one to which I am now adverting; and I repeat,—what from its notoriety must be accepted as a self-evident truism, though on that account not the less

necessary of being distinctly expressed here in terms,—that the inferior animals, not any of them, are endowed in any degree worthy comparison, perhaps, with the exquisite capacity possessed by many, of instituting at the bidding of the will, so to speak, those wondrously rapid and infinitely diversified retrospects over the far and widely-stretching domain of the actual observation or experience of the past; of renewing old and faded acquaintanceship with the ideal conceptions, thoughts, or judgments, that have previously influenced or occupied the mind, and been registered there; of reviving, in review, the motley and discordant group of motives to action, attended with or without emotion, that have formerly and long before, perhaps, influenced and impelled, with the equally diversified fruits that have, in consequence, accrued,—a faculty with which man alone, of all created beings, has been beneficently, and, withal, wisely privileged, and in virtue of which he is enabled, as often as he list, to live over again his past life, alike of thought and action, with all its commingled feelings of pleasure and pain, joys and sorrows.

"Hoc est
Vivere bis, vita posse priore frui."

Such, then, in faint and imperfect outline, is active phenomenal memory, or recollection, as usually manifested by "the double animal,—the perfect man;"* and whether we consider its exceeding perfection or scope,—whether we regard its proximate and fundamental relations to the active powers of the thinking mind, and more immediately to the conscious volition, or the numberless and infinitely diversified offices that it discharges, in the many and multiform intellectual and moral actions and re-actions that so largely occupy and influence us in each successive phase of existence, equally with the ordinary and every-day concerns and relations of life, we cannot but feel very forcibly impressed with the conviction that the faculty, as thus manifested, is quite different and distinct from that with which any of the lower animals has been endowed. Further, if we look to its uses or final cause in the mental system, what more prominently arrests the attention? In objects or pursuits, intellectual and moral,—in the different duties and relations of life, both social, politic, and economic,—in every exercise, in short, which has for its object man's present improvement and happiness, mental, moral, or physical, we have just now seen this higher and nobler form of memory to play a very striking and important part, and it requires no argument to show that its ultimate tendencies all incline, more or less directly, to the perfect consummation of that improvement and happiness. Furthermore, in conjunction with imagination, duly relying on the permanency of the order of Nature, and the sustained adjustment of harmony in the laws that govern and control its peculiar forces, it is enabled from the past to descry the future, and in the anticipated pleasures of which, rightly cherished by hope, we discover a well-spring that goes largely to contribute to the sum of human happiness. Surely the poet who designated the faculty, in this its nobler capacity, bearings, and relations, by the epithet divine, was somewhat of a philosopher as well.

But, after all, are there no animals which exhibit indications of their possession, in some degree, of the intellectual species of memory enjoyed by man? Now, certainly, there are several different genera of the higher orders that seemingly are possessed, equally with ourselves, with the capacity of recalling, by a voluntary mental effort of some force and distinctness, a bygone sensation, whether pleasurable or painful, or an impression or idea, objective or subjective, whether attended with or without some feeling of transitory emotion, if experienced with the degree of vividness requisite to any remembrance, though generally after the lapse of comparatively but a short interval of time. In other words, facts or incidents connected with their history are not wanting, that go to evince the working of a recollective faculty of some kind within them. In corroboration of the genuineness of the position here assumed, there is a description of proof which, since I first thought on the subject, I have ever regarded as pretty conclusive; I allude to the occurrence of dreaming, evinced, probably, by several very different tribes of animals, but more particularly and familiarly by the dog and the horse. Now the current philosophy of this mental phenomenon, whether as occurring in animals or man, may, in some respects, be open to debate; but the influence of memory, at least, in half-conscious and lively exercise, as constituting one of the chief and essential elements which it embraces, is unquestioned and unquestionable: indeed, in every expla-

nation having reference to it that has met my eye, due regard to the inciting agency, alike of memory and association, has unavoidably been paid. Nor is the well-known and undoubted circumstance of the susceptibility of many species of animals of almost all orders to profit by individual observation, or lessons in instruction or training, less pointedly corroborative of the assumption. But regarding this particular feature in their history, any remarks here in explanation would be quite superfluous, and I at once dismiss it by observing generally, that every acquired habit or art, of whatever description or character, or however made, necessarily involves, as well in the particular acquisition, as in the after-observance, some conscious activity of the power of remembrance. But over and above all this, many historical incidents have been noted by different trustworthy observers, that go very clearly and decidedly to bear out the position for which I am now contending. Of these, I can here only find room for the following, which will serve as a sample.

After remarking that horses have a very good memory,—that in the darkest nights they will find their way homewards, if they have but once travelled the same road,—that they remember, with much tenacity, good as well as bad treatment,—Colonel Smith mentions an instance of one which had been two years his own, but which had been left with the army, and brought back and sold in London. At the expiration of three years, he chanced to travel up to the metropolis; and, at a relay, getting out of the mail, the off-wheel horse attracted his attention; and upon going near it to examine it with more care, the animal was observed to recognise its former master, and to make many expressive gestures and movements indicative of its satisfaction at the circumstance, till the coachman at length asked if the horse was not an acquaintance.

A wolf was brought up as a young dog; he became familiar with every one he was in the habit of seeing, and, in particular, followed his master everywhere, evincing evident chagrin at his absence, obeying his voice, and deporting himself equal to a domesticated dog. The animal was presented to the Menagerie du Roi, where it continued disconsolate, scarcely taking food. After a time his health returned, and forgetting his former affection, and the object of it, became reconciled to his keepers. In eighteen months his former master returned, and without his uttering a word, the wolf perceived him in the crowd, and at the recognition evinced the most lively joy, the caresses of the animal, on being set at liberty, being as affectionate as could have been those of an attached dog after a few days' absence. A second separation was followed by similar demonstrations of regret, but which again yielded to time. Three years had passed, and the wolf was living with a dog, which had been placed with him as a companion, when his master again returned. The long-lost but still-remembered voice was instantly replied to by the most impatient cries, which were redoubled as soon as the animal regained its liberty: such, indeed, was the keenness of his affectionate feelings, that the keepers, who offered to remove him, and to whom just before he had shown every symptom of fondness, were subjected to menace and very significant marks of displeasure. A third separation proved nearly too much for this affectionate animal; it became gloomy and despondent, refusing its food, rejecting the attentions of its keepers, and manifesting towards strangers the original savageness of the species. It was only after a long interval, that its health and spirits became in any degree restored. Commentary on this singular incident in the natural history of the wolf, which rests on the authority of Frederic Cuvier, and is quoted by Bell,* would be quite superfluous.

But of all animals, the canidæ, perhaps, exhibit the most striking and conclusive indications of conscious reminiscence, together with those particular mental states or affections, both emotional and intellectual, that, as in our own case, are alone mainly ascribable to an under-current and insensible influence of memory in connexion with association. A shepherd, employed to conduct some sheep from Westmoreland to London, took with him a young sheep-dog, which had never made the journey before, and, from his assistant being ignorant of the ground, he experienced great difficulty in having the flock stopped at the various by-roads and lanes he had to pass in the way. Next year, the same shepherd, accompanied by the same dog, brought up another flock for the gentleman who had had the former one. On being questioned how he had got on, he said much better than the year before, as his dog now knew the road, and had kept the sheep from erring in the route. The distance is calculated to be four hundred miles.†

In Daniel's "Rural Sports" there occurs the subjoined anecdote.

* Gibbon's Decline and Fall of the Roman Empire.

* British Quadrupeds, p. 200.
† Jesse, Gleanings in Natural History, p. 94.

dote, which is quoted by Bell. "A few days before the overthrow of Robespierre, the revolutionary tribunal had condemned M. R—— as guilty of a conspiracy. His faithful dog, a water-spaniel, was with him when he was seized, but was not suffered to enter his prison. He took refuge with a neighbour of his master's, and every day at the same time returned to the door of the prison, but was still refused admittance. He, however, uniformly passed some time there; his unremitting fidelity won upon the keeper, and the dog was allowed to enter. The meeting may be better imagined than described. The jailer, however, fearful for himself, carried the dog out of prison; but he returned the next morning, and was regularly admitted on each day afterwards. When the day of sentence arrived, the dog, notwithstanding the guards, penetrated into the hall, where he lay crouched beneath the legs of his master. Again, at the hour of execution, the faithful dog is there; nor can he be separated from the lifeless body. The next night after, the next day, the second night, it was remarked he was absent by his master's patron, who, suspecting whither he retired, sought him, and found him stretched upon his master's grave. From this time, every morning for three months, the mourner returned to his protector merely to receive food, and then again retreated to the grave. At length, he refused food; his patience seemed exhausted; and with temporary strength, supplied by his long-tried and unexhausted affection, for twenty-four hours he was observed to employ his weakened limbs in digging up the earth that separated him from the being he had served. His powers here gave way; he shrieked in his struggles, and at length ceased to breathe, with his last look turned upon the grave."*

Still, it would appear, that the memory with which animals have been more particularly and generally endowed, is not altogether of that lively and energetic character which these facts or incidents would seem to indicate; in other words, that it is deficient in those high and distinguishing characteristics which we are wont to regard as pertaining alone to the more exquisite and perfect form of the faculty, subservient to processes of recollection, whether as manifested, *par excellence*, by man himself, or to a limited extent and degree by some of the more gifted of the lower animals. From what has been already stated in the present paper, the more prominent of these distinctive characteristics will now, it is hoped, be tolerably apparent; and if so,—assuming their correctness,—a ground all the more certain will be supplied us, in the way of contrast, for arriving at accurate, or at least approximately accurate conclusions, regarding the lower or sub sort of it, whether we term this passive, latent, or involuntary memory, or, with the Rev. Mr. Whewell, sense of successiveness,† its phenomena and laws, the objects to which it relates, and the uses which it subserves in their constitution. Now the length to which this article has already extended will preclude the possibility of doing more here than barely glancing at these several topics, interesting as they are.

Whatever be the peculiar and essential character of the subjective principle of which it is a common property or quality, or whatever the rank that may rightly be assigned it among the active intelligent powers or entities, it may here be affirmed, as a general fact or law of this sub-species of memory, that the recalling to consciousness of past sensations or impressions, the fruit of individual observation, felt and retained, proximately and necessarily depends, not, as in acts of recollection, on a conscious effort of volition, but upon the exciting and extra-voluntary agency of corresponding sensations or impressions presently experienced. Many different genera of animals have been apparently endued, in common with man himself, with the capacity of *willing* the remembrance, more or less distinctly or vividly, though after a comparatively much shorter interval of time, of a by-gone sensation or objective impression, or of several similar or kindred sensations or impressions formerly experienced in conjunction, or in immediate succession, together with the resulting allied feelings or emotions, in virtue of a distinct and independent voluntary effort attended with consciousness. In other words, they have vouchsafed to them the power of recollection to a

limited extent and degree; but, as just now intimated, the general rule or law that seems to influence and regulate the operations of the common and all-but-universal memory of animals, acknowledges not its authority and force at the instance of volition, but in total independence of it, in so far, at least, as its conscious agency is concerned. Here the presumption is, that some other psychical power, of more secret, though not less certain, operation than that of volition, interposes instead its active and authoritative governance and rule. But it may be argued that memory, under every habitude and condition, is a self-regulating, as well as self-acting power; nor, within due limits, is this meant here to be contested. But were we to overlook or disregard its peculiar relations with the other co-existent psychical manifestations, in whatever these may consist in the individual animal, and the mutual influences that these relations necessarily involve, we should, if I am not very far mistaken, exclude from view much valuable information, both in reference to its particular operations, the nature or character of these operations, its objective bearings, offices, and final tendencies, of which, by a different line of procedure, it is possible to acquire the mastery. In viewing memory, then, alike in animals and in man,—not abstractedly, as an isolated and independent faculty; but as in reality intimately associated in operation with its correlative powers,—not as acting always, or even generally, in itself, of its own inherent energy, reproducing previously acquired impressions or ideas, and thus influencing, one-sidedly, volition and association, and volitional or associated actions or movements; but as being equally acted upon in turn by these closely allied mental energies. In thus contemplating the subject in its more natural aspect, I cannot certainly but think we attain perceptions of fundamental truths in this department of science that otherwise might ever have eluded the keenest discernment. We are thus, for instance, conducted to the feasible and not unimportant conclusion, that the common memory of animals differs from the recollective capacity of man, not only in a host of negative qualities and offices, but in its relation of reciprocity with the power of volition, whereby its inverse influence ceases to be felt. For, apart from their relative perfection and scope, which evidently bears no proportion that would warrant comparison for a moment, the one of these descriptions of mental manifestation differs from the other, as well in its chiefest bearings, concerns, and objective tendencies, as in the further and equally interesting circumstance of its more intimate and fundamental relationship, mutual as it is, with another common psychical power—that, namely, of association, or the law of simple suggestion of Dr. Thomas Brown; or, more correctly, perhaps, some modification of this principle or law, in obedience to which sensations or perceptions that influence presently are apt to suggest or connect themselves with their counterparts, laid by in the archives of the memory. In our own case, if we only regard, with a little attention, what passes in our minds, this sub-species of memory—whether my views regarding it prove correct or not—must often be felt to work, and to work most efficiently and agreeably. The abiding fruits of observation or experience that were old and dormant, and insusceptible of recollection by any mental effort, are being found ever and anon to obtrude themselves on the mind upon its being again influenced by similar acquisitions, and this quite unexpectedly on our parts, nay, often contrary to our strongest expectation. Even in the shortest life, and in the briefest period of it, what a host of different memories and associations may not in this way come afresh to influence the percipient man, that might otherwise have been irrevocably consigned to the tomb of all the Capulets. So it is presumably, with reference to the lower animals, among whom this kind of memory appears to be so largely diffused. Their consciousness, it may reasonably be supposed, is perpetually being jogged by the memories of prior and all but forgotten perceptions in virtue of the inciting agency of those of a correspondent character, that are newly acquired; successively, of course, and in relation to the recent acquisitions. But it is right to add, that we have no data whereon we may satisfactorily rely, for presuming that perceptions or ideas are even excited in them, as they are well known to be in us, on the opposite principle of contrast. That evidently would imply a rather high effort of imagination, of which, it is unnecessary here to say, they, without exception, evince but the faintest indications.*

But it is in the objects or subjects with which the memory of animals more immediately concerns itself, that its vast inferiority is found to consist. Now, without entering into

* Loc. cit. p. 224.

† His words are—"This constant and almost imperceptible kind of memory, by which the beginning and end of each instant [of time] is connected as it passes, may very feebly be distinguished in common cases from manifest acts of recollection, although it may be difficult or impossible to separate the two operations in general. This perpetual and latent kind of memory may be termed a sense of successiveness; and may be considered as an internal sense by which we perceive ourselves existing in time, much in the same way as by our external or muscular sense we perceive ourselves existing in space."—*Philosophy of the Inductive Sciences*, vol. i. p. 132, et. seq.

* Vide Fleming, Phil. of Zoology, vol. i. p. 221.

any detail here of the varied topics with which this part of the subject evidently teems, it will perhaps be sufficient generally to remark, that all those objective sensations or impressions that are in any way provocative of emotional feeling, agreeable or disagreeable, pleasurable or painful, or the like, appear to be of those of which the memory takes the surest and most lasting cognizance. The dog or horse, for instance, which has happened to be the subject of the lash, requires afterwards only to be shown the instrument of correction for a very sufficient remembrance; and the force, so to speak, with which the castigation, and the circumstances connected with it, has impressed itself on its memory, will be found to bear a certain ratio to the severity with which it has been administered, or rather, of the conflicting feelings of fear and anger of which it was the source. Again, the spaniel will often be found to exhibit all the indications of joy, when he observes his master resuming some particular habit which he was accustomed to wear during the hours of sport. The enjoyments connected with the pursuits of the field are thus excited, by the aid of associations, in the remembrance, as distinctly and vividly as they might have been by the sight of the gun.

Still it cannot be doubted for a moment that animals are somewhat susceptible as well of the retention of impressions of objects or things that are unattended by any sensible emotional manifestation. The fact of the horse, which has happened to make a new and unknown journey, being capable of himself accurately to retrace his steps by the identical route which he had been led to pursue in his outward course, even under circumstances the most unpropitious, clearly proves his having been influenced very distinctly by the ordinary impressions of the different objects witnessed by the way; and further, that his actions in so far were stimulated and guided by a right exercise of the memory. So also in other cases. But I have already transgressed my limits.

It is but right, however, to add here, that the ultimate tendencies or final cause of memory in animals, are all essentially subservient either to common animal gratification or enjoyment, or to purposes of a utilitarian character, whether in reference to themselves or others of the race. The ground of this statement were easy of proof; and I had intended at first to have gone into the consideration of the topic at some length, as well as the relation which memory bears to several of the active feelings or emotions, and intellectual operations of which animals are susceptible; but the trespassing further on the well-known and acknowledged liberality of this journal might, in an individual of my pretensions, be considered as presumptuous. A volume of notes, on the Principles of Action in Animals, which has now long laid by me, and out of which these papers have been culled, may be one day laid before the public in a separate form.

Lisburn, February, 1846.

CASE OF

ENCEPHALOID DISEASE OF THE PELVIC VISCERA.

By ROBERT HARDY, Esq., M.R.C.S. Eng. Hull.

History.—I was first called to attend Master A. R—, aged five years and six weeks, in June, 1844. I found him labouring under an acute attack of pain in the bladder, resembling one of the paroxysms from calculus in that viscus. Previous to this, his health had been always vigorous, his parents playfully terming him the "John Bull" of the family. A complete stoppage of urine having occurred, and the warm bath, anodynes, aperients, &c., having failed to give relief, the catheter was used twice, on one of which occasions a calculus was distinctly recognised at the extremity of the urethra. In a few days the symptoms were relieved, and though he occasionally suffered slight pain, and some difficulty in passing his urine, he had no further acute attack till the August following, when the same difficulties occurred as when he had been first seen, and the catheter &c. was used as before, for his relief. The calculus being a second time recognised by the catheter, Dr. Alderson was called in, and subsequently, Mr. Wallis, surgeon, was desired to make an examination of the case, which he did, and found that the calculus had now descended into the membranous portion of the urethra. The catheter on this occasion was used very gently, and it was hoped that the stone would be shortly voided, and our little patient effectually relieved. As far as could be ascertained, (and great care was taken in the matter on the part of his nurse, who was a highly intelligent woman,) no calculus was ever voided from the urethra, but from this period forward, all symptoms of stone vanished, and he continued to have the

full command of his bladder till within six or eight months of his death, subsequently to which period it dribbled away involuntarily, and particularly during the night. Soon after the use of the catheter last alluded to, pains and hardness were set up in the perinæum, and we concluded that the small calculus had escaped into the cellular tissue, between the urethra and rectum. Some feverishness having been set up, the perinæum was leached and fomented, salines and aperients were administered, and the pain was early relieved. The swelling, however, gradually increased, and continued equally hard, and we hoped for the ultimate discharge of the calculus through the perinæum, though, as yet, there were no indications of its approach to the surface.

The urgent symptoms having become relieved, (about the latter end of August,) he was removed into the country, where he remained for about a month. On his return, his general health appeared considerably improved, but the swelling and hardness of the perinæum were considerably increased, though no fluctuation could be detected. He had had no return of vesical irritation, or difficulty, in voiding his urine, during his stay in the country. (N.B.—Dr. Alderson, on seeing him, now gave it as his opinion that the disease was encephaloid.)

From the very commencement of his illness, his bowels had assumed a constipated condition, which now became somewhat urgent, requiring powerful and frequently repeated purgatives, in order for its relief. This state of things got worse and worse during the succeeding autumnal and early winter months, it being frequently five or six days between the periods of defecation, in despite of the powerful means had recourse to for the patient's relief.

In the meantime, the tumour increased rapidly, pushing itself more outward, and extending first to, and then rapidly around, the intestinal rectum; no doubt, also, it was pressing at this period on its parietes internally, and forming a serious mechanical obstruction to the discharge of its contents. A side view of the pelvis now demonstrated that great deformity was proceeding therein, its posterior aspect being projected very considerably backward, especially at its inferior parts, which had become also elongated. In these two directions the swelling continued steadily to increase till the period of his death, the enlargement and deformity in the last stages of the disease having become truly hideous.

In Christmas week, 1844, matters became so urgent with regard to the bowels, that it was found necessary to have recourse to a small gum-elastic tube, carefully passed up the obstructed rectum, through which stimulating injections were passed. Partial relief was thus obtained, and, for three or four days afterwards, occasional evacuation of fæces, pressed small as a catheter, and flattened, were forced off with difficulty. This was again succeeded by obstinate constipation, from the causes before named, and the injections were now ordered to be used twice per week; they were continued up to November, 1845, but they had latterly failed to have the desired effect, and it was evident, from the immensely distended abdomen, and occasional violent pains within that cavity, that unless Nature got some relief, the child's life would be speedily terminated. At this period he was suddenly seized one evening with violent convulsions, which continued nearly all night. During these paroxysms, large evacuations per rectum took place, both of flatus and fæces. The internal resisting forces were broken down, and thenceforward, till death, the fæces were being continually forced through the bowel, the sphincter ani having previously lost its resisting energy.

In the latter stages of the disease, and more especially after the convulsive paroxysms, before referred to, our little patient had occasional febrile attacks, accompanied with pain, referred always to the bowels and stomach. These were usually relieved in three or four days by saline with gentle anodyne medicines, the latter becoming more and more necessary, until given regularly every evening, and occasionally in the morning, if he became very unhappy. With the exception of the febrile periods now named the appetite remained good, and the sleep sound, till within a few days of death, nor did he ever complain of violent pain in the affected parts, but more of a sense of uneasiness and heat; these symptoms were greatly alleviated by cooling lotions, which were continued to the end of life, and which no doubt greatly aided in keeping the skin covering the diseased parts intact. For many months before death a red excrescence had pushed itself out of the extremity of the rectum, and occasionally bled a few drops of blood. The greatest care possible was used by his nurses to keep him dry and clean, by which means he received great alleviation from suffering.

From the commencement of his illness he evidently lost