A Course of Lectures
ON
THE PATHOLOGICAL APPEARANCES
OBSERVED IN THE
BODIES OF THE INSANE.

DELIVERED AT THE
MIDDLESEX COUNTY LUNATIC ASYLUM.

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LECTURE II.

In my last lecture I endeavoured to give you some account of the appearances produced by general paralysis, epilepsy, and some other cerebral diseases; of the lesions of the brain and its membranes which sometimes accompany pulmonary consumption; and of the secret manner in which even serious diseases run their course in the bodies of the insane. I have now to solicit your indulgence, while I give a summary of the pathological appearances in the thirty-four cases before alluded to, and offer some speculations on the especial seat of insanity, carefully marking out to you where facts terminate and theory begins.

It is the practice of pathologists to examine the external appearance of the body before they proceed to the investigation of the internal viscera, and in so doing, the first thing that would arrest the attention would probably be the colour, and the character of the covering of the scalp—in other words, of the hair. This structure, although imperfectly sensible to the touch, sometimes becomes acutely sensitive under disease, and is undoubtedly influenced by the varying states of the body and the mind. Morgagni relates a case in which mania was instantaneously cured by the cutting of the hair; and in this instance, the cut extremities poured out a dark pigment of an extremely offensive odour. Such a case belongs rather to the curiosities of medicine than to the ordinary experience of daily practice. We see, however, great changes in this structure, according to the phases of mental disease: thus, in S. W—, an hysteric patient, in No. 13 ward, a paroxysm of violence is preceded by a marked change in the appearance of her hair; it becomes suddenly straight, adhesive, and looking as if it had recently been dipped in oil or water; in many cases of melancholia it has this appearance, while in mania of an active character it frequently is erect, as in the case of J. S—, in No. 5 ward. There is no colour of the hair that is peculiar to the insane, although I have seen it stated somewhere, that a "sandy" colour is most frequent among lunatics. This is certainly not the case; whatever coloured hair is most common in any district or country among the sane, will also be found frequent among the insane. The colour of the iris has also attracted attention. A relative of mine, who has recently returned from visiting the large asylums in the neighbourhood of Paris, informs me that Foville has noticed great irregularities in the colouring of the irides among lunatics, the inner ring having a reddish or yellow appearance, while the outer one is blue or grey; you may see illustrations of this appearance in J. H—, in No. 12 ward; in M. D—, in No. 11 ward; and very many others: but my opinion, from the examination of a great number, both in the sane and insane, is, that such irregularity is very common among both classes. Foville has also remarked a deviation from the usual form, in the configuration of the external ear. According to him, the pinna is unusually large, or deficient; the helix wanting, or curved to an unnatural extent; the tragus and antitragus being far apart, and the lobulus of great dimensions. Dr. Conolly, in his elegant Letters on the French Asylums, published in the *British and Foreign Medical Review*, gives an interesting anecdote, which tends to confirm the observations of the great French pathologist. There are certainly greater and more frequent departures from symmetry in the form of the external ear among the insane than among the sane—i. e., in a given number of lunatics you will see more varieties in the form and configuration of this structure than in a corresponding number of the sane; but it should be remembered, that the external lobe of the ear is one of the last-formed parts of the body, is, in fact, an appendix, rather than an essential, to the organ of hearing, and is so frequently irregular in its outline as to preclude us from arriving at any inference respecting the condition of the mind, from its want of beauty, or proportion.

Chronic lunatics sometimes have an affection of the external ear, the origin and nature of which is perhaps *sub judice*. The cartilage of the pinna appears to be split in two, and the whole structure of the lobe becomes much thickened, and is very uneven in its form—all the natural configurations of the ear being displaced and destroyed by unsightly protrusions. If the ear be cut into, a considerable quantity of straw-coloured fluid will sometimes escape, leaving a cavity; in others, there is a great deposition of fibrine. You may have seen illustrations of this form of ear in three of the dementia cases in No. 1 male ward, and in one in No. 5 ward. I have not seen any similar affection among the females in this institution, and it is usually found either in the very violent, or in the very helpless, which induces me to think that it is the result of some mechanical violence. I have also known it occur very suddenly—that is, a patient who has been free from it on my morning visit has exhibited it in the evening; and on these occasions I have found the lobe of the ear to have a blue appearance, as if from effused blood. It remains a permanent deformity. I have been informed that a veteran physician thinks it is indicative of effusion into the ventricles. I am strongly of opinion that it indicates effusion into the auricle—an effusion of blood, the result of a blow or a fall; but it is right to state that my colleague, Dr. Begley, does not share in this opinion.

In the thirty-four cases examined, the calvarium presented frequent variations as to thickness. In more than one-half it was normal in this respect; in ten it was very thin; in six it was morbidly thick. In those instances in which it was thin, the diploe appeared absorbed, and the bone approached in extreme cases to the character of ivory, and was diaphanous over a great extent of surface, when exposed to a strong light. In all these cases the groovings of the middle meningeal artery were very conspicuous, and the skull was light. It frequently happened, that when the calvarium was normal as to thickness, it had undergone a great change in its structure, and become very dense, heavy, and hard, presenting a prominent ridge of bone on the under surface of the sagittal suture, and having throughout the whole of its substance the intense osseous look (so to speak) of the anterior surface of the femur. This appearance was chiefly found in the crania of those who had been insane for a great number of years. In other cases the skull was very light, and yet very much hypertrophied. Instances have been known in which the bone has attained to the thickness of an inch and a half. You see a specimen on the table before you, measuring an inch; the texture appears remarkably spongy and nearly uniform in its character; there are very few traces of any division into internal and external tables. You observe the inner surface very strongly marked by deep furrows, indicating the course of the vessels of the dura mater. It sometimes happens that the bones of the head present modifications of the three varieties of disease which I have rapidly glanced at. It is very common to find small cavities on the inner table of the skull, oval or circular in form, having a smooth, abrupt edge, and causing the bone to be more transparent in these spots than at any other part. Even in these skulls, which are very heavy and dense, it is rare not to find some spots varying in size from a shilling to a half-crown, perfectly diaphanous. They vary very much as to site; but one of the most common places is at, or near to, the junction of the sagittal with the coronal suture.

The skull also varies much in its form and arrangement. The inner table is often irregular and uneven, and there is a great want of symmetry between the two halves. In ten cases out of the thirty-four, there was a great and abrupt contraction at the junction of the frontal with the temporal bone, and the lower anterior edge of the parietal bone; and in one instance, of which I have preserved this sketch, formed by pressing the upper portion of the divided calvarium upon paper, and afterwards inking the outline, you will observe that this defect is more extensive on the inner table than you would imagine it to be, from an examination of the shape of the head during life—the hair, the scalp, and the temporal muscle, serving to diminish the apparent amount of contraction, while the encroachment of the inner table was beyond the reach of physical examination. It is needless to observe that a large anterior cerebral development could not exist in a skull of that form and size.

In thirty out of the thirty-four cases to which we have alluded, the dura mater was adherent to the calvarium; and, when exposed, presented many bleeding points on its surface, as if small veins had been lacerated in the effort to disconnect them; and in four instances it was quite impossible to effect a separation, and this membrane, with a portion of the arach-

noid adhering to it, was removed with the calvarium: in attempting to remove it afterwards, the membrane split in two, its upper layer remaining in as close apposition to the inner table of the skull, as the periosteum to any other bone. The glandulæ Pacchioni were usually very large in the brains of old lunatics; the superior longitudinal sinus is frequently of large size, and in one case was arched over on its cerebral surface (with interspaces about two inches in extent) by small depositions of bone, having spiculæ of bone also in its course, as detailed to you in a former lecture. The sinuses generally were distended with blood, but these are so commonly affected by the varying positions of the head, that I do not attach any importance to the above fact. If the head be depressed below the level of the trunk from any cause, for even a short time, the veins of the cerebrum and the torcular Herophili will be gorged with blood, and the brain itself will present an appearance of congestion. So influenced are the vessels of the head by gravitation, that you can by mere position so alter the post-mortem appearances as to deceive the experienced as to the probable cause of death. Thus, if you strangle a rabbit, and suspend it immediately after death by the lower jaw for a few hours, the congested vessels of the brain will empty themselves, and the cerebrum will present almost as blanched an appearance as if the animal had been bled to death; while, if you bleed one, and hang it up afterwards by the hind legs, the brain will look as though the creature had perished from apnea. These diagrams were drawn and coloured from the experiments made by me, to satisfy my mind on this subject. But all these facts (as I have stated before) have been so admirably given by Dr. Burrows, that further experiments are needless, if not positively cruel. These appearances are accounted for by the absence of valves in the large veins of the base of the brain and neck, and their application to practice appears obvious. Many of our poor demented patients in whom the circulation is feeble and slow, are fond of creeping to the steam-pipes, and there sitting with their heads depressed below the level of the trunk; while the restless maniac cannot be persuaded to retain his horizontal position in bed. Are these instinctive movements without a meaning? These afflicted creatures may not be guided in their motions by knowledge, more than is the plant which from some darkened cellar curls to the light, from whatever part the sunbeam may penetrate; but, rely on it, a silent power within leads them to seek a comfort from their respective attitudes which they could not otherwise obtain. Can you not imagine that deficiency of blood in the one case, and local excess in the other, explain the meaning of their varied positions?

I read in these diagrams an eloquent denunciation against the use of the strait waistcoat, and all other ligatures which bind the sufferer to his bed. The expansion of the chest prevented, the circulation through the arms and legs retarded, the veins of the lower part of the neck pressed on, the head of the furious maniac retained in the horizontal position, oh! who can tell the amount of uneasiness and suffering which the poor lunatic has sustained, even from the hands of those who deemed themselves his friends!

In four instances, and all in aged persons, the basilar arteries had become atheromatous; and the ramusculi of the meningeal arteries partook of this peculiarity in one patient. The base of the skull occasionally presents deviations from the normal type; but these have been sufficiently noticed in my remarks on the epileptic cases. There is one circumstance, however, to which I beg to draw your attention. Dr. James Risdon Bennet, in a very able Report on the Progress of Pathology, Practical Medicine, and Therapeutics, published in the *British and Foreign Medical Review* for July, 1845, gives the following from a German journal:—"Dr. Kasloff, of Kiew, having for some years directed his attention to the state of the great vessels of the head, in cases of insanity, has been induced to conclude, that in all its forms insanity is most intimately connected with derangement of the circulation within the cranium. In particular, he has remarked, that the foramen lacerum posterius, on one, and sometimes on both sides, is much contracted, so as necessarily to have involved great diminution of the jugular vein, and obstruction to the return of blood. The canalis caroticus did not seem to have undergone any corresponding contraction. In every skull of maniac or suicide in the museum at Kiew, Dr. Kasloff found this contracted state of the foramen lacerum posterius." To this Dr. Risdon Bennet adds: "Dr. Kasloff's observations tend to show, that the persistent obstacle to the return of blood from the head exists in insanity—an important fact, if true." Were this universally the case, it would lessen every hope of cure, and make one almost despair of curing insanity;

but I am happy in being enabled to add, that in ten cases—the most recent I have examined—both foramina were patent, and in only one case have I been able to detect a constriction in this important outlet. My experience as to this especial point has, however, been limited to eleven cases; for until I had read the above Report, I was not in the habit of dissecting back the dense, fibrous membrane at the base of the skull.

The arachnoid membrane was opaque and thickened, in thirty-three of the thirty-four cases examined. The nature of this opacity has been questioned, some asserting that it is caused by the contact of the serum; others regarding it as the result of inflammatory action: this latter opinion is probably the correct one, as a minute examination frequently displays certain spots, more opaque than other parts of the membrane, and well defined; and the exception was in the case which I did not deem insane. I have examined the brains of one hundred and seventeen lunatics, and in not more than ten has this membrane been entirely free from disease.

Twenty instances of freedom from all morbid appearances have been detailed in thirty-four cases recorded by Dr. Webster, in the *Medico-Chirurgical Transactions*—the result of dissections made by Mr. Lawrence, the surgeon of Bethlehem Hospital. This amazing discrepancy is explained in the fact, that my observations have been confined, in a great degree, to chronic lunatics; while Mr. Lawrence has been chiefly engaged in making autopsies on recent cases, no chronic, epileptic, or paralytic, being admitted into that hospital. I have not been so fortunate as to be present at the autopsy of a case of idiopathic or simple arachnitis; but Dr. Begley informs me, that an attendant died, in this asylum, with extensive opacity of the arachnoid membrane, and serous effusion into its sac, who had never exhibited mental derangement, or any cerebral disturbance, beyond that of a few hours of coma. Dr. Begley cannot charge his memory, at this date, with the precise appearance of the convolutions, in the upper hemispheres of the brain. The fact is interesting, as serving to prove that M. Bayle is wrong in locating the proximate cause of insanity in this membrane. My friend Dr. Hodgkin, one of the most able pathologists of the present day, has related a case, which demonstrates that arachnitis does not necessarily disturb the intellect to a great extent, and that the cineritious structure of the brain may remain intact, even under extensive disease of this most important structure. The autopsy is described in vol. i. page 369, of his very valuable "*Lectures on the Diseases of the Serous and Mucous Membranes*."

The appearances commonly noticed in this serous structure, in the brains of the insane, is an almost inseparable adhesion to the pia mater; considerable thickening; a diffused, milk-like opacity, and effusion of a whitish, limpid serum within its sac; purulent deposits are sometimes found; and in two instances which I have seen, this deposit had a pale, greenish hue. There is always a greater or less degree of opacity in the upper lateral parts of the hemispheres of the brain; but this must not be regarded as a morbid product, except it be extensively diffused.

The pia mater proceeds almost *pari passu* with the last-named membrane in its derangements; it is commonly found infiltrated with fluid in the cases which have come under examination; in four, it was inseparably adherent to the surface of the convolutions.

The choroid plexuses contained small cysts in ten instances, and were clustered with hydatids in three cases out of the thirty-four which were examined.

In twelve of the patients, we found the convolutions extensively atrophied; and in seven they appeared congested with blood; but in all these instances, the patients had died either from epilepsy, apoplexy, or hypertrophied heart; and this portion of the brain shared in the general congestion. In five patients, the cineritious structure was found to be softened, and in one, indurated by the presence of hydatids, which were diffused throughout its structure.

In chronic cases, whenever the sliced portion of the brain was dipped in water, if but for an instant, the convolutions presented the pale, blanched appearance of "boiled veal;" and this appearance is especially observable when there has been a considerable effusion of serum within the anfractuities of the convolutions. By attentively examining the external form of the convolutions in old lunatics, before removing the pia mater, and while the various sulci are filled with serous fluid, you will frequently find that the convolutions have become much atrophied in their lateral dimensions, and flattened superiorly. This peculiarity was observed in more than one-

third of the thirty-four cases examined during the past eighteen months. By carefully removing the pia mater, and then inspecting the upper surface of the convolutions, little fossæ, or pits, may occasionally be seen, together with small foramina, marking the course of minute bloodvessels into these structures. The sliced portions frequently present three distinct shades of colour—that is, the cineritious matter seems divisible into distinct layers of separate hue, the darkest being in the centre. The lower layer, or the one joining the medullary portion, is pale; the next darker; and the one immediately contiguous to the membranes presenting a somewhat albuminous aspect. I have also seen, in a few instances, small yellow lacunæ, dotted through the cortical substance; and in some very rare instances, this structure has been nearly black; but this latter-named peculiarity did not transpire in any of the thirty-four cases, whose diseases have been referred to. Softening of the upper part of the convolutions is common in very advanced cases of dementia and general paralysis. The fibrous structure was congested, in the seven instances, with the cineritious structure; it was blanched and bloodless in one, (and this case, as mentioned before, died from pulmonary hæmorrhage); it was hard, glassy, and firm, in four patients, all of whom died, afflicted with general paralysis; it was softened in five instances; and in two, had undergone extensive disintegration, in certain localities, from the presence of tumour and abscess; it was extensively infiltrated with serum through its whole structure in one patient, who had long suffered from anæmia, and who died suddenly, with most extensive effusion of serum in the arachnoid, the pericardium, the pleuræ, and peritonæum. In thirteen instances, the unassisted eye could not discover any marked trace of disease in this part of the brain; “slightly congested” is perhaps the phrase which would have been applied by many, but the appearances so closely resembled those which are commonly found in the brains of recent subjects commonly brought into dissecting rooms, that I do not feel myself justified in placing them in that category.

The corpus callosum was softened in one instance, (hemiplegia,) where the general medullary structure was not; in all the other cases, it shared in the condition of this structure. In twenty-one cases, the ventricles contained an excess of serum; in two, blood and pus in a state of decomposition; in four, its lining membrane was hard and gritty to the touch; in six, the quantity of serum was very trifling, and no other morbid appearance was observable.

The corpus striatum and optic thalamus were softened on one side in three instances; in one they contained hydatids—these lesions occurred in patients whose cases have been before alluded to; in all other cases all partook of the condition of the general cerebral mass. The pineal gland was diseased in three instances, and the pituitary body in the cases previously detailed. The cerebellum was atrophied in two instances; but, generally speaking, it seemed to participate in the condition of the cerebrum.

In addition to these changes, great deviations from symmetry in form and size occur. I have frequently seen the anterior and superior surfaces of the anterior lobes very greatly diminished in advanced cases of dementia—the sac of the arachnoid being then greatly distended with fluid, as if to supply the loss of cerebral matter. The exterior form of the skull furnishes no indication of the mischief that is going on beneath it, and you may therefore have a fine, ample forehead, with little brain at that site; but inasmuch as this is the result of a morbid process, it does not affect the general axiom, to which we have before alluded, and which is now received as a law—namely, that, *cæteris paribus*, a large, broad, well-developed forehead, is a type of good natural endowments on the part of the possessor; but it will explain some apparent discrepancies between the external form and the intellectual manifestations. In one remarkable instance, which has recently fallen under our notice, there was great disparity in size between the two hemispheres of the cerebrum—the skull being divided (so to speak) into unequal parts by an irregular arrangement in the tentorium and superior longitudinal sinus; and this want of symmetry was accompanied by an obvious atrophy of the lesser lobe—that is, its normal type had been departed from, and the original defect still further enhanced by the encroachments of disease. The arachnoid membrane over both hemispheres was equally thickened, although the two sides of the brain did not appear to be equally diseased. There was great interruption to the flow of blood through the brain, in consequence of atheromatous deposits in the basilar vessels, and bony incrustations over the superior longitudinal sinus—small spiculæ, from which rested upon, and perhaps irritated, the cineritious

structure of the two hemispheres at their lateral edges. This patient's name was C. L.—; a diagram of her skull has been shown to you. She was admitted on the 11th of April, 1832. She was blind, and also suffered greatly from bronchitis. She at one time deemed herself a prophetess, and subsequently imagined that she was surrounded by witches, to whom she addressed the most vituperative language. She caused great noise at night, and also bruised her own hands, by striking the sides of her crib-bedstead, in her efforts to knock down these intruders. If she had been under the care of the patrons of restraint, she would in all probability have had her hands muffled, or fastened to her side, and been thus left under the torturing impression that she had been overpowered by the wizards and spirits who floated around her. Under a happier arrangement, the bedstead was muffled instead of herself, by padding it with *coir*, and thus she was prevented from injuring her hand, while all the noise induced by furiously striking its boarded sides was completely removed. I have frequently heard her hold a lengthened parley with these imaginary foes, and have seen her at other times attempt to correct her delusions; she would then carefully feel with her hand at all the points in which she imagined their presence, and not finding anything, would as attentively listen for a footfall, or other movement, (for in conversation she never regarded them as disembodied things, and would frequently ask me whether I did not see them pass under the bed, or out at the window;) when, on such occasions, she neither felt nor heard anything, she would say, “There's nothing; it's my fancy.” If at this moment her cough commenced, she would exclaim, with an oath, “Oh! here they are again, squeezing my lungs out!” You all remember the interesting anecdote of Nicolai, of Berlin, detailed to you by Dr. Conolly in his first lecture, furnishing, as it does, a fine example of a philosophic mind triumphing over the delusions of sense; but here is an opposite case, in which the mind, weakened and diseased, becomes the slave of corporeal impressions. You cannot have failed to observe, too, in your own personal experience, how powerfully the healthy senses contribute to the support of the mind when in a weak condition, (to use such language.) How often in awaking from a troubled dream do we require all the aid of the eye and the ear to convince us that it is not a reality. Again, how easy it is to yield one's self to reverie, (which, perhaps, is an evanescent state of madness,) if we exclude all the impressions conveyed to us by the senses; hence, this poor creature, shut up in a world of darkness, was constantly the prey of wild chimeras; at one time laughing aloud at their imaginary pranks and gambols; at another, swearing at and cursing their insolence; in a third, struggling with terror under their inflictions; for I have seen her black in the face from the loaded state of the bronchial tubes, and frightened by the thought that her suffering was produced by the harpies who were striving to strangle her. Here, then, as it appears to me, an intimate connexion between psychical phenomena and physical organization (however strange that relationship may be) is abundantly proved. An irregular, ill-shaped, constricted skull, the meninges thickened and diseased, small anterior cerebral lobes, spiculæ of bone touching the superior edges of both lateral hemispheres, the circulation through the brain interrupted by bony growths, the blood itself impure through an imperfect respiration, the hemispheres unequal in size, and dissimilar in form, a loss of the correcting power of one of the most important of the senses, and a distant physical irritant (mucus in the bronchi) lending its influence still further to disturb the already deranged seat of intelligence. These, physiologically, seem to furnish scope for the wildest delusions of the intellect, and here, we perceive, they existed. This, too, my friends, is one among many chronic cases in which the medical man may improve and tranquillize, even when he cannot heal—another, among hundreds, which demonstrates that an efficient medical staff is required, even for chronic lunatics, since the worst features of her mental malady—its rage and its terror—were influenced by, and corresponded to, the varying states of the physical disease. And this leads me to observe that we may have been paying too close an attention to the nervous system, to the exclusion of proper regard to other viscera of the body.

By Dr. Conolly's “Lectures” you have been made acquainted with the character and the treatment of one form of mental disease, which appears to be caused by some mysterious and undefined sympathy between the uterus and the brain, (puerperal mania,) and we frequently find, in practice, that the diseases of organs remote from the brain exert great influence upon the minds of the insane, frequently modifying, if not actually producing, the special delusions under which they

suffer. Thus A. W—, in No. 11 ward, who possesses great susceptibility of the retina, is under constant apprehension of fire, and the sudden appearance of any light impresses her with a notion that the whole of the premises are in a state of conflagration; while another, suffering from dysmenorrhœa, frequently meets me, with a face pale and contorted by the mingled feelings of bodily anguish and vindictive rage, and calls down upon me the bitterest imprecations, because I “employ devils during the day to lacerate her back and abdomen with knives,” while during the night I do the “whole murderous work myself.” Others, while suffering from dyspeptic symptoms, imagine, until these symptoms are removed by appropriate treatment, that all around them are plotting to cause their death by poison: whenever E. R—, in No. 15 ward, is in this condition of health, she is tormented during the night by frightful apparitions of demons, who do not touch her, but who poison her by pestiferous exhalations. A. T— and E. J—, in No. 12 ward, are constantly making preparations for the birth of three or four children, whom they are about to present to the world; and this delusion seems to owe its existence to increasing obesity in the one, and incipient ovarian disease in the other.

The state of the lungs has been cursorily detailed to you in my former lecture. In eight cases out of the thirty-four, the chest was not noticed. In twenty-six instances it was examined, and we found the pericardium distended with serum in three instances; the heart was hypertrophied in six cases; it partook of the general atrophy of the muscular system, in the thirteen cases which died from pulmonary consumption; traces of endocarditis were observable in three instances, and in one patient the aorta was greatly dilated; the mucous membrane of the stomach and bowels was examined in twelve cases, and appeared softened in five, and inflamed and ulcerated in one; the liver presented a fatty appearance in five instances out of twenty-four cases in which it was examined; in eight the colon was misplaced into a loop-like form, having its convexity pointing downwards opposite the upper brim of the pelvis, or about two inches above this point; this peculiarity was observed in maniacs, and did not exist in two of the melancholics, although, as you may remember, Esquirol and some other French writer think this pathological change to be especially characteristic of melancholia. The kidneys were in a state of granular degeneration in four instances; the pancreas did not present obvious disease in more than one case: the spleen appeared congested in six; the uterus was in a state of scirrhus in four cases.

The above is a cursory outline of the facts which have fallen under my notice. I regret exceedingly that I have limited myself to two lectures, for the details are too numerous to be conveniently arranged within that space, and thus the subject has been superficially treated. We may, however, go on accumulating facts for ages, and yet, after all, be walking in a circle, unless the mind has some guiding principle, some previous idea to confirm or disprove, or is prepared to make some deduction from the facts already before it. How, then, are the discrepancies we meet with in the pathology of the brain to be corrected? What does the present state of cerebral pathology teach, or seem to teach, respecting the malady in question?

I approach this part of the subject with great awe. I do not forget that Esquirol and Pinel have recoiled from it in despair, nor that some of the greatest minds which have adorned the science of medicine have regarded cerebral pathology as a mass of discrepancies and uncertainty. We all know that the most learned and the most experienced have been the most cautious and the most timid, frequently recording a fact under protest, as it were, and qualifying its registration with some phraseology expressive of their sense of its contradictory nature, and of its hostility and antagonism to other known truths. Warned by such examples, I should have been deterred from entering upon so abstruse a study, and have trembled to hazard or adopt a single opinion, were it not that my faith in the unity of Nature's operations is so strong, that it impels me to search fearlessly for her records, even where great and honoured names proclaim them to be illegible, or interpret them in such a manner, that they seem incongruous and contradictory. There is no discrepancy in Nature. Inconsistencies and contradictions do not exist; all her laws and all her facts present one beautiful whole; harmony, unity, order, exist everywhere.

“The first Almighty Cause
Acts not by partial, but by general laws.”

And where there is antagonism, uncertainty, and contradiction, there, you may be assured, are hasty observation, im-

perfect data, and ignorance, on the part of the observer; or the fact is either perceived through a distorting medium, or is contrasted with something which is in itself untrue. In looking at the heads of the numerous lunatics in this asylum, a hasty observer may be inclined to suppose that there is no law in reference to the size and shape of the cerebral organ, and its psychical endowments, since at one moment he perceives a poor, patient creature, reclining against the side of his room, whose frontal region is wide and high, the superior part of his head forming an arch, smooth, broad, and beautiful in its outline; the posterior division subordinate in size, and the whole head, as regards mere form, a model for the phrenologist, and a study for the painter; and yet not a trace of intellect rests upon his features; his head is drooping forwards, his chin resting on the sternum, his lower lip is depressed, and the saliva dribbling from his mouth; he is listless, mindless, and apathetic; while a second, possessing a head much inferior in size and form, is bustling around him—with little judgment, it may be, but still with a mind far transcending the activity of the first, the form of whose head had called forth attention and admiration.

Illustrations of this peculiarity are numerous. It may suffice to contrast the head of J. S—, in No. 11 male ward, with that of W. S—, in No. 3 ward; but the hurry and carelessness of such an induction from the above premises, must strike you, since the important fact, that the brain is more extensively diseased in the one than in the other has been unnoticed.

Again: in many popular works—nay, in several scientific records—we are informed, that the heads of idiots are small; and yet the only two idiots on the female side of the house, and the two idiot boys in No. 1 male ward, have heads of a size corresponding to the average of persons of the same age, education, and position in society, and considerably larger than the head of an imbecile man in No. 3 male ward, who is daily employed by the attendants. The head of S—, in No. 3 male ward, measures eighteen inches round; while the head of E. I—, in No. 6 female ward, measured round the same part, is twenty-one inches; and I know an idiot, whose head measures twenty-three inches and a half round, that part of the skull anterior to the meatus of the external ear being twelve inches round; and this man is not only idiotic, but was of the very lowest type of idiotism. He had lost the power of assuming the erect position, and crawled on his hands and knees. He possessed no articulate language; when he saw food, he made a peculiar noise, somewhat resembling the tone of the wild dog, but better expressed, perhaps, by the sound, “Yaff-yaff.” His nose was flat, with large, widely-dilated nostrils, and his mouth very capacious. Every impression made on the nerves of sense gave rise to emotional movements; but however much he may have been delighted, the jocund sound of laughter was never elicited; but the buccal and labial muscles were thrown into motion, the teeth were displayed, his eyes glistened, and he presented the same amount of mental satisfaction, and indicated it by the same facial characteristics as a dog might do that saw his master approaching with food; or an ape that had been gratified by a good supply of figs and raisins.

The heads of idiots, as a general rule, are very small, but here appear contradictions and discrepancies—contradictions to the statements of natural philosophers, and apparent discrepancy in actual results. But here, as before, the datum is imperfect. The smallness of the head is only typical of the quantity of brain; the important condition of quality had been left out in the axiom, and had been forgotten by the observer, who was beginning to despair at the possibility of ever arriving at safe conclusions. And so with appearances in the brain: one patient dies in a state of raving delirium; another dies, having manifested considerable torpor, great sluggishness of speech, and an inability to move, but has never been insane. In the first, nothing partaking of disorder is found in the brain, except the slightest possible exudation of lymph under the arachnoid, and a rosy or pink hue of the convolutions; while in the latter, as in the case of M. C—, the greater part of one hemisphere of the brain may have been converted into purulent matter. The discrepancy here is more apparent than real, because the difference in the mental phenomena is explained by the variety both in structure and function of the parts affected. The case of E. G—, who displayed so little of intellectual power, and who yet retained a passionate affection for her doll, would seem to confirm the views of some modern physiologists, who imagine that the emotions are localized (so to speak) in some part of the brain distinct from the convolutions—*e. g.*, in the great

ganglionic masses occupying the centre of the base of the brain—an idea which comparative anatomy seems to confirm in a most remarkable manner. Again: a party may be accidentally killed in a moment of frightful madness, and yet not the slightest lesion be discovered in the membranes or the structure of the brain. Many cases are on record in which no appreciable lesion could be recognised. Some of these may admit of explanation in this manner: There are, I think, certain states of the blood which conduce to insanity, probably by especially acting upon the cineritious structure of the upper and outer parts of the cerebral hemispheres. This is purely hypothetical. We know that when the blood is contaminated by calomel, it induces an increased action and excitement in the hepatic vessels and the salivary glands; and is it not conceivable that there may be some elements generated by a crude digestion or imperfect assimilation, or even some drugs which may operate upon the brain in a similar way? (A friend informs me that Mr. Shepherd, of Stonehouse, has promulgated the theory, that diseased blood is the proximate cause of insanity; I have not seen his works, nor do I admit of its general application.) I have, however, seen a case of insanity which I attribute to this cause. This was a young man, a farmer, about twenty-eight years of age, and single, who had become deranged in about two hours after taking one pint of beer at a way-side public-house. He had not taken food for several hours prior to his drinking the ale, nor had he taken a greater quantity of any fluid than this. The testimony to this fact was most complete. He was, moreover, a rigidly sober man, Puritanic and stern in his religious character—moody and somewhat taciturn in his intercourse with society. He had received an imperfect education, and spent great portions of his time in the occupations of husbandry. He was of full stature and strength, of a fair but not ruddy complexion, with brown hair, and light-coloured irides. Notwithstanding these physical appearances, I should consider he possessed the melancholic temperament, because he usually had a slow pulse, not much sensibility, sparing secretions, and, as hinted before, a tendency to gloom in his feelings. His head was of an average size; in form, it was protrusive at the frontal sinuses, and those regions in which the phrenologists have crowded the faculties of number, order, colouring, weight, locality, and the like; the upper part of the frontal bone sloped rapidly; the lower portions of the temporal and parietal bulged laterally and posteriorly, giving a large scope to the regions of destructiveness, secretiveness, and cautiousness; the upper parts of the head were lofty, (conscientiousness, hope, veneration, and firmness,) but not conical; the occipital bone posteriorly was of moderate dimensions. His father was healthy and vigorous in mind and body; his mother timid, anxious, hysterical, sensitive, and intelligent; his brothers were healthy; but one sister was imbecile, and two others frequently hysterical; some collateral branches of the family had been insane. His general health had, for a long period previous to this circumstance, been good. In a short time after he had taken the beer he found an agreeable warmth gradually diffusing itself over his whole system; he became slightly exhilarated, and hummed a song as he drove his team homewards. This sensation passed away, and was succeeded by hallucinations of various kinds, in some of which he thought that he ought to sacrifice the boy who was at the time with him; fortunately, he had some notion that the lad was not pure enough for the purpose, and that he had better wait until he reached home, when he would find a more fitting object in the person of his younger brother. His gait was steady throughout the journey; he managed the horses with his usual skill, and reached his father's homestead in safety. He consigned the horses forthwith to the boy, and walked into the house; his brother was from home: on hearing this he bent his head forward, and ran and thrust it against the wall of the dwelling. This act alarmed his friends, for it was immediately followed by an attempt to cut his throat; he was seized before more than his neckerchief and shirt had been cut; he became furious, requiring more than the strength of several men to restrain him. When I first saw him, he was actually clinging by his hands and feet to a large bacon-rack which was appended to the ceiling of the room, and his family and attendants were in a fearful state of suspense lest he might fall from thence to the floor. He had baffled the efforts of the servants to hold him in a chair, and had struggled until he got his feet into its seat, from whence he sprang into the place in which I saw him. His face was reddened and congested by his efforts to gain and secure this extraordinary position. In a few seconds, he let himself safely down. He was all violence. His head was pungently hot; his skin, streaming with per-

spiration; his pulse strong and incompressible; his eyes shining, brilliant, and apparently painfully sensitive to light. With great difficulty an incision was made into a vein of his arm—blood flowed copiously to the extent of twenty ounces; and this treatment was followed by some amount of tranquillity. An emetic and an active purge were given, cold was applied to the head, and during the following day he became quiet, calm, and very depressed in spirits; but was still, and for three days subsequent to this, the subject of various hallucinations, both as to himself and persons around him. The blood taken from the arm coagulated slowly, and emitted a very offensive fœtor, observed by all in the room, and ultimately formed a dense ovoid clot, with a pus-coloured "buff" on its surface. The serum further deposited a slimy, turbid kind of stratum, which adhered to the bottom of the vessel. The exact character of the effused fluid I am unable further to state; but it certainly differed in the colour of its clot, in the odour emitted, and in the character of the serum, from any other blood I have ever seen. He always thought, as did his friends, that the beer had been adulterated; and there is reason to suppose so from the fact that he experienced a second attack, through the horrible joke of infusing some tobacco in his beer. This attack was milder in character than the former, and of about the same duration. It is difficult to explain to others the ground of your belief; there are incidents which fall under your cognizance which cannot be conveyed by words; and this is especially the case in drawing inferences from medical experience. Had this history been detailed to me in the same words by others, I should have regarded it either as a simple case of mania, induced by an alcoholic stimulant, or of arachnitis, from exposure to the sun—chiefly, however, the former, because he evidently had a tendency to insanity from temperament and hereditary predisposition. It was, however, a cloudy day on which the incident transpired; he was accustomed to take more beer than he took on this occasion; and he remembered (which I omitted to state) that the beer had an unpleasant taste; and from the *tout ensemble* of evidence, I suspected at the time, and do still, that the beer was adulterated with a berry called "cochlicis indicus" and that it succeeded in rousing into morbid action a brain predisposed to disease, just as I have known salivation induced in a nervous lady by two grains of calomel. The mental effects following the use of opium, so eloquently described in the "Confessions of an Opium-eater,"—the effects on the senses, and on the judgment, induced by the Indian hemp, as experienced and detailed by Dr. Moreau, of the Bicêtre, in a work recently published,—and the varying states of feeling which follow successive potations of wine, are illustrations of the same principle.

My belief, then,—open of course to confutation or confirmation by future research—is, that idiotism is the result of deficient or diseased cineritious matter existing from birth in the convolutions of the cerebrum; and that insanity, also, is caused by some change, either functional or organic, in the same structure, ("moral insanity" may, hereafter, be found to be the result of defect, excess, or lesion in other parts of the brain;) and that, just as dyspnoea may be induced by pressure on the pneumogastric nerve at its origin, or course,—by coma of the brain—by diseased or impoverished blood—by deficiency of oxygen in the surrounding air—by various diseases of the muscles of the chest, and other causes, so may many physical agencies, remote from the brain, act indirectly in the production of insanity, the direct cause being irritation or change in this part of the cerebrum. It behoves me, however, to state, that in many instances we cannot discover, by the unassisted eye, the slightest trace of change in the convolutions of the brain, and we are left to assume its existence from the same general inferences only which have served to uphold the theory of the "excito-motory system"—that is, we infer it *must be* diseased, from a kind of physiological necessity; thus, facts innumerable point out the brain as the organ of thought; in long-continued insanity we almost invariably find that the membranes (through which its nutrient vessels must pass) are extensively diseased; and we know, from well-established facts, that these membranes are not the structures through which mind immediately operates, and the medullary matter beneath the cineritious is almost as well established to be internuncatory in its functions. We also observed, that in cases of long-continued dementia, the convolutions are changed either in form, colour, or consistence. Again, the cineritious portions of the brain are more abundantly supplied with blood than any other parts of the organ; and this, of itself, is a great criterion of the importance of any structure in the human body. The matter from which it is formed is found only in those spots where great power is known to be

eliminated, or where the function is of a high order, as along the electric organs of the Raia torpedo, and other electric fishes, in the spinal column of the vertebrata, &c., and it appears to increase in quantity in the brains of animals in an exact ratio with their psychical endowments.

I painfully feel that I have not been able to enforce my position so lucidly or so completely as I had intended. Circumstances have compelled me to make an abstract only of the facts which are in my possession, and to forego the assistance which comparative anatomy would have yielded. I hope, nevertheless, that enough has been said to attract your attention to this topic. My great wish has been, to free this part of pathology from some of its apparent discrepancies, and to teach you not to despair of attaining practical results, even amid all the perplexities which beset the subject. Do not attach too much importance to the writings of illustrious men, especially when they attempt to assign the limits of the knowable, or speak of the uselessness of any pursuit. I yield to none in my reverence for great names, and those who know me will, I trust, acquit me of presumption; but truth is dearer than authority, and history teaches us, that even great men may err. I cannot forget, that if Esquirol and Pinel, and some others who will hereafter rank by their side in fame and usefulness, have regarded pathology with distrust, and have despaired of anything being attained from its cultivation; that the greatest chemist of the age declared, that gas could never be employed to useful purposes as a lighting agent, and we now see it gleaming in our streets with perfect safety, converting the gloom of night into the brightness of day. We know that Dr. Lardner called it madness to think of crossing the Atlantic by steam; and we now read of the Great Western steam-ship crossing its waters "like a thing of life," defying its fiercest rage, and moving majestically on, without a pause, amidst tempest and storm, amid sunshine and calm, and accomplishing her journey from Bristol to New York in sixteen days. We know that knowledge is progressive, and that the man breathes not who can assign its limits, or mark its boundaries, but, as Dr. Conolly eloquently reminded you in his first lecture, we must not measure the advances of truth by the limited span of our existence. By no means. For how many centuries did the blood run its unchanging circle, and how many men caught faint glimpses of some portion of its career, before the industry and genius of a Harvey revealed it in its completeness and beauty. For how long did the lacteals pour their milky treasures into the blood, before their discovery gladdened the soul of Asellius, making him adopt the language of Archimedes, and shout "Eureka! Eureka!" For thousands of years did the lungs and the heart murmur of disease, unheard and unheeded, till the ear of Laennec caught the sound, and interpreted the meaning. Instances further crowd upon the memory; but these will suffice to keep you from despair. Oh! do not despair because of the difficulties that beset the subject! Study the pathology of insanity, and one of you may perhaps prove a Harvey to unravel the mechanism which, in its deranged state, interferes with and disturbs the manifestations of mind. We want some able and industrious observer to rise up, and reveal the precise nature of the disease. Happily, its treatment has been greatly improved—nay, the disease itself has been deprived of much of its repulsiveness by the benign skill which has been brought to bear upon it, so late as our own time, and by one, too, who has, I trust, many years to live; and it may undergo still greater modifications for the better, (as other diseases have done,) if only it be guarded by good and wise men from improper treatment. It has been elegantly observed by a late biographer of Harvey, "Were there not successive generations of men, the world would stand still; the death of the individual was not merely a necessary condition to the enjoyment of life by successive generations, but essential also to the onward progress of mankind. No man who had attained to the age of forty years, it is said, was found to adopt the doctrine of the circulation; it had to win its way under the safeguard of the Drakes and Leroys especially—that is to say, of the youthful and unprejudiced spirits of the age." To you, then, young, hopeful, and studious, I consign the interests of the insane in your respective localities, feeling assured that neither the philosophy of the subject nor the subject of the philosophy will suffer at your hands, but that Science will join with Virtue in promoting the health and securing the comfort of the helpless and broken-hearted.

A veterinary surgeon at Haddington, says the *Liverpool Times*, has successfully used chloroform to render a horse insensible to pain, while the operation of cutting the nerves of sensation in its fore-feet was being performed.

Hospital Reports.

ROYAL FREE HOSPITAL.

Diffused aneurism occupying the entire forearm; ligature of the brachial artery; sloughing of the muscles &c. of the forearm, terminating in fungus hæmatodes; amputation of the arm; safety of using the ether in an almost moribund condition of the patient; complete recovery.

Reported by WEEDEN COOKE, Esq., Resident Surgeon.

CASE 1.—Morris Mahoney, aged *seventy-five*, an emaciated Irishman, was admitted September 4th, 1847, under the care of Mr. THOMAS WAKLEY. Five months previously he had been knocked down by a cart; his hand was forcibly turned backwards upon the forearm, producing at the time considerable pain. After a day or two he felt but little inconvenience, and worked as usual. At the expiration of two months the ulnar side of the wrist began to swell, and continuing to do so for a week, he became a patient in St. Bartholomew's Hospital. He remained there three weeks, and the swelling continued to increase. Subsequently he placed himself under the care of his parish surgeon, who twice lanced the arm: blood was profusely poured out each time; the swelling increased, and extended up the forearm, but did not proceed beyond the fascia of the biceps.

Sept. 4th.—He now complains of most excruciating pain in the forearm; it is at least twice as large as the other forearm; the surface is redder than natural, and the superficial veins are greatly distended; there is pulsation in the brachial and radial arteries, but none in the ulnar; the sense of fluctuation from the wrist to the bend of the elbow is very distinct; the swelling does not encroach upon the arm; it is entirely confined beneath the fascia bicipitis. The last opening made by the lancet, before he came to the hospital, is not closed, but discharges occasionally a small quantity of blood, and the part surrounding the opening is elevated in a conical manner. Upon the introduction of an exploring needle, florid blood escaped. The old man, although irritable, and wasted from suffering, with bluish gums and lips, and a red, rather dry tongue, has all his important organs—heart, lungs, liver, and kidneys—in a healthy condition. The secretions are regular and natural. He was ordered to try gentle bandaging and the application of cold, with some full doses of opium to relieve the pain, from which he experienced great comfort. The swelling, however, continued to increase, the arm being larger, by three lines, in eight days after his admission; it was therefore deemed advisable, on a consultation amongst the medical officers, to tie the brachial artery—thus treating the case as one of diffused aneurism. Mr. Wakley performed this operation on the 13th of September. The artery was perfectly isolated, the ligature made fast, and the pulsation of the radial artery ceased. The ether was successfully employed during the operation.

14th.—He had an opiate last night, and slept at intervals, but complained of pain; the heat of the arm is undiminished; the veins, which were previously distended and dark-coloured, are now apparently empty, forming, as it were, canals between the muscles; the arm is enveloped in cotton wool; very little constitutional disturbance; appetite good; bowels open; skin moist. Ordered, beef-tea during the day, and a grain of morphine at night.

15th.—Slept soundly for fourteen hours; tongue dry in centre, somewhat brown; the whole of the forearm is of a deep-red colour; complains of pain; says his hand is cold, but it does not feel so; the forearm is hotter than before the operation; pulse 96, small, compressible; secretions natural. Repeat the morphine at bedtime.

16th.—Pulse 90, of good power; tongue moist, very red at edges, furred in centre; slept well all night; the lancet-wound made before he came into the hospital has become sloughy; there is a small quantity of ragged pale cellular tissue protruding from it; the arm is very warm, and its colour less dark. Repeat the morphine.

17th.—Was in pain, and slept badly last night; pulse 90; tongue still red and furred; appetite good; the wound made in tying the artery is healing. Ordered, one grain and a half of morphine at bedtime; meat and porter; and cold lotion to the arm.

18th.—Slept well during the night; pulse 90, soft; rather weak; tongue dry in the centre, and rather brown; the arm is increasing in size; the livid appearance is less; the integument at the upper part is recovering its natural hue; at the inner side of the forearm, near the wrist, there is a small patch of ecchymosis; there is much less pain. Ordered, beef-tea, meat, and two pints of porter; and repeat the morphine.