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LECTURE VII.

Unity of all Things.

Diseases of Women—Cancer—Tumour—Pregnancy—Parturition—Abortion—Teething—Hereditary Periodicity.

GENTLEMEN:

Many of you have doubtless read or heard of Dr. Channing of Boston, one of the boldest and most eloquent of American writers. In a little Essay of his, entitled "Self-Culture," I find some observations bearing so strongly upon the subject of these lectures, that I cannot resist the temptation to read them at length. How far they go to strengthen the view I have thought it right to instil into your minds, you will now have an opportunity of judging for yourselves:—"Intellectual culture," says this justly eminent person, "consists, not chiefly, as many are apt to think, in accumulating information—though this is important; but in building up a force of thought which may be turned at will on any subjects on which we are forced to pass judgment. This force is manifested in the concentration of the attention—in accurate penetrating observation—in reducing *complex subjects* to their *elements*—in diving beneath the effect to the cause—in detecting the more *subtle* differences and resemblances of things—in reading the future in the present,—and especially in rising from *particular facts* to general laws or *universal truths*. This last exertion of the intellect—its rising to broad views and great principles, constitutes what is called the philosophical mind, and is especially worthy of culture. What it means, your own observation must have taught you. You must have taken note of two classes of men—the one always employed on details, on particular facts—and the other using these facts as foundations of higher, wider truths. The latter are philosophers. For example, men had for ages seen pieces of wood, stones, metals falling to the ground. NEWTON seized on these particular facts, and rose to the idea that all matter tends, or is *attracted* towards all matter, and then defined the law according to which this attraction or force acts at different distances;—thus giving us a *grand principle*, which we have reason to think extends to, and *controls* the WHOLE outward CREATION. One man reads a history, and can tell you all its events, and there *stops*. Another *combines these events*, brings them under ONE VIEW, and learns the great causes which are at work on this or another nation, and what are its great tendencies—whether to freedom or despotism—to one or another *form* of civilization. So one man talks continually about the particular actions of this or that neighbor,—while another looks beyond the acts to the inward principle from which they spring, and gathers from them larger views of human nature. In a word, one man sees all things *apart* and in *fragments*, whilst another strives to discover the *harmony*, connection, UNITY OF ALL."

That such *Unity*, Gentlemen, does actually and visibly pervade the whole subject of our own particular branch of science—the history of human diseases,—is a truth, we have now, we hope, placed equally beyond the cavil of the captious and the interested. In this respect, indeed, we find it only harmonizing with the history of every other thing in nature. But in making INTERMITTENT FEVER OR AGUE the *type* or *emblem* of this unity of disease, we must beg of you at the same time, to keep constantly in view the innumerable *diversities* of shade and period, which different intermittent fevers may exhibit in their course. It has been said of *Faces*,

> ——Facies non omnibus una,
> Nec diversa tamen—

And the same may with equal truth be said of Fevers—all have resemblances, yet all have differences. For, betwixt the more subtle and slight *thermal* departures from Health,—those scarcely perceptible chills and heats, which *barely deviate* from that state, and the very intense cold and hot stages characteristic of an *extreme* fit of ague, you may have a thousand differences of scale or degree. Now, as it is only in the question of scale that all things can possibly differ from each other, so also is it in this that all things are found to resemble each other. The same differences of shade remarkable in the case of *temperature* may be equally observed in the *motive* condition of the muscles of particular patients. One man, for example, may have a tremulous, spasmodic, or languid motion of one muscle or class of muscles simply—while another shall experience one or other of these morbid changes of action in every muscle of his body. The chills, heats and sweats, instead of being in all cases *universal*, may in some instances be *partial* only. Nay, in place of any increase of perspiration outwards, there may be a vicarious superabundance of some other secretion within: of this you have evidence in the dropsical swellings, the diarrhœas, the bilious vomitings, and the diabetic flow of urine with which certain patients are afflicted. In such cases, and at such times, the skin is almost always dry. The same diversity of shade which you remark in the symptoms may be equally observed in the period. The degree of duration, completeness, and exactness of both paroxysm and remission, differs with every case. The cold stage, which in most instances takes the patient first—in individual cases may be preceded by the hot. Moreover, after one or more repetitions of the fit, the most perfect ague may become gradually less and less regular in its paroxysms and periods of return; passing in one case into a fever apparently continued—in another, reverting by successive changes of shade into those happier and more harmonious alternations of temperature, motion and period, which Shakspeare, with his usual felicity, figured as the "fitful fever" of healthy life. If you take Health for the standard, every thing above or beneath it—whether as regards time, temperature motion, or rest, is Disease. When and correctly analyzed, the symptoms of carefully such disease, to a physical certainty, will be found to resolve themselves into the symptoms or shades of symptom, of intermittent fever. Fever, instead of being a thing apart from man, as your school doctrines would almost induce you to believe, is only an abstract expression for a greater or less change in the various revolutions of the matter of the body. Fever and disease, then, are one and identical. They are neither "essences" to extract, nor "entities" to combat—they are simply variations in the phenomena of the corporeal movements; and in most cases, happily for mankind, may be controlled without the aid either of physic or physicians. The same reparative power by which a cut or a bruise, in favorable circumstances becomes healed, may equally enable every part of a disordered body to resume its wonted harmony of action. How often has nature in this way triumphed over physic, even in cases where the physician had been only too busy with his interference.—It is in these cases of *escape* that the generality of medical men arrogate to themselves the credit of a cure.

"It was a beautiful speculation of Parmenio," remarks Lord Bacon, "though but a speculation in him, that all things do by scale ascend to unity." Need I tell you, Gentlemen, that every thing on this earth which can be weighed or measured, is matter—matter in one mode or another. What is the difference between a piece of gold and a piece of silver of equal shape and size? A mere difference of degree of the same qualities—a different specific gravity, a different ring, a different degree of malleability, a different lustre. But who in his senses would deny that these two substances approach nearer in their nature to each other than a piece of wood does to a stone; yet may not a piece of wood be petrified, be transformed into the very identical substance from which at first sight it so strikingly differs! Nay, may not the bones, muscles, viscera, and even the secretions of an animal body, by the same inscrutable chemistry of nature, be similarly transmuted into stone? Gold and silver have differences assuredly, but have they not resemblances also—certain things in common, from which we deduce their unity, when we speak of them both as metals? How much more akin to each other in every respect are these substances than water is in either of its own elemental gases? What certainty then have you or I that both metals are not the same matter, only differing from each other in their condition or mode? Does not every thing in turn change into something else—the organic passing into the inorganic, solids into liquids, liquids into gases, life into death, and vice versa? The more you reflect upon this subject, the more you must come to the opinion that all things at last are only modes or differences of *one matter*. The unity of disease is admitted by the very opponents of the doctrine, when they give to apoplexy

and toothache the same name—*disease* or *disorder*. But the approaches to unity may be traced throughout every thing in nature—Betwixt the history of man's race, for example, the revolutions of empires, and the history of the individual man, the strongest relations of affinity may be traced. The corporeal revolutions of the body, like the revolutions of a kingdom, are a series of events. Time, space, and motion are equally elements of both. "An analyst or a historian," says Hume, "who should undertake to write the history of Europe during any century, would be influenced by the connection of time and place. All events which happen in that portion of space and period of time, are comprehended in his design, though, in other respects, different and unconnected.—They have still a species of unity amid all their diversity."

The life of man is a series of revolutions. I do not at this moment refer to the diurnal and other lesser movements of his body. I allude now to those greater changes in his economy, those climacteric periods, at which certain organs that were previously rudimental and inactive, become successively developed. Such are the teething times, the time of puberty, and the time when he attains to his utmost maturity of corporeal and intellectual power. The girl, the boy, the woman, the man, are all different, yet they are the same; for when we speak of Man in the abstract, we mean all ages and both sexes. But betwixt the female and the male of all animals, there is a greater degree of conformity or unity than you would at first suppose, and which is greatest in their beginning. Now this harmonizes with every thing else in nature; for all things in the beginning approach more nearly to simplicity. The early *fœtus* of every animal, man included, has no sex; when sex appears it is in the first instance hermaphrodite, just as we find it in the lowest tribe of adult animals, the oyster, for example. In this particular, as in every other, the organs of the human *fœtus*, internal as well as external, first come into existence in the lowest animal type—and it depends entirely upon the greater or less after developement of these several hermaphroditic parts, whether the organs for the preservation of the race, take eventually the male or female form.—How they become influenced to one or the other form we know not. Does it depend upon position? It must at any rate have a relation to temperature. For a long time even after birth, the breasts of the boy and girl preserve the same appearance precisely. You can see that with your own eyes. But the comparative anatomist can point out other analogies, other equally close resemblances in the rudimental condition of the reproductive organs of both sexes. During the more early fœtal state the rudiments of the testes and the ovaries are so perfectly identical in place and appearance, that you could not tell whether they should afterwards become the one or the other. What in the male becomes the prostate gland, in the female takes the form of the womb. To sum up all, the outward generative organs of both sexes are little more than inversions of each other. Every hour that passes, however, while yet in its mother's womb, converts more and more the unity of sex of of the infant into diversity. But such diversity, for a long period, even after birth, is less remarkable than in adult life. How difficult at first sight to tell the sex of a child, of two or three years old when clothed: at puberty the difficulty has altogether vanished. Then the boy becomes bearded and his voice alters; then the breasts of the girl—which up to this period in no respect differed from his, in appearance at least—become fully and fairly developed, assuming by gradual approaches the form necessary for the new function they must eventually perform in the maternal economy. Another, and a still greater revolution, imbues them with the power of secreting the first nutriment of the infant But even before the girl can become a mother a new secretion must have come into play—a secretion which, from its period being, unlike every other, monthly only, is known to physicians under the name of *Catamenia* or the *Menses*. How can such things be done but by a great constitutional change—without a new febrile revolution of the whole body? Mark the sudden alternate pallor and flush of the cheek and lip, the tremor, spasms and palpitations—to say nothing of the uncontrollable mental depressions and exaltations—to which the girl is then subject, and you will have little difficulty in detecting the type of every one of the numerous diseases to which she is then liable. Physicians may call them *Chlorosis*, green-sickness, or any other name, *you* will recognize in them the developments of an Intermittent fever simply—as various in its shades, it is true, as a fever from any other cause may become—producing, like that, every wrong action of place and time you can conceive, and like other fevers, often curing such wrong actions as previously existed, when it happens to reverse the atomic motions of the various parts of the body. Before touching upon the principal

Diseases incidental to Women,

I must tell you that the Catamenia, in most

cases, disappears during the period of actual pregnancy; nor does it return while the mother continues to give suck. During health, in every other instance, it continues from the time of puberty, or the period when women can bear children, to the period when this reproductive power ceases. As with a fever it comes into play, so with a fever it also takes its final departure. Why it should be a peculiarity of the human female, I do not know—but in no other animal has any thing analogous been observed. Some authors, indeed, pretend to have seen it in the monkey; but if this were really the case, I do not think so many physiologists would still continue to doubt it, especially as they have every opportunity of settling the question definitively. Various speculations have been afloat as to the uses of this secretion, but I have never been satisfied of the truth of any of them. I am better pleased to know that the more perfect the health, the more perfectly periodical the recurrence of the phenomenon. It is therefore, without question a secretion, and one as natural and necessary to females of a certain age, as the saliva or bile to all people in all times. How absurd, then, the common expression that a woman, during her period, is "unwell." It is only when the catamenia is too profuse or too defective in quantity, or too frequent or too far between in the period—when the quality must also be correspondingly altered—that the health is in reality impaired. Then, indeed, as in the case of other secretions imperfectly performed, pain may be an accompaniment of this particular function.

Need I tell you that no female of a certain age can become the subject of any fever without experiencing more or less change in this catamenia? or that during any kind of indisposition, how slight so ever it may be, some corresponding alteration in this respect must, with equal certainty take place? In cases where the alteration thus produced takes the shape of a too profuse flow, practitioners are in the habit of prescribing astringents and cold applications. Happily for the patient the medicines usually styled "astringents," (iron, bark, alum, opium, &c.,) are all *chrono-thermal* in their action; and the general salutary influence which they consequently exercise over the whole economy, very frequently puts the catamenia, in common with every other function, to rights—when the practitioner who prescribes them has no idea that he is doing more than attending to the derangement of a part. He accordingly places profuse menstruation in his list of local diseases? When deficiency or suppression of this secretion, on the contrary, chances to be the coincident feature of any general constitutional change—a thing which may happen from a transitory passion even—such effect or coincidence of cerebral disturbance is by many practitioners assumed to be the cause of all the other symptoms of corporeal derangement! And under the formidable title of "obstruction," how do you think some of your *great* accoucheur doctors are in the habit of combating it?—By leeching the patient—by applying leeches locally. Now, I only ask you what you would think of a practitioner, who, on finding the same patient feverish and thirsty, should leech her *tongue?* or when she complained of her skin being uncomfortably dry, should apply leeches to that? You would laugh at him of course; and so you may, with just the same reason, laugh at the fashionable practitioners of the day, when you find them leeching their patients for defective or suppressed menstruation—a derangement of function which a passion might produce, and another restore to its healthy state. Is it then, a local disease or a disease of the brain and nerves—an affection of a part or a disorder of *totality?* If the latter, who but a mechanic would think of applying leeches locally? In either case, who but a cow-leech or a quack salver would dream of restoring any periodical secretion by a mode of practice so barbarous and disgusting? You might just as reasonably, in the absence of an appetite for dinner, expect to make your "mouth *water*" by the application of leeches to your stomach when the clock should strike five!

Having thus far explained the nature of these cases, I have now little else to say of them. The general principle of treatment is obvious—attention to temperature; for in every case of catamenial irregularity, whether as regards quantity, quality or period, the temperature of the loins must be more or less morbid—one patient acknowledging to chill, another to heat. In the former case, friction or a warm plaster may be tried as a local means—in the latter, cold or tepid sponging: though I may tell you that, with the chrono-thermal remedies singly, you may produce the most perfectly salutary results in numerous cases. In both instances, cold, warm, and tepid baths may also be advantageously employed, according to the varying circumstances of the case.

The majority of women who suffer from any general indisposition short of acute fever, are more or less subject to a particular discharge which, by the patients themselves is very often termed weakness, but which is more familiar to the profession under the name of *leucorrhœa* or *whites*. The usual

concomitant of this disease is a dull aching pain at the lower part of the back. Now, I never questioned a woman who suffered from it, but she at once acknowledged that the local *flow* was one day more, another less, and that she had, besides, the chills, heats, and other symptoms of general constitutional derangement. But of that derangement, the discharge so often supposed to be the cause, is in the first instance nothing more than a coincident feature or effect; though from pain or profuseness, it may again react upon the constitution at large, and thus form a secondary and superadded cause or *aggravant*. In cases of this kind I am in the practice of prescribing quinine, iron, or alum, sometimes with, and sometimes without copaiba, catechu, or cantharides—one medicine answering best with one patient, another with another.

I have been frequently consulted in cases of painful whites, and also in cases of painful menstruation, disorders which practitioners, as remarkable for their professional eminence as for their utter want of high professional knowledge, had been previously treating by leeches, some applying these to the loins, which, in every case, whether of whites or irregular menstruation, is weak and consequently painful; some, to the disgust of every woman of sensibility, introducing them even to the orifice of the womb itself. What practice can be more erroneous? What relief, if obtained, more delusive! Bark, iron, opium,—these are the remedies for cases of this description; and the general constitutional improvement which, for the most part, follows their use, together with the disappearance of the more prominent local irregularities for which your aid had been asked, affords the best answer to any hypothetic objection that may be brought against their employment. The best topical application in these cases—and you will find it useful in most—is a plaster to the spine to warm and support it; though, cold, hot, or tepid fomentation to the loins or womb may also be occasionally employed, according as one or other shall prove most agreeable to the patient's own feelings.

The various female disorders of which I have just been treating are matter of daily practice. The more formidable affection to which I now draw your attention,

Cancer of the Breast,

fortunately for the sex, is of rare occurrence—not one woman, perhaps, in five thousand ever becoming the subject of it. Now, what is Cancer? What but a slow and painful decomposition—a canker or blight of the particular organ affected. The manner in which cancer of the breast generally commences is this:—A tumor, at first smaller than a nut, possessing more or less hardness, and to a certain extent circumscribed, is observed in the neighborhood of the nipple; the patient's attention, in most cases, being first called to it by a slight itching or uneasiness in the part affected, which soon deepens into a "pricking," "darting," or "shooting" pain—for such are the various phrases by which different patients describe their pain. The tumor gradually but slowly increases in size and hardness, while the pain becomes more and more intolerable and "lancinating." The disease, in every case, is intermittent, and in most instances, this intermission is periodical, the tumor being one day perceptibly diminished, another as obviously enlarged. The pain, in like manner, disappears more or less completely, for a time, to return at a particular hour of the clock with undiminished violence. Now, when surgeons were more in the habit of performing operations in cases of this kind, than at present, such tumors, after removal by the knife, were usually, from motives of curiosity, bisected. If their internal structure when thus divided, resembled something betwixt a turnip and a cartilage, the disease was pronounced to be "true cancer"—a *schirrus* or *carcinoma*. On the contrary, if instead of this appearance, the tumor had a resemblance to the substance of the brain, or to lard, jelly, or was of a mixed character, disputes frequently arose as to the name by which the disease should be christened; as if it signified one straw whether the breast, when so completely changed in its structure and nature, as to be productive of nothing but misery to its owner, should be called schirrus, carcinoma, cancer, or any thing else! Oh! it matters very little what that organic change be termed, when, as in all these cases, the glandular fabric of the breast becomes at last completely destroyed and decomposed.

How and in what manner is this disease developed? Gentlemen, it is the result of general constitutional change. It is the effect of a weak action of the nerves on an originally weak organ; and of this you may be satisfied, when I tell you that in most instances cancer is a hereditary disease; or, to express myself better, there is hereditary predisposition, and what is more, the disease generally makes its first appearance about that period of life when the breast ceases to be any thing but a mere personal ornament to its possessor. It comes on much about the same time when the catamenial secretion is about to terminate for life. Can such termination take place without a new corporeal

revolution? Certainly not: every female at such time suffers more or less from constitutional disorder. Analyze this disorder, and you will find that it resolves itself into a general intermittent febrile action of the whole body, varying in its shade with every case. Cancer, then, is a development of that fever. Now, why is it that the word cancer sounds so fearfully in the female ear? The difficulty to cure it simply—the difficulty in most instances—the absolute impossibility in many. To understand the reason of this difficulty, we must consider the nature and uses of the organ. However beautiful and ornamental to its possessor, the breast is not, like the heart or lungs, an organ of the least importance to her own vital economy. It is a part superadded for the preservation of the race. Rudimental, or all but absent in the child, this organ only reaches its full maturity of development when the girl becomes the woman. After the woman ceases to bear children, or whether she has borne them or not, when the period of the possibility of her being pregnant has passed away, the substance of the breast is generally more or less absorbed, though you occasionally meet with instances where it becomes enlarged beyond its previous size. In fewer cases still it takes on a process of decay—in other words, it becomes cancerous. But nature in this instance, even when aided by art, will not often exert her usual reparative efforts—she will not put forth her powers (so to speak) for the preservation of a part which now, not only so far as the individual economy is concerned, but so far also as regards the race, has become a useless part. This I take to be the true reason of the difficulty to cure a cancer; for although in many cases more or less improvement in the state of the affected organ may follow the employment of remedial means—such means as beneficially influence the whole health—still, as if to prove more fully the truth of my explanation, you may even succeed to a great extent in raising the general healthy standard, and yet fail to procure the slightest arrest of the local process of decay. While a cut or bruise upon any other part of the body of a cancer patient will heal with ease, the breast, partaking no longer in the preservative power of the economy, may perish piece-meal. Gentlemen, never in my life did I meet with a cancer in any state or stage, the subject of which did not acknowledge to chills and heats, or who did not admit errors of secretion; to say nothing of variations in the volume, temperature, and sensation of the part affected. I lately attended the sister of a Fellow of the Royal College of Physicians, who was first induced to consult me, from hearing that I looked upon ague as the primary type or model of all complaints. Her own cancer, she assured me, was preceded by shivering fits, which she traced to a sudden chill; and during the whole progress of the disease she suffered more or less from aguish feelings. Previously to my seeing her, she had been visited by a surgeon of eminence, who ordered her to apply leeches, but the effect of their employment was an increase of her pain And no wonder—for if that great man had only taken the trouble to enquire, he would have found that, instead of the hypothetic "inflammation," which doubtless suggested their employment, the breast in that instance was generally cold! Would not a warm plaster under these circumstances have been of more service? You, gentlemen, may try at least, and if you do not find it produce more or less relief in many similar instances, I know nothing whatever of the science I now pretend to teach you. No local application, however, will be long productive of any very effectual advantage in this or any other disease, without attending to the chrono-thermal principles of paroxysm and remission. Arsenic, quinine, opium, copper, prussic acid, may be all successively tried. But you must here always keep in mind that cancer is a chronic disease, a disease of time; and you must farther hold in your remembrance what I have already said in regard to most cases of chronic disease, namely, that no medicine will produce its beneficial effect for any great continuance in those disorders; for once the constitution becomes accustomed to the use of a remedy, such remedy either loses its salutary influence altogether, or acts in a manner the reverse of that which it did when tried in the first instance. No medicinal agent had a greater reputation at one time, in the treatment of cancer, than arsenic; arsenic in fact was supposed to be a wonderful specific in cases of that nature. What was the consequence? Like every thing else in this world, whether person or thing, physician or physic, that ever enjoyed the temporary distinction of infallibility, after a few decided failures in particular instances, this mineral came at last to be almost entirely abandoned in such cases. And yet, notwithstanding this, I do not know a remedy which may be more successfully used in cancer than arsenic. "We have seen from its use," says Dr. Parr, in his Dictionary, published in 1809, "an extensive [cancerous] sore filled with the most healthy granulations, the complexion become clear, the appetite improved, and the general health increased. Unfortunately," he continues, "these good

effects have not been permanent. By increasing the dose we have gained a little more, but, at last, these advantages were apparently lost." And was it ever otherwise with any other remedy? No power on earth could always act upon the living body in the same manner. The strongest rope will strain at last, and so will the best medicine cease, after a time, to do the work it did at first But a physician who should, on that score, despise or decry a power that had, for a given time, proved decidedly advantageous in any case, would be just as wise as the traveller who, on reaching his inn, instead of being thankful to his horse for the ground it had enabled him to clear, should complain of it for not carrying him without resting to the end of his journey. What, under the circumstances mentioned by Dr. Parr, either he or any other doctor should have done,—and what I have confidence in recommending you to do on every similar occasion is this,—Having obtained all the good which arsenic or any other remedy has the power to do in any case, change such remedy for some other constitutional power, and change and change until you find improvement to be the result; and when such result no longer follows its employment, change your medicine again for some other; or you may even again recur with the best effect to one or more of the number you had formerly tried with benefit; for when, (if I may speak so metaphorically) the constitution has been allowed time to forget a remedy that once beneficially influenced it, such remedy, like the re-reading of a once admired, but long-forgotton book on the mind, may come upon the corporeal economy once more with much of its original force and freshness. In all such cases, then, you must change, combine, and modify your medicines and measures in a thousand ways to produce a sustained improvement. Arsenic, gold, iron, mercury, creosote, iodine, opium, prussic acid, &c., may be all advantageously employed, both as internal remedies and as local applications, according to the changing indications of the case.

When Cancer is suffered to run its course undisturbed by the knife of the surgeon, or the physic of the doctor, the usual termination of it is this:—a small ulcer shows itself upon the skin of the most prominent part of the tumour, gradually increasing in dimension. And so exceedingly weak do the atomic attractions of the matter of the breast become during the change produced by the disease, that scarcely has the atmospheric air been allowed to come in contact with the tumour, than it commences to mortify and die—falling away in most cases, (as it did indeed in the case of the lady to which I have already alluded,) after a certain time, in a dead and corrupted mass. The ulcer which it leaves behind, is in all such cases, extremely fœtid, and shows a great disposition to spread; the reason of which is this,—first, because the whole constitution of such persons is more or less weak; and secondly, because the particles of dead, or half-dead matter, which coat the bowl of the ulcer, not only have no power of reparation in themselves, but are the cause of a further failure of reparative power in the already weak parts with which they come in contact. Exactly the same thing takes place when any part of an old tree becomes decayed, and very much after the manner of such vegetable decay, as you may see it in a gnarled oak, we have in this disease, mushroom-like and other excrescences springing from the sides and bottom of the ulcerous and decaying part, and that too with a rapidity truly astonishing. A case of this kind I lately attended with Mr. Farquhar of Albermarle-street. Unless every portion of these fungoid bodies be completely removed, you must not hope to arrest the progress of the disease. The whole surface of the ulcer should be cauterized and completely destroyed with a burning iron, nitrate of silver, ammonia, or potass. All four may, in some cases, be resorted to with advantage. Nor must you here spare any part that shows even a symptom of weakness; but cauterize, and cauterize again and again, until you get red, small, healthy granulations to appear. The dressings which you will now find most successful, are ointments or other preparations of the red oxide of mercury, iodine, arsenic, creosote, lead, &c., and each and all of these will only prove beneficial in particular cases, and for particular periods. The law that holds good in the case of internal remedies, will be now more conspicuous in the case of external applications,—namely, that all medicinal powers have a certain relation to persons and periods only, and must in no case, be a priori expected to do more than produce a temporary action. If that action be of a novel kind, they will produce benefit; if, on the contrary, the increased motion from their action be in the old direction, and which cannot be foreseen till tried, the result of such trial will be a greater or less aggravation of the state for whose improvement you ordered them to be applied.

Dr. Abel Stuart, while practising in the West Indies, where the disease is more frequent than in England, had many opportunities of making himself acquainted with every one of the various states and stages of cancer—and since I settled in London,

where he also now practices, he has shown me cases of this kind, which he has treated with the greateat success. You must not then suppose, like most of the vulgar, and not a few of the members of the profession, that cancer of the breast is necessarily a mortal disease. So long as you can prevent the ulcer from spreading, and at the same time keep up the general health to a certain mark, how can there be danger? The breast I repeat, is not a strictly vital organ; it is not, like the lungs or heart, necessary to the individual life,—it is a part superadded for the benefit of another generation. How many women at one time remarkable for a large full breast, in the course of years, lose every appearance of bosom by the slow but imperceptible process of interstitial absorption; what inconvenience do these suffer in consequence? But for the tendency to spread, and the accompanying pain, cancer would seldom terminate fatally at all; it is the pain principally that makes the danger, not any loss of the organ itself. Pain alone will wear out the strongest: relieve this, therefore, in every way you can, but avoid leeches and depletion, which, I need not say, are the readiest means, not only to exhaust the patient's strength, but to produce that extreme sensibility of nerve, or that intolerance of external impression, that converts the merest touch into the stab of a dagger. Strong people seldom complain of pain: it is bloated and emaciated persons who mostly do so. Keep up your patient's health, then, by every means in your power, and she may live as many years with a cancer of the breast, as if she had never suffered from such a disease. Sir. B. Brodie mentions the case of a lady who lived twenty years with Cancer, and died at last of an affection of the lungs, with which it had no necessary connexion. What shall I say in regard to amputation of the breast? Will amputation harmonize the secretions? Will it improve the constitution in any way whatever? Those patients who, in the practice of others, have been induced to undergo operations, have seldom had much cause to thank their surgeons,—the disease having, for the most part, reappeared at a future period in the cicatrix of the wounded part. Gentlemen, you have only to look at the pallid, bloated, or emaciated countenances of too many of the sufferers, to be satisfied that something more must be done for them than a mere surgical operation—a measure doubtful at the best in most cases, and fatal in not a few. Shiverings, heats, and sweats, or diarrhœa, or dropsy; these are the constitutional signs that tell you you have something more to do than merely to dissect away a diseased structure, which structure, so far from being the cause, was in reality but one feature of a great totality of infirmity. That the knife may sometimes be advantageously employed I do not deny, but instead of being the rule, it should be the exception; for the majority of honorable and enlightened surgeons will admit how little it has served them in most cases beyond the mere purpose of temporary palliation. When you hear a man now-a-days, speaking of the advantage of early operating, you may fairly accuse him of ignorance, with which, I regret to say, interest, in this instance may occasionaly go hand in hand. The large fee for amputating a breast enters into the calculation of some of your "great operators"—for that they get whether the operation be successful or not.

I have twice in my life, seen cancer of the male breast—the subject of one was a European, the other a native of India.

Let me now say a few words on

TUMOURS

generally; premising that the term tumour is merely the Latin word for any Swelling, though we commonly employ it in the more limited sense of a morbid growth. It is a very common error on the part of medical men, to state in their report of cases, that a "healthy" person presented himself with a particular tumour in this or that situation. Now, such practitioners by this very expression show how much they have busied themselves with artificial distinctions—distinctions which have no foundation in nature or reason--to the neglect of the circle of actions which constitute the state of the body termed health. Never did a tumour spring up in a perfectly healthy subject. In the course of my professional career, I have witnessed tumours of every description, but I never met one that could not be traced, either to previous constitutional disturbance, or to the effect of local injury on a previously unhealthy subject. Chills and heats have been confessed to by almost every patient, and the great majority have remembered that in the earlier stages their tumour was alternately more and less voluminous.

Every individual, we have already shown, has a predisposition to disease of a particular tissue. Whatever shall derange the general health, may develope the weak point of the previously healthy, and this may be a tendency to tumour in one or more tissues. The difference in the organic appearance of the different textures of the body, will account for any apparent differences betwixt the tumours themselves; and where tumours appear to differ in the same tissue, the difference will be found to be only in the amount

of the matter entering into such tissue, or in a new arrangement of some of the elementary principles composing it. It is a law of the animal economy, that when a given secretion becomes morbidly deficient, some other makes up for it by a preternatural abundance If you do not perspire properly you will find the secretion from the kidneys, or some other organ increase in quantity. I was consulted some time ago by a female patient, whose breasts became enormous from excess of adipose or fatty deposit. Now, in the case of this female, the urine was always scanty, and she never sweated. Every tissue of the body is built up by secretion. The matter of muscle, bone and skin, is fluid before it assumes the consistence of a tissue, and the atoms of every texture are constantly passing into each other. "The great processes of nature," says Professor Brande, "such as the vegetation of trees and plants, and the phenomena of organic life generally, are connected with a series of chemical changes." But, Gentlemen, this chemistry is of a higher kind than the chemistry of the laboratory; —it is Vital Chemistry, under the influence, as I shall afterwards show you, of Vital Electricity. Secretion of every kind is the effect of this vital chemistry; and Tumours instead of being produced, as Mr. Hunter supposed, by the "organization of extravasated blood, are the result of errors of secretion. They are principally made up of excess of some portion the tissue in which they appear, or the result of new combinations of some of the ultimate principles which enter into its composition.

If you search the records of medicine upon the subject of tumours, you will find that the medicinal agents by which these have been cured or diminished, come at last to the substances of greatest acknowledged efficacy in the treatment of ague. One practitioner (Carmichael) lauds iron; another (Alibert) speaks favorably of the bark; the natives of India prefer arsenic; while most practitioners have found iodine and mercury more or less serviceable in their treatment. Gentlemen, do you require to be told that these substances have all succeeded and failed in ague! Wonder not, then, that each has one day been lauded, another decried, for every disease which has obtained a name, tumors of every description among the number. We now come to

Pregnancy.

But this, you will very likely say, is not a disease. In that case, I must beg to refer you to ladies who have had children, and I will wager you my life, that they will give you a catalogue of the complaints that affected them during that state, equal in size to Dr. Cullen's Nosology. In the case of every new phenomenon in the animal economy, whether male or female, there must be a previous corporeal revolution, We find this to be the case at the times of teething and puberty,—and so we find it in the case of pregnancy. Can the seedling become an herb in the frost of winter, or the sapling grow up into maturity without a series of changes in the temperature and motion of the surrounding earth?—No more can the infant germ become the fœtus without a succession of febrile revolutions in the parent frame! Once in action it re-acts in its turn.

The influence of the mother's brain over the growth of the child while in the womb, is sufficiently proved by the effects of frights and other passions, induced by the sight of objects of horror, and so forth, while in the pregnant state. Hare lips, distortions, moles, marks, &c., have in too many instances been traced by the mother to such passions, to render us in the least sceptical upon that point. Now, in this particular instance, some of the parts or divisions of the mother's brain must act in association or simultaneously, while others act independently or in alternation, for otherwise you could not understand how the brain of the mother should influence the growth of the child in utero, and at the same time continue to play its part in the parental economy. Some of its various portions must act in these respects alternately, for they cannot do both at one and the same moment of time. But, here again, as in other instances, a want of harmony may arise—the brain may continue to exercise its influence over the child too long; in other cases it may forget the child for the mother. How such want of harmony affects the child, we can only guess from analogy. How a too long cerebral neglect of the mother's economy may influence her, we may daily see in the numerous disorders to which she is then liable—more particularly in the periodic vomitings which take place in most instances, and also in the swoon or faint which occasionally comes on during the pregnant state. Are not these the very symptoms that happen in the case of a person who has had a blow on the head, or who has been much bled? It appears to me probable that the infant's growth must take place principally during the period of maternal sleep. For it is chiefly in the morning, just as she awakes, that the mother experiences those vomitings and other symptoms from which I infer the brain has been too long neglecting her own economy.

But even as a natural consequence of the more favorable alternations of cerebral movement which take place during pregnancy, the mother for the most part experiences chills, heats, and sweats,—she has symptoms, or shades of symptom, at least, of the same disorders that may arise from any other agency affecting the brain in a novel or unusual manner—she becomes at certain times pale and flushed alternately, and, as in the case of other fevers, frequently complains of headache. When bloodletting—the usual refuge of the ignorant—is in such cases tried, the blood drawn exhibits the same identical crust, which under the name of "buffy-coat," "inflamed crust" &c., so many practitioners have delighted to enlarge upon as the peculiarity of "true inflammatory fever!"

Pregnancy has been defined by some very great doctors, to be a "natural process." Now, that certainly is a very great discovery; but they might have made the same discovery in the case of disease and death. Is not every thing in Nature, a natural process, from the fall of an apple to the composition of the Illiad! Every thing that the eye can see or the ear can hear is natural; miracles only are miraculous; for they are events that are contrary to the natural order of things. Pregnancy, then, is a natural process;—but is it on that account the less surely a Febrile state? Is it for that reason the less certainly an Intermittent Fever?—What disorders have not originated in pregnancy? What, in cases where they previously existed, has it not like every other fever cured? If it has produced Epilepsy, Apoplexy, Toothache, Consumption, Palsy, Mania,—each and every one of these diseases have I known it to ameliorate, suspend, or cure! I remember the case of a lady who, before her marriage, squinted to perfection. But when she became pregnant, her Squint diminished, and long before the period of her confinement it was cured;—never did I see such an improvement in the face of any person. Still, if pregnancy has cured squint, I have known cases where it produced it. How completely, then, does this harmonize with the unity which pervades Disease generally!

PARTURITION,

I have already said, is a series of pains and remissions, but it is not an intermittent fever; nor, indeed, has it any resemblance to that affection! So, at least, I have been assured by very clever doctors: and they have told me the same of pregnancy! Is this question, then, completely settled in the negative? Certainly,—It is settled to the satisfaction of all who pin their faith upon mere human authority. But human authority seldom settled any thing with me; for wherever I have had an interest in knowing the truth, I have generally appealed from the decree of that unsatisfactory court to the less fallible decision of the Court of Fact. And what does Fact say in this instance? Fact says that child-labor, in almost every case, commences with chills and heats, and that these are again and again repeated with longer or shorter periods of immunity during its progress. But how do I know all this? you will ask,—I who hold modern midwifery in such horror! I will tell you truly—I first guessed it: for I could not suppose that parturition unlike every other great revolution of the body, could be either a painless or an unperilous state, or that it could be free from the chills, heats, and remissions, which I had always observed in cases of that character. Still not being a person easily satisfied with guess-work, I took the trouble in this particular instance, to interrogate Nature. And as sure as the sun ever shone on this earth, Nature completely verified the fact of my anticipation, that parturition, in every instance, is an intermittent fever. In some of my medical books, too, I found shiverings among the numerous other symptoms mentioned as incidental to women at this period. "Sometimes," says Dr. Ramsbotham, himself a man mid-wife, "they are sufficiently intense to shake the bed on which the patient lies, and cause the teeth to chatter as if she were in the cold stage of an ague-fit; and although she complains of feeling cold, the surface may be warm, and perhaps warmer than natural."

Now, this cold sensation, as you well know, is often complained of by ague patients, even in the hot stage. In spite of every assertion to the contrary, then,—in spite of every declaration on the part of medical or other persons, Pregnancy and Parturition are agues—agues in every sense of the word; for not only do their revolutions take place in the same manner as ague, but, like ague, they may both be influenced by medicines as well as by mental impressions. Indeed in most cases of parturition, the labor-fit,—mark the word!—will stop in a moment from the new cerebral movement induced by Fright or Surprise. In some the fit never returns, and the most terrible consequences ensue. When the fœtus is fairly developed in the case of pregnancy, and the labor completed in that of parturition, health is the general result; but in the course of both, as in the course of other fevers, every kind of disease may show itself, and, when developed, may even proceed to mortality. An occasional termination of pregnancy is

ABORTION OR MISCARRIAGE;

And this, in every case, is preceded by the same constitutional symptoms as pregnancy and parturition, namely, the symptoms or shades of symptoms of ague. Moreover, when a woman gets into a habit of miscarrying, such miscarriage, like an ague, recurs periodically, and takes place almost to a day, at the same month as the first. A lady who had been married several years, but who had never borne a living child, although she had had frequent abortions, consulted me upon the subject. Her miscarriages have always taken place at the same period of pregnancy —about the end of the third month—I desired her when she should again become pregnant to let me hear from her within a fortnight of the time she might expect to miscarry. She did so, telling me at the same time she knew she should soon be taken ill, as she had already had shiverings. I directed her to use an opium suppository, nightly, which she did for a month, and she was thus enabled to carry her child to the full time. She has had two children since, and all three are now well and thriving. I have succeeded in similar cases with the internal exhibition of quinine, iron, hydrocyanic acid, &c. But opium, where the drug does not decidedly disagree, will be found the most generally useful of our medicines in checking the habit of miscarriage Need I tell you that in no case should it be continued where it excites vomiting.

The tendency to return of any action which has once taken place in the constitution, is a law even in some effects of accidents. A lady, who from fright during a storm, miscarried of her first child, a Boy, never afterwards when pregnant with boys, would carry them beyond the time at which she miscarried of the first. On the other hand, she has done well with every one of her daughters, five in number, all of whom are at this moment living.

To mothers and nurses, next to Pregnancy and Parturition, there is no subject so interesting as that of

TEETHING.

The birth of the first tooth, like the birth of a first child, is commonly expected by both with a certain degree of anxiety, if not with fear. Why is this? Why, but because as in the case of pregnancy, before the dormant germ can be called into action—before the embryo tooth can be developed—there must be a complete corporeal REVOLUTION, an intermittent FEVER, of more or less intensity, varying according to the varying conditions of particular constitutions. And what a curious unity runs through all creation, producing those wonderful analogies that alone can lead us to the proper study of nature. The embryo tooth, like the embryo infant, is the offspring of a *womb*—tiny indeed, but still rightly enough termed by the profession *matrix*—that being only another Latin word for uterus or womb. Both also come into the world by a fever. The more healthy and vigorous the child, the more subdued will the teething fever for the most part be, and the teething itself will consequently be less painfully accomplished; just as under the same circumstances the parturient mother will more surely bring forth her young in safety. In those cases, on the contrary, where the child is weakly or out of health, the fever will be proportionally severe. The generality of teething children, after having been comparatively well during the day, become feverish at a particular hour in the night. Now, the newly developed tooth, though in the first instance itself a mere effect of the fever, very soon contributes, by the painful tension which its increasing growth produces in the gum, to aggravate and prolong the constitutional disorder. It is first an effect, and then a superadded cause, or aggravant. Gentlemen, in this fever we have a fresh illustration of the unity of disease—a fresh proof that intermittent fever, in some of its many shades, is the constitutional revolution which ushers in every kind of corporeal disorder. How many varieties of local disease may not be produced during the intermittent fever of teething! Every spasmodic and paralytic distemper you can name—convulsions, apoplexy, lock-jaw, squint, curved spine, with all the family of structural disorders, from cutaneous rash and eruption to mesenteric disorganization and dysentery. Should the gum be lanced in these cases? Who can doubt it? If you found the painful tension produced by the matter of an abscess keeping up a great constitutional disorder, would you not be justified in letting out the matter with a lancet? The cases are similar. In many instances of teething, then, the gum-lancet may be used with very great advantage—but with greater advantage still may you direct your attention to the temperature of the child's body. When that is hot and burning, when its little head feels like fire to your hand, pour cold water over it, and when you have sufficiently cooled it throughout, it will in most cases go to sleep in its nurse's arms. During the chill-fit on the contrary, you may give it an occasional teaspoonful of weak brandy and water, with a little dill or aniseed to comfort and warm it —having recourse also to friction with hot

flannel, or to the warm bath. During the period of remission, the exhibition of small doses of calomel, quinine, or opium, with prussic acid occasionally, will often anticipate the subsequent fits, or render them trifling in comparison with those that preceded them.

But, Gentlemen, I should explain to you, that you may sometimes be met with considerable opposition on the part of the wiseacres of the profession, when you propose Quinine or Prussic Acid in infantile disease. I was once requested to see the infant son of a gentleman living in Hertford Street, which had been suffering from convulsions and flatulence. You remember what I told you of this disease—that infantile convulsion depends in every instance upon cerebral exhaustion. It is often the effect of cold, and frequently follows upon a purge; I have known the disease come on after the application of a leech. "No fact," says Dr. Trotter, "is better known to the medical observer, than that frequent convulsions are a common consequence of the large loss of blood." And you may recollect that in the experiment of the animal bled to death by Dr. Seeds, flatulence and convulsions were among the symptoms produced by the evacuation. But to return to the child in question. Before I saw it, the poor little thing had been the subject of thirteen distinct convulsive fits, with an interval of remission of longer or shorter duration between each. What do you think was the treatment to which this infant had been in the first instance subjected by the practitioner then and previously in attendance? Though its age was under six months, and the disease clearly and obviously remittent, he had ordered it to be cupped behind the ear,—afraid as he explained to me, of the old bugbear, pressure on the brain! How compatible this doctrine, permanency of cause, with remission of symptom! The quantity of blood taken was about an ounce, but the convulsions recurred as before. This was the reason why I was called in. The child at that particular moment had no fit—so after taking the trouble to explain the nature of the symptoms to the attending Sangrado, I suggested quinine as a possible preventive. The man of cups and lancets stared, but acceded. The quinine, however, upon trial proving abortive in this instance, I changed it, according to my custom, for prussic acid—after taking which, the infant was free from fits for a period of at least five or six weeks,—when the convulsive paroxsym again recurred—from what cause, I know not, unless it might be from a Purge which its mother injudiciously gave it on the morning of recurrence. The flatulence, too, with which the child was all along troubled, began to diminish from the moment it took the prussic acid. You may perhaps ask me in what dose I prescribed the acid here. I ordered one drop to be mixed with three ounces of cinnamon water, and a tea-spoon full of the mixture to be given every two hours all that day; so that there is no earthly agent, however powerful, even in a small quantity, that may not by dilution, or some other mode or diminution, be fined away to any state and strength—to any age or condition of life for which you may be desirous of prescribing it. In this respect, medicine resembles every thing in nature. Take colors for example;—the most intense blue and the deepest crimson, by the art of the painter, may each be so managed that the eye shall not detect, in his design, a trace of either one or the other. In the case of the infant just mentioned, the dose of prussic acid was about the twenty fourth part of a drop, and its good effects were very immediate and very obvious. Nevertheless, when the attending practitioner came in the morning to see the little patient, then completely out of danger, he was so horrified by the medicine which had produced the improvement, that he stated to the family he could not, in conscience, attend with me any longer. He accordingly took his leave of the child he himself had brought into the world, and all because he, a man-midwife! could not approve of the treatment that saved its life. Yet this very person, without hesitation, let loose all at once the Eight lancets of the cupping instrument on the head of the same infant, whose age, be it remembered, was under six months! Gentlemen, though I will not condescend to name the individual who having so heroically, in this instance, swallowed the camel, found such a difficulty afterwards in approaching the gnat; I may state for your diversion that he is a very great little man in his way—being no less than one of Her Majesty's principal accouchers—a proof to you that "Court-fools" are as common as ever. Indeed, the only difference I see in the matter is this,—that whereas in the olden time such personages only exhibited in cap and bells at the feast and the revel, they now appear in a less obtrusive disguise, and act still more ridiculous parts on the gravest occasions.

One very great obstacle to improvement in medicine has been the very general preference given by Englishwomen to male over female practitioners of midwifery. For by means of that introduction, numbers of badly educated persons not only contrive to worm themselves into the confidence of families,

but by the vile arts to which they stoop, and the collusions and conspiracies into which they enter with each other, they have in a great measure managed to monopolize the entire practice of physic in this country. And what an infamous business medical practice has become in their hands! To check the career of these people, Sir Anthony Carlisle wrote his famous letter to the Times newspaper, wherein he declared that "the birth of a child is a natural process, and not a surgical operation." Notwithstanding the howl and the scowl with which that letter was received by the apothecaries, it is pleasing to see that the public are now beginning to be aware of the fact that more children perish by the meddlesome interference of these persons, than have ever been saved by the aid of their instruments. How many perish by unnecessary medicine common sense may form some notion—for the fashion of the day is to commence with physic the moment the child leaves the womb—to dose every new-born babe with castor oil before it has learnt to apply its lip to the nipple! Who but an apothecary could have suggested such a custom? Who but a creature with the mind of a mechanic and the habits of a butcher would think of applying a cupping instrument behind an infant's ear to stop wind and convulsions? The nurses and midwives of the last age knew better. Their custom in such cases was to place a *laurel*-leaf upon the tongue of the child. The routinists laughed at what they called a mere old woman's remedy, and declared that it could have no effect whatever; they little knew that its strong odour and bitter taste depended upon the *prussic acid* it contained! Gentlemen, you may get many an excellent hint from every description of old woman but the old women of the profession—the pedantic doctors, who first laugh at the laurel-leaf as *inert*, and yet start at the very medicine upon which its virtues depend, when given with the most perfect precision in the measured form of prussic acid! men who, in the same mad spirit of inconsistency, affect to be horrified at the mention of opium or arsenic, while they dose you to death with calomel and colocynth, or pour out the blood of your life as if it were so much ditch-water!

Gentlemen, there is such a thing as

HEREDITARY PERIODICITY.

If you take a particular family, and, as far as practicable, endeavor to trace their diseases from generation to generation, you will find that the greater number die of a particular disease. Suppose this to be pulmonary consumption. Like the ague, which makes its individual revisitations only on given days, you shall find this disease attacking some families only in given generations—affecting every second generation in one case; every third or fourth in another. In some families it confines itself to a given sex, while in the greater number, the age at which they become its victims is equally determinate—in one this disease appearing only during childhood, in another restricting itself to adult life or old age. By diligently watching the diseases of particular families, and the ages at which they respectively reappear, and by directing attention in the earliest stages of constitutional disorder to those means of prevention which I have in the course of these lectures so frequently had occasion to point out to you, much might be done to render the more formidable class of disorders of less frequent occurrence than at present—mania, asthma, epilepsy, and consumption might thus, to a certain extent, be made to disappear in families where they had been for ages hereditary. But alas! then, for the medical profession, the members of which might in that case exclaim, "Othello's occupation's gone!"

[While the second edition was in the course of printing I received the three following letters, which, as they go far to bear me out in many of my previous observations, may not be deemed by the reader to be entirely out of place here. The first is from Dr. M'Kenzie of Kenellan, in Scotland. "KENELLAN, near Dingwall, 24th Feb. 1841. Dear Sir,—After studying at Edinburgh, London and Paris, I graduated in 1824, and immediately afterwards received an appointment to the Medical staff of the army. I conceive that, phrenologically speaking, my head is a fair sample of the common run; and during my pupilage I had the very best opportunity of acquiring what most people call "medical information." In the military hospital at Fort Pitt I had abundant opportunities of testing its value, yet though I did my best to put in practice the rules and directions which I had so sedulously studied in the schools of medicine, the result of their application was anything but satisfactory to me; nor did the observations I made on the practice of my comrades mend the matter. The Sangrado system was in full operation. Like my neighbors, I did as I had been taught, but the more I considered the result of our practice, the more convinced I became that we were all in the dark, and only tampering with human life most rashly, in a multitude of cases Still I thought it my duty to do as my superiors directed, hoping soon to see my way more clearly. In process of time I was appointed

to a Regiment, with which I served about two years. I then married, and finding that a married man has no business to be in the army, I resolved to embark in private practice, expecting that with the excellent opportunities of becoming acquainted with disease in every form which I had possessed in the army, and aided by numerous friends, I might rise easily in my profession. I settled in Edinburgh, and became a Fellow of the College of Physicians. I soon found, however, that in leaving the army for private practice, I was "out of the frying pan into the fire;"—there were obstacles to success that I had never even dreamt of. In the military hospital I had only to say "do," and it was done; and I knew to a nicety the effect of my remedies, for in every instance they were faithfully administered. In private practice all this was changed. There, in order to live like other men by labor, I found it absolutely essential to practise the *suaviter in modo* on many occasions when the *fortiter in re* would have been the best for my patients. I therefore felt myself obliged to consider how others managed such matters, and I was soon able to divide the medical body into three classes. At the top of the tree I noted here and there a solitary individual whose word was law to his patients. I endeavored to trace the career of these favored practitioners, and was grieved at being compelled to think that in few instances had they ascended to their eminence by the ladder of integrity, talent, or real medical knowledge. On the contrary, I was compelled to believe that these qualities often were a bar to a physician's rise, and that flattery and humbug were far more valuable qualities in the eyes of the world, and, if skilfully practised, would ensure first rate eminence. Lower down I found a certain number who, like myself, did their best to retain practice, and preserve the *vultus ad sidera.* But when I looked to the bottom of the tree, I saw around it a host of creatures, void of any scruples, determined to acquire wealth, and to act on the ancient maxim, *rem si possis recte; si non, quocunque modo rem;* [Make money,—honestly if you can; if not, make money!] men who, void of integrity and all honorable self-respect, looked upon such as differed from them in this point as insane. I certainly was taken quite aback, and looked and better looked in hopes that my senses deceived me; but the more I looked the more was I satisfied, or rather dissatisfied with the correctness of my views. It was now quite clear that I never should rise in the profession, and that "although *bred* to physic, physic would never be *bread* to me." I could not scramble for subsistence at the expense of self-respect, and live upon an *ipecacuan loaf.* In spite of the lamentations of my friends and patients, who thought me "getting on so nicely," but who were unable to read my real feelings, and at the expense of being ridiculed by many who supposed me actuated by foolish pride, &c., I bade adieu to private practice, and turned my lancet into a ploughshare. In short, I took to farming, in which vocation I have now continued for nine years, enjoying a happiness and peace of mind that I think few medical men can understand. Among the poor I still keep up a little practice, and occasionally am consulted by my country practising friends, but, like my old lancets, I grow very rusty. Perhaps you will say so much the better. And now, why have I troubled you with all this from an entire stranger? Simply as a preface to the thanks that I now beg to offer you for the new light that broke upon me on reading your *Fallacies of the Faculty*, sent me by a non-medical friend. My ideas on physic have been totally revolutionized by it, and I now recal to my mind many cases where I made most fortunate cures accidentally, by following your system, though without any knowledge of the principles of its application. Most sincerely do I congratulate you on your discoveries, and most confidently do I look forward to the day, not distant, when they will be duly appreciated. I have myself been all but a martyr at the shrine of Sangrado, but nothing will ever again induce me to part with a drop of blood, so long as it will circulate in the veins of—Your obliged and faithful

J. M'Kenzie, M. D."

The next letter is from Dr. Charles Greville of Bath: "Bath, Feb. 24, 1841. My dear Sir, I have perused with much interest your excellent and original lectures on the *Fallacies of the Faculty*, and have much pleasure in attesting the truth of your remarks. I have treated numerous cases of disease upon the chrono-thermal principle, with perfect success. Should time permit, I will furnish you with various instances. I have no doubt the public will eventually appreciate the superiority of your views, and take its leave of the nefarious apothecary, whose existence seems to depend upon the deluging of his patient with unnecessary and too often deleterious compounds. I remain, my dear Sir, Yours very faithfully,

Charles Greville."

The third letter is from Mr. Henry Smith, a surgeon in very extensive practice at Cheshunt, in Hertfordshire: "Cheshunt, Feb. 24, 1841, My dear Sir, At a time

when your doctrines are so much the subject of discussion both with the profession and the public, the evidence of a country practitioner as to the result of their application in his hands, may not be altogether unacceptable to their author. The first time I heard your name was about eighteen months ago, when the Hon. Edmund Byng sent your Unity of Disease to my father-in-law, Mr. Sanders. We were both equally struck with the novelty and simplicity of your views, as there detailed, and we determined to put them to the test. You will be gratified to hear, that neither Mr. Sanders nor myself, from that time, have ever had occasion to use either leech or lancet in our practice, though formerly we felt ourselves compelled to use both. Every day has confirmed us in the truth of your opinions by our increased success. I have treated cases of Apoplexy with the most perfect success with no other means than the application of cold water dashed over the head and face, —following that up after the fit had gone off, with quinine, ammonia, and prussic acid. I have cured all kinds of cases of convulsion, by the same treatment; indeed, in the convulsive diseases of children, the prussic acid has been my sheet-anchor. In cases where children have been apparently still-born, I have succeeded in rousing them by dashing cold water over their bodies. With quinine, and prussic acid, I have treated many cases of croup, and in no instance do I remember to have lost a patient. Many cases of hysteria, and some of epilepsy, have been cured or relieved by creosote, after every other medicine had been tried in vain. I have treated cases of both chronic and acute rheumatism successfully by arsenic. By the tonic practice I have been equally successful in inflammations of the chest and bowels. Before concluding this hasty sketch, permit me to express how thankful and grateful I feel towards you, for the light by which you have expelled the darkness in which medicine was formerly so much enveloped by its professors.

Yours, my dear Sir, very faithfully,

HENRY SMITH."

Since the publication of the second edition of this work, Mr. Smith confirms his previous statement by a further experience of eighteen months—three years in all—during which he has not used a leech or lancet. I have also received among other communications the following:

From H. C. Deshon, Esq., Surgeon.

"SHROTON, BLANDFORD, 10th November, 1841. Dear Sir, I have from time to time anxiously waited to hear of the state of health of that beloved relative [his mother] I left under your care, and I am now glad to hear that she considers herself better, * * * I have cured palsy and epilepsy by hydrocyanic acid, quinine, arsenic, &c., and I have also found these medicines of avail in convulsions and dropsies. Indeed, I am confident that most diseases may be cured (I refer to chronic diseases chiefly) by medicines useful in ague, and on your principles with reference to Periodicity and Temperature. Dear Sir, very truly yours,

HENRY C DESHON."

From Charles Trotter, Esq., Surgeon:

"HOLMFIRTH, near HUDDERSFIELD. Dear Sir, having read your second edition, *Fallacies of the Faculty*, I have been induced in a great number of cases to try the chrono-thermal system of treatment, and I must confess that in very many instances it has exceeded my expectations. I have cured what are termed inflammations without the patient losing a single drop of blood. Very recently I succeeded in bringing a case of Peritonitis (inflammatian of the membranous covering of the bowels) to a favorable result without bleeding at all. Several well-marked cases of Pnuemonia, (inflammation of the lungs,) as well as of pure Bronchitis, (inflammation of the air-passages,) have also yielded to medicine without any bleeding. And I may at the same time observe, the recovery was in every case quicker, and the consequent weakness less than if blood had been drawn. Yours truly,

CHARLES TROTTER."

From Dr. Fogarty, Surgeon of the St. Helena Regiment: "LONDON. My dear Sir, I have read with the greatest delight your *Fallacies of the Faculty*. Every word ought to be written in letters of gold. Yours faithfully,

M. FOGARTY."

From H. W. Bull, Esq., Surgeon, R. N.:

"WOKINGHAM, 5th February, 1843. Dear Sir, I beg to forward to you a statement of my own case, and one or two cases of others treated on your plan, all of which are evidence of the value of the chrono-thermal system. I was attacked by paralysis on the 28th October, 1841, which deprived me of the use of my right arm and leg, affected the same side of the face, and produced some difficulty of speech. The usual plan was adopted, bleeding, purging, leeching, mercury and blisters. In this state I crawled on to May, 1842, when I lost more blood to *prevent* another anticipated attack, goaded on by what you term the bugbear Congestion. In this manner I went on occa-

sionally cupping and purging, and with a very restricted diet. In consequence of all this I was much reduced, and I became exceedingly weak; the heart palpitated very much on the least motion, and I had in addition occasional fainting fits. Last May my son sent me some extracts from your work, the *Fallacies of the Faculty*, the perusal of which induced me a few days afterwards to state by letter the particulars of my case to you. The first prescription you were so kind as to send disagreed; you then ordered quinine, and this I took with good effect. The shower-bath which you also ordered I found very beneficial. I have followed the plan laid down by you with very great advantage; changing the different medicines from time to time as occasion required; and I can now walk two miles without assistance. I have not only power to raise my right arm and wave it round my head, but I can lift a weight of forty pounds with it. I am now following the same plan with very good effect; I must confess I was at first startled by a practice so very different from all I had been taught in the schools, but a practice, I can truly say, to which I owe my life. Like Dr. M'Kenzie, nothing will ever induce me to lose a drop of blood again so long as it will circulate in the veins of,

Yours, most sincerely and faithfully,

H. W. Bull, Surgeon, Royal Navy.

Cases alluded to in the above letter.

"Case 1. Mr. C——— was attacked with acute rheumatism in almost every joint, great difficulty of breathing, and violent pain in the chest. I prescribed an emetic, but he refused to take it: he is a Hampshire man, and almost as obstinate as one of his own hogs. He continued in this state two days more; at last he was prevailed on to take the emetic. It operated soon and gave him instant relief. I followed it up with quinine and colchicum; he is now quite well, and has gone to his brother's house, some distance from this.

"Case 2.—A girl twelve years of age was brought to me from Binfield in convulsive fits. The pupils of her eyes were much dilated, and the fits followed each other in rapid succession. I first gave her a purgative, and followed it up with prussic acid; this was on a Monday. The fits became less and less frequent, and from the following Friday they entirely ceased. I also lately used the prussic acid with the best effect in the case of a child seven weeks old.

"Case 3.—A gentleman lately brought his child, a fine boy, to me for squint; the age two years. Some days the boy squinted less than others. I gave him six powders containing quinine and a little calomel: no other medicine was prescribed. There has been no squint since the powders were finished. In many other cases I have followed your plan with the best success.

H. W. B."

From John Yeoman, Esq., a surgeon in extensive practice at Loftus in Yorkshire: "Loftus, Feb. 2, 1843. Sir, Hearing that you are about to give us another, a third edition of the *Fallacies of the Faculty*, I beg now to offer to you my best thanks for the service you have already done the medical profession, by the publication of your original doctrines on disease. Being convinced, from my own experience and observation, that there is a Periodicity in most diseases, and that blood-letting is resorted to, as a curative measure, far too indiscriminately, I have read the *Fallacies of the Faculty* with very great interest and advantage. With interest, because I have been anxious and ready, for the last two years, to test the Chrono-thermal doctrine and remedies fairly, and with advantage, because I have succeeded in a wonderful manner to cure diseases, by acting up to the principles and practice you recommend. I have treated several cases of decided *Pleurisy* and *Pneumonia* according to the Chrono-thermal system, using emetics, purgatives, tartar emetic, prussic acid, and quinine, and *without* the aid of *lancet* or blister, most successfully. In croup and typhus-fever, I can bear ample testimony to the good effects of emetics, cold affusions, prussic acid and quinine; and with these agents alone, I have cured several cases of both within the last six months. You are at liberty to make use of these few remarks, to make them known to the profession, or the world, as you please; and wishing you every success in your future efforts, good health, and happiness, I am, Sir, yours sincerely,

John Yeoman,

Member of the Royal College of Surgeons, and Licentiate of the Apothecaries' Company, London."

From J. H. Sprague, Esq., M. D., formerly a Medical Officer on the Staff:—"Clevedon, near Bristol, Feb. 6, 1843. My dear Sir, Having read over and over again your invaluable work, the *Fallacies of the Faculty*, and having devoted much time to the study of the principles laid down, I am desirous to convey in plain language my sentiments in regard to the immense benefit which would indubitably be conferred on mankind by the general adoption of your opinions and practice. I was strictly

educated to the Medical profession from my youth up, and have been in actual practice for more than thirty-three years, time enough you will say, to be rooted and grounded in all the prejudices of an age of such superficial thinking as the present. Those prejudices, doubtless, I should have imbibed, and possibly cherished, like many others who know no better, had I not been taught at an early age by my mother, a woman of superior sense and discernment, to imitate the example of one whom I am proud to call my ancestor—the immortal John Locke. Her constant advice was, think for yourself and never take any man's assertion for proof. Examine before you believe:

Seize upon Truth where'er 'tis found,
Among your friends, among your foes,
On Christian, or on heathen ground,
The flower's divine where'er it grows,
Watts.

I have, therefore, through life carefully examined and compared effects with their supposed causes, believing nothing upon the mere assertion, or *ipse dixit* of any authority, however high. It was my fortune to be a pupil of the late once popular Dr. Beddoes, at a period when Pneumonic medicine was all the fashion; or in other words, when the inhalation of various gases was prescribed for chest diseases. At that time, it was also common to place consumptive patients in cow-houses, to breathe the odor of the animal, then believed to be a specific for that complaint. Beddoes, however, prescribed digitalis (fox-glove); maintaining that he could cure consumption with that drug, as certainly as he could cure an ague with bark. Yet all these things are now candidly allowed to be only specious fallacies. Soon after this originated the doctrine first brought to this country by invalids returning from India, that the Liver is the seat of all disease; and this doctrine my friend and correspondent, Dr Curry, of Guy's Hospital, promulgated to the world as true, in his attractive and eloquent lectures; assuring his numerous pupils, at the same time, that the cure was to be effected by calomel, in scruple and half-drachm doses! So extensively, indeed, at one time, was this mercurial used through Dr. Curry's influence, that calomel was generally known at the druggist's shops in London by the name of Curry powder! How many thousands of lives have been destroyed by the *mercurius dulcis*, or sweet mercury, as calomel was once called! On the subsidence of the Hepatic mania, Mr. Abernethy appeared upon the medical stage with his blue pill and black draught, which, with decoction of sarsaparilla, were long considered as the only remedies required for "all the ills that flesh is heir to." Somewhat later, began the rage for profuse bleeding, which, with very few exceptions, has up to the present time been zealously advocated by the whole medical fraternity. 'The Sanguinary Science,' as you have most appropriately named it, has been, and is still taught and inculcated in all the English schools of medicine; and sanctioned by such authorities, the practice of phlebotomy has spread through the land like a destructive torrent. Whether the doctor entered the rich man's habitation, or the poor man's dwelling, the first word was 'You must be bled!' Or if the operation had been performed, the next most important question to be decided was, 'Has enough blood been taken?' Among the principal British slaughter-houses, I must reckon the Army Hospitals. There the living blood was and is still poured out, as if it were the most pernicious element in nature; so much poisonous ditch-water. I recollect a spruce young surgeon, of the 13th Regiment of Foot, with whom I was in garrison in the Island of Jersey, who made it his boast that 'when the battalion was in Canada, he thought nothing of having seventy or eighty pounds of blood thrown out upon the dung-hill every morning!!' To preserve my credit with the Director-General of the Army Medical Department, I was of course obliged to follow at an humble distance this terrible practice: for had not the letters V. S., or Venæ Sectio, appeared opposite to the patient's name in my returns to the Medical Board, I should undoubtedly have been deprived of my commission; so indispensable was the operation considered to be! But even at this early period of my life, by a judicious use of Emetic Tartar and other medicines, which I now call chrono-thermal remedies, I was much more successful in my practice than those who trusted almost exclusively to the lancet. A few years after the time I refer to, a perusal of the excellent practical treatise of Dr. Balfour led me to adopt the Antimonial treatment. Up to this hour, in this part of the country, the dangerous system of depletion is thoughtlessly persisted in, and the delicate and weakly, as well as the more robust, are every day drained of their life's blood,—the unfortunate patient sinking into a state of exhaustion—and death produced not by disease, but by the doctor. But of all the sanguinary projects ever had recourse to, surely there is none so barbarous and cruel as the practice of scalping a patient by a cut of six or seven inches along the upper part of the head, for the purpose of making an issue. I have known cases in this neighborhood where the patient has rapidly sunk from loss of blood, shortly

after the infliction of such an incision; and other cases in which the bleeding has been so impetuous, that it could only be stopped by means of searing the wound with a red hot iron! What an idea, to call the practice of illiterate quacks in question, when medical men are permitted to perform operations so unprofitable! Lord Ellenborough's act for 'cutting and maiming' surely applies to these torturers of their fellow-creatures. A very clever physician, whom I lately had the pleasure of meeting in Devonshire, showed me a preparation of the head of an unfortunate man who had formerly been a patient of his, and who had cancer of the eye. A short time before his decease, the poor man went to Bristol for advice, where his case was treated by two medical men, a physician and an oculist, as Inflammation of the Brain. This patient, by their directions, was unmercifully leeched and then cut and hacked, as I have described to you, and he returned home with an issue, containing fifteen beans, in his scalp! after which, he lingered a few weeks, and died of complete exhaustion. Notwithstanding the strenuous and persevering advocacy with which bloodletting has been so universally urged, and that, too, in the face of the great destruction of human life indubitably produced by it, to you, Sir, belongs the honor of triumphantly proving by evidence the most incontrovertible, that 'all diseases which admit of relief can be successfully treated *without* loss of blood.' And here do I most willingly record my unbiassed testimony to this important Truth. Let me further add, that by a course of patient investigation and much practical experience, I had arrived at the same conclusion before I had the pleasure of perusing your writings. I am therefore bound to acknowledge how highly I value the *moral courage* which has induced you to promulgate your invaluable opinions, and which, I believe are built upon an immoveable foundation. In proof of the benefits derived by the application of your principles in my own practice, I annex a few remarkable cases, some of them highly inflammatory, which I have lately cured by the chrono-thermal treatment, without the loss of a single drop of blood. With a deep sense of obligation to you for the information I have derived from your various writings, especially the 'Fallacies of the Faculty,' I remain, my dear Sir, yours very faithfully,

J. H. Sprague, M. D.

Cases referred to in Dr. Sprague's letter:—

Case 1.—I was suddenly called upon to see the butler of Sir C. A. Elton, Bart., Clevedon Court, who, I was told, had Brain-fever, and was "ramping mad." On my arrival, I found that a practitioner, previously in attendance, had bled him largely at the arm, and applied leeches to his head, and put him on a low diet. His state, when I saw him, was one of great danger. He looked wild and agitated—his head at intervals being intensely hot, succeeded by a low sinking pulse, and his skin bedewed with a clammy perspiration; he had not slept for seven nights. The case was evidently *Delirium tremens*. I immediately ordered the cold dash to the head, which was repeated at intervals in the course of the day. Mulled port to be taken occasionally with some cordial medicine and an opiate. The next day he was effectually relieved, having had six hours' comfortable sleep. A remission of symptoms being thus established, I prescribed quinine, and other chrono-thermal medicines; and at the end of a fortnight he was so far recovered as to be able to walk a distance of two miles, much to the surprise of all who had heard of his illness, the medical man formerly in attendance having declared that if he did not die, he must become the inmate of a mad-house. He is now doing his duty as butler in good health.

Case 2.—A girl, aged four, who had been ill four days, was brought to me, with intense pain of head, and the peculiar scream that generally attends inflammatory brain affection. She had much fever, with hard and incompressible pulse—the pupil of her eye was contracted—she was intolerant of light, and she had repeated fits of vomiting. Having had her head shaved, cold applications in various forms were employed, and her feet, at the same time, were kept warm with hot water bottles. An emetic was also given, with other medicines, to subdue the fever. In the course of three weeks, this severe case of cerebral inflammation was completely cured, without the loss of a single drop of blood. Under the anti-phlogistic plan, such cases usually terminate in water of the head and death.

Case 3.—A child, twelve months old, had croup; he was hot and feverish, had great difficulty in breathing and cough, with the metallic sound peculiar to that disease. By an emetic twice repeated, followed up with quinine, and sulphate of copper, in minute doses, to say nothing of warm applications to the throat and other chrono-thermal means the child recovered rapidly. Under the old system of leeching, bleeding, and blistering, such cases, if the subjects of them survive at all, which is seldom, generally end in a long protracted weakness of body.

Case 4.—Miss S——, aged 30, had repeatedly suffered from spitting of blood, for

which her physician in Bath had ordered her to be as repeatedly bled and leeched. When called upon to see her, she was bringing up considerable quantities of florid blood, and her anxious friends, in the belief that I would bleed her, had the bandage and basin ready for the operation! I ordered an emetic instead, which at once stopped the hæmorrhage. This I followed up with antimonials and opiates. I then prescribed quinine, and other chrono-thermal medicines, with nutritious diet, directing her chest, at the same time, to be sponged with cold water. In the course of three weeks, her health was very greatly improved. In six weeks more, she left Clevedon quite an altered person, and without any apparent tendency to return of the hæmorrhage.

Case 5.—Mrs. S——, aged about 38, applied to me for a *lancinating* pain of the left side, cough, and difficulty of breathing, increased by inspiration, with the other common symptoms of Pleurisy. I prescribed an emetic, and having, by means of this, and antimonials in small doses, subdued the more urgent symptoms, I ordered a mustard cataplasm to the chest, and prescribed the usual chrono-thermal remedies, which, in a few days, cured an attack of as severe Pleurisy as I ever witnessed, and that, too, without the abstraction of a drop of blood in any form.

Case 6.—Mr. T—— N——, age about 28, from exposure to wet, was seized with severe shiverings, followed by violent fever, in course of which, the elbow, wrist, and the ankle joints became so swollen, painful, and agonizing, as to prevent his moving in any manner. Emetics, opium, bark, and warm fomentations to the affected joints, rapidly produced a cure. Since that attack, he has had much better health than formerly, without any return of Rheumatism, to which he was before very liable.

Case 7.—Mr. H—— D——, age about 50, had for years suffered from severe pain in the back and limbs, the temperature of his skin being *colder* than natural. Cupping, bleeding, blisters, &c. had all been tried in his case unavailingly. I prescribed quinine, sulphur, guaiac, and small doses of turpentine, which, with a liniment of turpentine and mustard, worked wonders on him. These measures, and an occasional tepid bath, cured him completely in three weeks.

Nausea, or Sickness of the Stomach,—℞ Tinct. Ipecac. 3 to 5 drops, in a wine-glass of water; or of first dilution 5 to 10 drops, in a wine-glass of water.—*Homœpathic.*

(For the Dissector.)

TRACTS ON CONSUMPTION.

NUMBER ONE.

On a new Diagnostic Symptom in Tubercular Phthisis.

By J—— G——, M. D.

The improvement in the science of medicine has been so great during the past century, that, if it does not constitute one of the glories of modern philosophy, it is a just object of pride to the physician. It is not detracting unfairly from the character of this improvement to confess that our science is still very imperfect. We may even admit that in several departments, which, from their comprising enquiries into the greatest evils incidental to man, have been most assiduously investigated, we have made no important advance in knowledge. Consumption is a striking example of the stationary character of medical science. This disease has been regarded as influencing the happiness of man as much as any circumstance connected with his existence, and, as such, has engaged the attention of physicians from the earliest ages of medicine; and yet it may be questioned whether it is more submissive to the power of art, at the present day, than it was in the time of Hippocrates. Improvements in diagnosis have enabled us to point out the disease, at least in its advanced stages, with considerable accuracy; and yet it acknowledges no more control from the art of medicine, than when the means of distinguishing it were so ill defined that its characteristics might be applied to a whole class of complaints. The zealous cultivation of pathological anatomy has shown us an approximation to the true nature, if not the actual state, of the malady; but still it is as rarely cured as when pathology consisted wholly of fiction and hypothesis. Therapeutics, based upon a sound diagnosis and an improved pathology, have, apparently, suggested the most direct and energetic means of subduing this terrible disease; but so unsatisfactory are the results of their most judicious application that no physician attaches any importance to, or places the least reliance on them.

Pathological anatomy has clearly demonstrated that the powers of nature are frequently adequate to cure consumption; and it is considered equally certain that it is utterly beyond the reach of art. So indisputable is the latter position deemed, that the physician who should pretend to cure the disease would be considered unacquainted with its morbid anatomy, if, indeed, he did not subject himself to the imputation of being a boasting charlatan. And yet, when we see, as mor-

bid dissection demonstrates, that nature by her unaided efforts, not only changes the condition of the system on which a disease primarily depends, but even remedies its local ravages, it is certainly not unreasonable to suppose that art may be so applied as to imitate, or at least, to aid her labors. An accurate knowledge of the morbid condition which characterizes a disease ought, in every instance in which it is curable, to establish a foundation for a successful method of treating it. And until, in these cases, the latter follows the former, like effect from a cause, it will be more philosophical to consider that our views are erroneous or too limited, and to seek, by new modes of investigation, sounder results, than to suppose an evil beyond the reach of art to remedy, and thus allow ourselves to sink into the hopeless indifference of despair.

The treatment of consumption, whether under the daring energies of the empiric, or the suggestions of reason based upon recognized principles of pathology, has been so uniformly unsuccessful that, taking into view its spontaneous curability, it affords conclusive evidence it must be associated with error. Its melancholy results furnish a strong incentive, if they do not indeed imply an absolute duty, to review the whole subject in a light entirely different from that in which it has been accustomed to be looked at. Examined in this way, it will no doubt be discovered that many of the supposed facts and principles, upon which our knowledge of this complaint is founded, and deemed to be incontestible, are but hazardous conjectures. There can be as little doubt that a due attention bestowed on what is indisputable in consumption, will show not only that its pathology is incomplete, and that the deductions from it are erroneous, but that reasoning applied with the earnestness due to a subject so important and interesting, will point out the deficiencies. But in order to do this with a rational hope of attaining the great object of controlling consumption, it will be necessary to establish, on a certain basis, three conditions of the disease, viz; first, an accurate means of determining its existence; second, an indisputable pathology; and third, a means of treatment in strict conformity with its pathological principles. An examination of these three fundamental conditions of consumption will form subjects for three separate articles, which will be furnished for publication in this journal

Diagnosis. The first step in the consideration of any disease is to ascertain its precise diagnostic characters. This department of medical science is nowhere more useful than in its application to consumption, because there are a number of diseases simulating it, but arising from pathological causes so different as to require treatment of an opposite character. Chronic inflammation of the different tissues of which the lungs are composed is often accompanied with symptoms closely resembling those produced by tubercular disease; and the distinction between them becomes, by the ordinary means of diagnosis, very difficult—more especially after the tuberculous disease has existed for some time, and become complicated with inflammation. It is, therefore, an important desideratum to be able to determine the peculiarities or pathognomonic signs of these distinct diseases. A certain degree of perfection in identifying phthisis is indispensable to the reputation of any means which pretends to exert an influence over it; for the ordinary manner of setting aside the evidence of recoveries, under remedial agents, has been by denying the identity of the disease and tubercular consumption. And this summary but invidious mode of disposing of a difficulty has, hitherto, been sanctioned by the uncertainty attending the diagnosis of the disease, as well as by the vast preponderance of the testimony against the success of the same means when employed by others, than their introducers, in unequivocal cases of consumption. It is of still higher importance to be able to distinguish it in its early stages from the other diseases with which it is liable to be confounded, since, it is considered, that, if it is not exclusively in the commencement of the disease that we can hope to effect a cure, or even to arrest its progress, it is much more controllable in these stages under an appropriate treatment.

It is due to the progress of medical science as well as to the interests of society, that the diagnostic characteristics of tubercular consumption, in every stage, should be accurately determined. The enquiry into the subject has been much facilitated by the labors of Broussais, Abercromby and Laennec, subsequently confirmed by the minute and laborious investigations and researches of Louis, Andral, Clark, Williams, and a host of modern physicians. Notwithstanding this vast mass of labor it is still encumbered with contradictory facts, and results which are difficult to reconcile or explain in a satisfactory manner. In analysing the usual diagnostic symptoms and signs of phthisis we shall find that there is not one of the former which may not belong to a multitude of complaints, and scarcely a leading one of the latter which may not be absent. Indeed, it has been stated, instances have occurred in which tuberculous disease has proved fatal almost without any local or general symptoms, and

the most accurate observers have been deceived, even in the last stages of consumption, by the apparent absence of all physical signs.

The ambiguity and obscurity in which the diagnosis of this disease, particularly in its early stages, is involved, fully sanction a new attempt at its elucidation. In making this attempt, I am not without hopes of being able by a simple but natural means, in most cases by itself alone, and always by contrasting it with the nosological character and physical signs, to render its diagnosis so plain and distinct that no one who is competent to undertake the treatment of phthisis can mistake it. In conducting this enquiry, I shall avoid, as much as possible, and always, except to point out their general insufficiency, details of the symptoms and phenomena, which are commonly considered evidences of either phthisis or the diseases which admit of being identified with it. This I do, not that I think them valueless, but because they are to be found, accurately described, in almost every treatise on the subject. My observations will be strictly confined to a notice of those nosological points which contribute to illustrate the main subject of investigation, and which must be accurately decided upon in order to render the disease the aid our profession affords.

Nosological Symptoms. The value of general symptoms of disease consists in their affording an index to the causes from which they arise. If they were unerring, and consequently to be relied upon, they would afford a very simple process for arriving at a knowledge of the physiological or pathological conditions of diseased structures But though the progress of pathology, during the present century, has done much to explain the rationale of the general symptoms of disease, nosology furnishes but feeble agents in determining its precise nature In no disease is the imperfection of this department of medicine more apparent than in consumption; for no collection of symptoms has been ever able to define it, even in the loosest and most general acceptation of the term. The enumeration of phenomena never conforms invariably with the disease, nor are they always dependent on the same pathological cause. The whole train of symptoms, laid down as pathognomonic of phthisis, may occur as the result of a simple cause, such as a common cold, producing catarrh, pleurisy or peripneumonia, in the first instance, followed more particularly if improperly treated, with wasting, expectoration and hectic fever. How embarrassing this absence of precision, in a disease so destructive as consumption, must have been to the practitioner of past ages, when, under the sole guidance of nosology, it was of the highest consequence to identify the symptoms with the name given to the disease, and thereon found the treatment, must be apparent!

If we examine the general symptoms of phthisis, we shall find that they are common to a variety of diseases, in which there is not only an absence of tubercles, but in which there is neither disorganization of the lungs nor any material interruption of their functions.

Cough. "This symptom is generally the earliest indication of pulmonary irritation, and the first circumstance which excites the attention of the patient or his relatives." While, in general, among the most obvious and constant attendant throughout the whole progress of consumption, it is sometimes so slight as to be overlooked, and cases are on record, in which tubercles have proceeded to a fatal termination without its having ever occurred. That it does not uniformly depend on the pathological process of genuine consumption, every practitioner, as well as the public at large, very well knows. In truth, the diseased conditions in which it may arise are so numerous and various that it can hardly be considered a distinctive sign of any disease. Inflammation of the pulmonary mucous membrane gives rise to and renders it a prominent symptom of chronic bronchitis —a disease that, from its prevalence and fatality, is scarcely less a scourge than consumption itself—and hence, as it is different both in its nature and the tissue affected, and consequently requires a very different mode of treatment, it is important to distinguish it from the tuberculous cough. Gastric irritation is frequently attended with cough, not unlike that which accompanies the early stage of tuberculous disease, and as its cure depends on principles of treatment very different from that of the tubercular, it is obviously important that its distinctive characters should be known. Besides these more common sources of chronic cough, irritation of the liver and duodenum, and irritation of the uterus often give rise to a cough which may be confounded with that of consumption. For a description of the characteristics of the various kinds of coughs, so far as they are connected with a general history of the disease, I must refer the reader to systematic treatises on consumption, and particularly to the admirable one of Sir James Clark. It is sufficient for my purpose to state that the new diagnostic symptom I propose to introduce, will be sufficient to, negatively, recognize them as unconnected with tubercular phthisis.

Dyspnœa. This symptom, though never

wholly wanting in consumption, varies greatly in the degree of its intensity in different cases, and even in the same individual. Its presence will generally be found proportionate to the extent of the disease of the lungs and to the rapidity of its progress. Though commonly put down as a diagnostic symptom of phthisis, and certainly present when the disease exists to any extent, it so often and so obviously arises from other causes than tubercles, that little reliance can be placed on it as a distinguishing characteristic.

Expectoration. Few of the symptoms of phthisis have excited more attention than the matter excreated from the lungs, or have been considered of equal importance in distinguishing consumption from bronchial disease. But since morbid anatomy has shown that pus may exist in the simple affections of the larynx, trachea and bronchia, or may be an attendant on chronic pleurisy, or pulmonary abscess, it has also satisfied physicians of its inutility as a diagnostic. Whether, indeed, in correcting the error which formerly attached so much importance to this much labored diagnostic, physicians have not gone to an opposite extreme and deprived themselves of some advantages it is capable of affording, is a subject worthy of investigation. Animal chemistry has not done much to illustrate the nature of purulent discharges, or of tubercular deposites; but it is impossible to identify the melted down matter of tubercles with that bland and salutary fluid which is poured out on the surface of granulating sores, or even with that discharged from bronchial ulcers. It is not improbable that the cultivation of this science would show that tuberculous matter is essentially different from that fluid discharged from inflamed mucous surfaces; and, if so, might elevate discharges from the lungs to the important position in diagnosis they were formerly considered to possess. That there is a distinctive difference between pus and the matter of tubercles is apparent from their appearance; and Majendie expressly states that he had a pupil, who was able, by simple inspection of the globules to distinguish pus from the lung, the pleura, the peritoneum, and the cellular tissue with unerring accuracy. It is, however, possible for phthisis to run its course without expectoration, and it occasionally does so. From this circumstance, conjoined with its varying characters, and our inability, at present, to distinguish it from the matters discharged in other affections of the lungs, no pathologist places any reliance on it, either in a negative or positive sense, as a diagnostic symptom of phthisis.

Hæmoptysis. Among the consequences of the pathological condition of the lungs, accompanying the development of tuberculous disease, is a tendency to hæmoptysis. It is no doubt, occasionally, idiopathic, or at least totally unconnected with any previous disease of the lungs; but it is generally to be considered symptomatic of the existence of tubercles. Occurring in a large proportion of cases, and frequently in a very early stage of tuberculous disease, it is a diagnostic symptom of some importance. Being wholly absent, in many cases, it cannot be looked upon as an unerring characteristic of consumption.

Hectic Fever. Hectic fever is an invariable attendant on consumption; but as it is common to every disease in which there is local disorganization, or a process of destruction accompanied with chronic inflammation; and as it may be both considerable and conspicuous, while the tissue of the lungs is neither tuberculated, destroyed by ulceration nor otherwise diseased it cannot be looked upon as a nosological characteristic of phthisis.

Emaciation. This very prominent symptom forms a part of every nosological definition of consumption, and, generally, is so disproportioned to the other symptoms by which it is preceded or accompanied, that it is frequently the first that attracts the attention of the patient, while it exercises a great influence over his feelings. Its importance as a diagnostic sign is inconsiderable, because, like hectic fever, it is common to a large class of diseases; while in consumption, other symptoms of a more marked character to the eye of the physician, usually precede and accompany it.

Aphthæ. The difficulty of defining phthisis accurately, in any of its stages, by means of symptoms, led to the introduction of an aphthous state of the mouth as one of its characteristics. But, besides, that it is one of the last evils that appears in the long catalogue of maladies which form the nosological definition of phthisis, it cannot be regarded as a diagnostic, because it follows hectic from any cause, chronic bronchitis for instance, or dysentery, or from abscess in the liver or groin, psoas abscess, &c.

The view which I have taken of the assemblage of morbid phenomena, called by nosological authors symptoms of consumption, shows that they may arise from pathological causes so widely different, that they cannot often possess the precision for pointing out either tubercular phthisis, the several species of disease that stimulate it, or even to designate the whole as a class. In the few cases, even, in which their indications

might be regarded as unequivocal they would be of no value, because they must mark a stage of disease too far advanced in destructiveness to admit of being arrested by the art of medicine. The advance in the knowledge of pathology, by pointing out the variety of causes on which apparent consumption might depend, and the importance of recognizing them in the earliest stages of disease, called for diagnostic means more positive and particular, in their information, than general symptoms afford. Without these the practitioner must continue, as he had done through all time, to administer medicines, destitute of any certain principles for determining whether they may be beneficial or injurious to the particular variety of morbid action in his patient's lungs. In this difficulty, as applied to the disease before us, the science of medicine has received a powerful collatteral aid from what are called the physical signs of consumption

Physical Signs. These valuable diagnostic agents depend on the general laws of physics, and are explained on the same principles as other phenomena illustrated by natural philosophy; hence they stand on a broader and more intelligible basis than ordinary symptoms, and possess a great superiority as a channel through which to investigate disease. Their discovery introduced them to a rapid popularity; for, with many physicians, they immediately superceded the necessity of attending to the external symptoms of such diseases as phthisis. In this respect the value of their indications has been over-rated; for there are certain organic affections of the chest, which furnish nearly or quite the same physical signs, but in which the general and specific symptoms can be brought into service to indicate the difference. Thus, however inadequate mere nosological symptoms may be for fixing the character of consumption, they may render considerable aid to the physical signs in removing doubts on the subject. It is true that both conjoined are often very equivocal in characterising the first occurrence of pulmonary tubercle; yet, at this time, they may aid each other in affording very valuable information, if not in a positive at least in a negative point of view. If, for instance, they cannot give us positive assurance of the presence or absence of tuberculous disease, they may enable us to say that, if present, it exists in a very limited extent.

Respiratory Movements. In examining a patient the first of the physical signs we should notice is the state of the respiration. If, in the act of inspiration, we find the chest is unequally raised on both sides we may infer that there is disease, and that the side which is least raised is either exclusively diseased or the seat in which it is the most extensive But it is right, that tuberculous disease must occupy a considerable portion of the lungs to be capable of influencing to a perceptible degree the motions of the chest, and it, therefore, cannot be of any value in the stage in which it is most important to determine the presence of the disease.

Percussion The importance of this test of tubercular phthisis has been much exaggerated. In most cases it is of very little value in the early stage of the disease, as tubercles may exist even to a considerable extent, if the surrounding pulmonary tissue is healthy, without being detected by it. "The sound elicited by it may even be clearer than that over a more healthy portion of lung, which is the case when the pulmonary vesicles are dilated, as they often are, amid groups of small tubercles." Percussion, therefore, cannot be regarded as a very valuable diagnostic in the early stages of phthisis.

Auscultation. Of all the diagnostic agents of phthisis, auscultation is, at the present day, the one most generally relied upon. The indications to be obtained from it afford more valuable and precise information than those derived from either general symptoms, the respiratory movements or resonance of the thorax. But it is unfortunate that not even the ear, with or without the stethoscope, can give us satisfactory evidence of the presence of tubercles in their early stage, or of the nature of any malady in the chest previous to excavation. However capable of pointing out the extent of the ravages tubercles have produced, when it is too late to arrest their progress, it is insufficient to announce their presence with certainty while the disease can be regarded as curable. In many instances, though, perhaps, only in injudicious hands, it has been the cause of mischief; for by indicating sound lungs while the disease is in an incipient state it has too often inspired security till tubercles have attained a progress which has placed them beyond the reach of remedial measures. The powers of the stethoscope may, however, be enhanced, and made highly useful, by collateral circumstances and the exercise of a sound judgment; for by affording negative evidence of the absence of tubercles, and, either alone, or in conjunction with a careful observation of general symptoms, positive evidence of other morbid conditions of the lungs, information of great certainty and value may be obtained. Again, when all the usual symptoms of consumption exist, but the physician is unable to determine whether they are occasioned by chronic bronchitis or tubercular softening, the

skilful auscultator may rely on the evidence of the stethoscope with the greatest confidence. In other instances, as in distinguishing between chronic pleurisy, and the second stage of tubercles, or between fistulous opening into the pleura, and actual tubercular excavations, the necessity of disregarding all other indications, and employing the less ambiguous aid of the stethoscope is very obvious.

The value of physical signs has been lessened by the undue importance attached to them. The inventor of the most important of them, auscultation, deemed it fully adequate to determine the nature of any disease of the chest; and his followers and admirers have thought that when they have failed to obtain the success he claimed, as the result of a judicious use of the stethoscope, the fault has been in their observations, and not in the imperfection of the means. They have thus been led to rest satisfied with a feeble instrument, and simply urged to strive more earnestly to master its supposed powers. In this effort its value has been still further diminished; for in the endeavor to make its indications accurate for all stages of disease, it has occasioned such an enormous increase of the number, and such a minute and needless division of physical signs, as would require the observation of a life time to understand. This abuse of a valuable means of indicating disease has excited despair in many who have doubted their ability to master it, and ridicule from those, even, who place confidence in auscultation; while, seeing the difficulty or absurdity to which it has led, it has tended to repress attempts to discover new means of diagnosis.

If our previous observations are founded on truth, it is apparent that neither semeiology, nor physical signs, nor both conjoined, affords the practitioner of medicine, a certain means of distinguishing tubercular phthisis from other diseases of the lungs having the same constitutional characteristics. That there is this difficulty in discriminating affections of the chest, must be acknowledged by every physician who has been accustomed to treat these diseases. It is, therefore, highly desirable to obtain diagnostic agents more certain in the information which they afford, and through which we shall feel a confidence in employing the kind of curative process which we may deem the most appropriate to the morbid action we have to remove. Above all we need a means of recognizing phthisis not only in its advanced and incurable stages, but also in its early and obscure, but remedial stages. Fortunately, a portion of the diseased structures, which has heretofore been unnoticed as constituting a part of the disease, supplies this urgent want, while anatomy and physiology concur in explaining its mode of action.

The Sympathetic Nerve:—In every form of tuberculous disease this grand nerve is affected either in its structure or functions. In phthisis, the sensibility to pain in particular portions of the spinal region, induced by its deviation from ordinary healthy action, renders it the most sensible, as well as the most certain diagnostic of the disease. It forms a symptom of tuberculated disease of the lungs which is always present at the commencement, and continues uniformly throughout the disease. By a rigid and proper examination of it, the greater number, if not every case of tuberculous phthisis may be discovered, independently of the symptoms referable to the respiratory organs, or even in their absence, and often weeks, or occasionally months, before auscultation or percussion afford any evidence of an appreciable alteration of the pulmonary parenchyma. If there are any exceptions to its application, they must be of very rare occurrence, for I have never found it absent; and certainly they do not occur so often as to interfere with its establishment as a general law in phthisis. This simple sign is so sensible and accurate, that if it could be allowable to trust to a single means of diagnosis, when there are concurring ones, it would be found sufficient for all practical purposes.

The parts of the system primarily affected in the production of this symptom, are, no doubt, the nervous filaments distributed through the lungs, and connected with, and involving one or more ganglia of the grand sympathetic system. As disease of this nerve can scarcely exist without involving the ganglia of the spinal nerves, and the corresponding portion of the spinal marrow, the symptom is made manifest by pressure on the intervertebral spaces of the adjacent vertibrae. The tenderness thus induced is always seated in and around the part occupied by the particular ganglia with which the nerves of the diseased lung are connected. In phthisis, pressure on the intervertebral spaces between the last cervical and first dorsal vertebrae will indicate the seat of this sensibility. In the incipient stage, or during a suspended action of the disease, the tenderness of the spine, to an ordinary and superficial examination, will be slight, and confined to the seat of the ganglia; but if it has advanced to the second stage, or is in active progress, the pain will dart like an electric shock into the affected organ, and induce apparent spasm of the lung, and a suspension of the respiration. But if the pressure be

judiciously made, and its effects be carefully observed at the commencement of the formation of tubercles, the phenomena will be found, it is true much milder, but similar to, and even identical with, the signs accompanying their advanced stage of developement In some cases a very considerable force is necessary in making the requisite pressure. In the advanced stages of the disease, the sensibility of the spine is greater from its being diffused over a larger space, owing to the extension of the irritation, through the medium of the connecting and anastomosing nervous branches, to the spinal nerves, spinal marrow, and possibly to their membranes, and a slight pressure will give the most acute pain.

Contrary to the opinion of that able investigator of the living functions, Dr. Willson *Phillip*, who says, "he has found it impossible by depriving the lungs of their nervous power, or by any other cause operating on them, to produce the symptoms of spasmodic asthma," I have frequently observed that pressure on the first dorsal ganglia, in tubercular phthisis, is capable of producing a genuine, though temporary paroxysm of asthma. Excited sensibility of the sympathetic nerve, re-acting upon the diseased lungs, is, no doubt, the frequent, and perhaps the sole cause of the neuralgic pains which are so often a distressing accompaniment of phthisis. This is shown in the connection between the nerve and the seat of these pains, as well as in the methodus medendi employed; relief being afforded, in these painful paroxysms, by remedial means directed to the affected spine and ganglia.

Neither in pure chronic bronchitis, chronic laryngitis, chronic pleurisy, chronic pneumonia, or in any of the other complaints that simulate consumption, is sensibility of the spine ever found present as a necessary concomitant of the disease. Modern pathology has, however, shewn that these diseases exist very rarely in a simple state: and, it may be said, that chronic pleurisy, and, indeed all affections of the pleura, are always accompanied with more or less of tubercular developement.

It is proper to remark that nervous irritation of the ganglia, and sensibility of the spine may exist as an idiopathic and primary disease, and though affecting the functions of the lungs, may have no connection with organic disease of that organ.

Teale, in his treatise on neuralgia, was, I believe, the first to call the attention of physicians to diseases of the spinal marrow and their symptomatic manifestation in the muscular system and organs of the chest and abdomen; but, Dr. Sherwood, of New York, was the first to point out the converse relation between these structures, and to show the connection between tubercular disease and spinal sensibility. It would be desirable to show that the diagnostic view we have taken of the sensibility of the spine, in tubercular phthisis, is in strict conformity with anatomical and physiological facts. If this be established, the evidence of the diagnostic sign can neither be considered as based on a slight foundation, an accidental coincidence, nor a bold conjecture; for it must be founded on science, and the laws of the animal economy, and being so, its correctness cannot be disputed. There is certainly nothing in the origin, course, or distribution of the grand sympathetic nerve, which does not tend to support the probable connection between disease of the lungs and its manifestation in the spine. But the subject of the functions of the nerves is either so new, or involved in so great obscurity, that our view can derive little collateral support from physiology. Dissection can hardly afford direct evidence of any change which nervous ganglia, or the spinal marrow, undergoes from sympathetic irritation; and in its abscence we can only resort to conjecturel reasoning to elucidate the facts. The enquiry is rendered intricate, but not, on that account, the less interesting: from the lungs being supplied with nerves from two sources —the cerebro spinal system, through the medium of the pneumo-gastric nerve, and from the sympathetic system through the filaments from the ganglia—and from the circumstance, that the facts assign to them, particuiarly the latter, functions different from those adopted by physiologists. The absence of sensibility of the spine in affections of the mucous membranes, the sub-mucous cellular, or the pulmonic tissues of the lungs, would seem to indicate that the sympathetic nerve has no communication with, or agency in their functions. Its presence in tubercular disease, and obscurely, perhaps, in simple inflammatory affections of the serous membranes, is equally conclusive that it is distributed to the glandular and serous tissues and exerts a control over their functions.*

The power of the sympathetic nerve to transmit the impression of pain, and, as has been shown, to influence or even arrest the great function of the lungs, is an interesting physiological fact, because it tends to demonstrate that the automatic system of nerves, are nerves of sensation and motion. The assignment of the latter function to them is neither new nor of much importance,

* The doctor is here mistaken in supposing there is any obscurity in these symptoms in acute or inflammatory diseases of the serous membranes.—Ed.

as the dependance of the muscular action of the heart, stomach, and respiratory movements of the lungs, &c., on this system of nerves, is generally acknowledged. But the question whether the sympathetic nerve is capable of bestowing sensibility, is one on which physiologists are, at least, divided in opinion, if, indeed, they have not universally decided upon it in the negative. And it is probable that in a perfectly healthy state it is entirely devoid of this function. In the absence of direct evidence from experiment, the precise relation of this nerve to the whole system must, to a certain degree, remain conjectural; but I am unable to conceive of any nervous communication, which can convey the evidence of disorganization, and painful affections of the lungs and heart, to the spinal region, but the sympathetic nerve. That the transmission of the sense of pain from the lungs to the spine cannot be dependant upon the pneumo-gastric nerves is evident upon anatomical considerations; and hence, as these and the sympathetic are the only nerves of connexion with the lungs, its necessary dependance on the latter, for this evidence of nervous power, must be apparent. This, however, does not necessarily prove that the sympathetic nerve is, in its natural and healthy condition, a nerve of sensation. Lobstein has shown, with much reason, that there probably exists a relation between the sympathetic nerve and par-vagum, by which one may take on it the functions of the other. In this way the former may become, in diseased lungs, either from the stimulus of irritation, or from inability of the pneumo-gastric to perform its appropriate functions, a vicarious nerve of sensation. It is unfortunate that the subject has not received any elucidation from post-mortem examinations; though it is probable the indications of disease would be too obscure to admit of the detection of any morbid appearances. Such is the difficulty in which this part of the subject is involved that it is questionable whether even inflammation of the nerves and ganglia afford, after death, any evidences of disease; and it is therefore scarcely reasonable to suppose that mere irritation, or altered nervous function, should be productive of such appearances.

In conclusion I will remark that, while I place very great reliance upon the indications furnished by spinal sensibility, I must not be understood as proposing this simple means as an exclusive method of distinguishing phthisis from all other ailments. The tact which results from long experience may have imparted a facility in detecting this disease, through this symptom, which others may find some difficulty in attaining; but it is so uniformly present that a little care and attention will always enable the practitioner to find it. Viewed in its least favorable light, it presents an additional way to the discovery of the actual condition of organs affected with tuberculosis, of which the physician may avail himself to the saving of much labor in diagnosis, and which cannot be neglected without the risk of injury to the patient. But after bringing into requisition all the means of diagnosis above described, it will be found that attention to a minute history of the case, and a strict reasoning upon it, on the principle of induction, will be beneficial in supplying any deficiencies arising from the obscurity of external symptoms, the imperfections of physical signs, and the insufficiencies of pathological deductions, while they will determine any doubt as to the character of the spinal sensibility. In the incipient and obscure stages of this destructive disease no circumstance connected with the patient should be overlooked; his aspect should be noticed; his past health and occupations, the previous diseases and family predisposition should be ascertained; while the condition of the more important functions, independent of the respiratory organs, should be investigated. In the early stage of tuberculous disease it would be unwise to depend on any one local sign or symptom, but it will be necessary to examine it in relation to all the means by which it may be identified. By a careful analysis of the whole of them, and by availing ourselves also of the negative symptoms, as regards the other pulmonary diseases with which consumption is liable to be confounded, we shall not be liable to err in forming a correct diagnosis at a very early stage of phthisis. No pains in discharging this essential duty of the physician ought to be deemed unnecessary, for the important reason, already mentioned, that several diseases have so striking a resemblance that they are not easily distinguished from consumption, and for the still more important one that they arise from different morbid states, and consequently require a treatment that has no affinity with that which we have found not only the best, but a very efficient means of controlling phthisis.

Missions in Greenland.

From late English papers it appears, that on the ice-bound coast of Greenland, four Moravian settlements are made, to which are attached 26 missionaries; in a climate where the cold is often 50 degrees below the freezing point. These settlements now contain 1864 native converts to christianity, who gain chiefly from an icy and stormy sea the needful support of their families.

Dislocation of the Long Head of the Biceps.

By HENRY HANCOCK, Esq, Surgeon to Charing-Cross Hospital.

[There are probably few accidents so little noticed or understood as displacement of the tendons. The subject is scarcely mentioned in any of the numerous works on dislocations, although the consequence, when unreduced, is great inconvenience to the patient, and in the case of displacement of the tendon of the long head of the biceps, which happens more frequently than any other kind, the patient is deprived in a great degree of the use of the limb. Mr. John Soden, of Bath, in 1841, published a paper on the subject in the "Transactions of the Royal Medico-Chirurgical Society of London, giving details of two cases which he had the opportunity of dissecting, and this is the only detailed and satisfactory account we have of these cases. It is but rarely that the opportunity occurs of examining these injuries by dissection, but Mr. Soden availed himself of his opportunities, and the profession is indebted to him for a very good paper, which has dispersed the doubt and obscurity investing them. Magnetus, who died at Geneva in 1742, relates a case, and in the second edition of William Cowper's "Anatomy of Human Bodies," is a case which there is reason to think is a pirated version of that of Magnetus. Boerhaave observed that muscles often slip out of their places when their sheaths are so relaxed during violent efforts, as to offer little resistance, but he gives no cases. Lieutand in 1742 refers to displacement and injury of the tendons of the lumbar muscles; and Claude Ponteau in 1760 published a case which he describes as a displacement of one of the attachments of the splenius colli. Mr. Bromfield and Mr. Stanley each met with one case, and Mr. Gregory Smith met with two cases in his dissecting room, both in the same person This very vague and unsatisfactory account is all we had on the subject until the appearance of Mr. Soden's paper; indeed till then we knew very little of the matter.]

The principal signs of this accident are pain and tenderness in front of the joint, corresponding to the bicipital groove; acute pain in the course of the biceps when it is thrown into action, the pain being referred more particularly to its two extremities; the patient is unable to raise his hand to his head, or his arm beyond an acute angle from his body; the appearance of the shoulder is somewhat altered, the head of the humerus being drawn upwards, and more forward than natural, lying close beneath the acromion process, while the posterior and external part of the joint is somewhat flattened. When we consider how much in appearance these accidents resemble partial dislocations of the head of the humerus upward and forward, we can entertain but little doubt that they have frequently been mistaken for them.

In the treatment of these cases you have three principal objects in view:—to overcome the action of the capsular muscles, to reduce the tendon, and to keep the tendon in its groove when you have reduced it. Through the kindness of Mr. Bainbridge, Jr., I have been enabled to make some investigations on the dead subject, which may, perhaps, be of some service, as guiding us in the treatment of these cases. Assisted by this gentleman, I cut down upon and dislocated the long tendon of the biceps on to the lesser or inner tubercle. I first endeavoured to return it by flexing the forearm and relaxing the muscle, while I rotated the humerus strongly inward, but without success. I next straightened the arm, and holding it by the wrist, I rotated it inward as far as I could, and then with a sweep carried it across the chest, while, with my left hand on the deltoid muscle, I pressed the head of the bone downward and outward, and the tendon returned to its groove with a very evident snap. I next displaced the tendon on the outer or greater tubercle, when, by rotating the arm outward with my right hand, and drawing the head of the bone downward and outward with my left, I reduced it, but I found it was more easily restored to its proper position by taking hold of the wrist with my right hand, and placing my left in the axilla; with the latter I pressed the head of the bone gently outward, while with the former I supinated the hand and rotated the arm strongly outward, at the same time bringing it to the side of the body, my left hand serving as a fulcrum in the axilla. By this means the deltoid was put upon the stretch, and its anterior fibres, upon the insertion of which the biceps tendon lay, evidently assisted the latter into its groove. I next endeavoured to ascertain in what position of the arm the tendon would remain most securely in its proper place. Accordingly, I flexed the forearm, and placed the hand in the position of pronation across the chest, when the tendon became again displaced, as it did immediately the head of the humerus was rotated inward, although the forearm was extended; but when I extended the forearm, placed the hand supine, and separated the arm from the side, it remained properly in its place, being now bound down by the tendon of the pectoralis major. I am fully aware, in these experiments, that the

subject being dead I did not encounter that opposition from the capsular muscles which I should in all probability have met with in a living patient; but, making every allowance for this, I am still in hopes that what I have here endeavoured to explain to you, may serve to place the treatment of these accidents on some surer basis than mere conjecture, and that, henceforth, you may have some rule to guide you.

We have seen that the head of the humerus is drawn up against the acromion process, and that the greater tubercle striking against that process, when the arm is separated from the side, prevents its being raised beyond a very acute angle. I should advise you to adopt the following method, should you find the plan as recommended by Mr. Bromfield fail. I am not aware of any particular symptom by which we can be guided with any certainty as to when the tendon is dislocated inward, or when outward; but, as a result of my experiments, I should imagine that it is more frequently dislocated inward than outward, the inclination of the head of the humerus, and the greater projection of the large tubercle, being unfavorable to the latter displacement. Place your patient on a low chair, and let an assistant fix his scapula by pressing upon the superior angle and costa; then separate the patient's arm from his side, as far as you can; keep his hand in the prone position, and make extension downward and outward from the wrist, until you have somewhat withdrawn the head of the bone from the acromion process. Now let an assistant sit down on the floor, underneath the injured arm, and, clasping both his hands over the deltoid muscle, draw the head and neck of the bone downward and a little backward, while you rotate the head of the bone inward and backward in the glenoid cavity, by making the patient's arm describe a circle, carrying it backward, upward, forward and inward, across the chest. Should you have reason to suppose that the tendon is displaced outward, separate the arm as far as you can from the body, and let an assistant make extension in that direction best calculated to remove the head of the humerus from the acromial process, that is, downward and outward. Unless this be done, in either form of the dislocation the bicipital tendon remains pressed up by the head of the humerous against the acromial process, and is obviously prevented from returning into its natural position Next place your left hand well up in the axilla, and direct your assistant, while he keeps up the extension, to rotate the arm strongly outward, and at the same time to bring it to the patient's side. Having reduced it, gently separate the arm from the patient's side; keep it steadily rotated outward, and the hand supine; place a long splint which extends from the shoulder to the fingers, along the back of the arm and hand, and also a pad or compress in front, over the bicipital groove. Fix the whole with a roller evenly and carefully applied, and place your patient on his back in bed, where he had better remain until you consider that the parts have become sufficiently firm to prevent a recurrence of the accident.

The reason why I recommend you to separate the arm from the side after reduction, is, that by so doing you place the pectoralis major muscle upon the stretch, and consequently make its broad tendinous insertion press more closely and directly over the bicipital groove. In my experiments, the difficulty was not so great in reducing, as in keeping the tendon in its place when reduced, and certainly the plan which I am now advocating appeared both to Mr. Bainbridge and myself to be the most efficacious.—*Provincial Med. and Sur. Journal.*

Rupture of the Tendon of the Long Head of the Biceps.

By Henry Hancock, Esq., Surgeon to Charing-Cross Hospital.

This accident may be occasioned by falling upon the arm, by violent twists of the limbs, without external violence referred to the part, or by the sudden and violent extension of the limb, as when we put out our arms to save ourselves in falling. The patient experiences at the moment a sensation of snapping in the shoulder, soon succeeded by inability to raise the hand to the head; acute pain is caused by even slight pressure in the course of the bicipital groove, or lower down, on the muscle itself; the latter becomes flabby, and the movement of the arm backwards and forwards produces acute suffering, mostly referred to the situation of the biceps, where it passes over the head of the humerus.

Treatment.—Your object in these cases should be to approximate the two portions of the tendon, to obtain union if possible, or otherwise to favor the attachment of the lower portion to the head of the humerus, as Mr. Stanley has pointed out. To do this effectually, place the hand in the semi-supine position, that is with the thumb upwards, making your patient grasp the opposite shoulder; thus you effectually relax the biceps muscle, as you will at once perceive, upon recollecting that the biceps is inserted

into the back of the tubercle of the radius, and that the first action of the muscle, when the hand is prone, is to render it supine before it can effect flexion of the elbow. Now apply a roller carefully, beginning from below, carrying it up to the axilla, and fixing a compress over the course of the biceps tendon, by which means you will keep the muscle quiet and prevent spasms; and lastly, secure the arm in this position by bandages.

[Mr. Earle's and Mr. Chapman's apparatus for injuries about the shoulder, though well adapted for the purpose intended, are very complicated and consequently expensive Mr. Hancock has invented a modification of Mr Earle's, which combines simplicity with cheapness, and can be made in less than half an hour.]

It consists of a long sleeve, made either of old sheeting or bed-ticking, which should be long enough to extend from the middle of the humerus to about three inches beyond the patient's fingers, and having, consequently, what (for the purpose of description) I shall call a humeral and a digital extremity, and also a hole corresponding to the olecranon to allow that process to project through. The digital extremity terminates in a *cul de sac*, or, in other words, is sewn up, and to it is attached a bandage three inches wide, made either of the same material as the sleeve, or of strong webbing, which is firmer and consequently better. This bandage should be at least three yards long, but you must be guided as to its length by the corpulence and size of your patient. To the posterior and external margin of the humeral extremity of the sleeve is attached another strap, from three quarters to a yard long, of the same width, and made of the same material. A pad for the axilla, made with bran, with a tape to pass round the patient's neck, completes the apparatus.

I will now show you the manner in which it is to be applied; we will suppose that you have a fracture of the acromion process or of the neck of the scapula; in the former, as I have already told you, you should not place a pad in the axilla. In the latter you must not only use a pad for the axilla, but also one between the elbow and the side, or one which, extending from the axilla to the elbow, will answer the purpose of both. I first put the sleeve on the injured arm, with the elbow projecting through the opening made for that purpose, and then, bending the forearm, place it horizontally across his chest. I carry the bandage from the digital end of the sleeve under the opposite arm, obliquely across the back, from below upwards over the front of the injured shoulder, without pressing upon the acromion process, under the opposite arm round the back under the elbow of the injured side, and pin the end to the band crossing the breast. I now carry the strap from the humeral end of the sleeve upwards across the back towards the opposite shoulder, and pin it up to the oblique band, by which the head of the bone is drawn upwards and backwards and completely supported against the acromiom process. Should the case be one of rupture of the bicipital tendon or fracture of the coracoid process, you employ the axillary pad, and apply the apparatus as follows:—Having put the patient's arm in the sleeve, you rest his hand on the shoulder of the opposite side, and carry the long bandage obliquely across the back, over the elbow of the injured side, round the waist as often as it will go; pin it there, and support the elbow by carrying the short strap over to the sound shoulder and fasten it to the bandage encircling the waist.

You will observe that this apparatus is free from the objection urged by Mr. Chapman against that invented by Mr. Earle, as it leaves the motions of the sound shoulder entirely free and unimpeded, and the seat of injury uncovered, enabling you to watch the state of parts, without the necessity of disturbing the apparatus —*Prov. Med. and Sur. Journal.*

Reduction of Dislocation of the Scapula.

By JONATHAN TOOGOOD, Esq., M. D., Bridgewater.

Dr. Toogood has published the following plan of fixing the scapula:—"Having seated the patient on a low chair or stool, firmly secured the body, and fixed the pulley, he stands over him, and places the heel of his right hand on the acromion process, bearing his whole weight on his hand."

By this method the scapula is rendered fixed and immoveable, extension is made and reduction quickly follows. A patient, a tall and remarkably muscular man, about forty, had his right shoulder dislocated, and the united strength of one physician, four surgeons, and sixteen assistants were required to reduce it; he again met with the same accident, but on the left side, when Dr. Toogood reduced it in two minutes by his method of fixing the scapula.—*Ibid.*

On the Cure of Hydrocele Encysted Tumours, and Fistula in Ano, without Operation.

By Dr. Alfred A. Harvey, Bristol.

[Dr Harvey has for thirty years successfully employed the following treatment in hydrocele, obtaining a radical cure without injection: his mode is as follows:—]

First, discharge the fluid with a trocar, or pocket lancet, and then apply a warm vinegar poultice all over the scrotum, in order to bring on inflammation, which generally takes place in a few hours, and becomes painful. When sufficient inflammation has been excited, remove the vinegar poultice, and apply a bread-and-milk poultice. In a short time, the pain and inflammation generally subside, and the cure is completed. Give a few smart doses of purgative medicine. Dr. Harvey adds the subjoined:—

"*Cure for Encysted Tumours*, or Wens of the Head, or other parts of the body, without cutting them out."—First, make a longitudinal cut along the scalp. This is performed with little loss of blood Next press out the contents of the cyst, and apply, freely, alcohol in the cavity, with a camel's hair brush. Then place in the cavity, also, from two to six grains of nitrate of silver, and bring the edges together with strappings, when inflammation takes place. Should it inflame too much, apply cold-water dressings, and give a few doses of active purgative medicine. This plan has ever been found to complete the cure in a few days.

Fistula in Ano (blind external) can often be cured without cutting, by injecting alcohol the whole length of the sinus, three or four times a day, until it brings on inflammation; when that takes place, the cure is generally completed in a short time. In full habits, bleeding by the arm should be practised, if required, and the bowels opened pretty freely, before the alcohol is injected. Should the inflammation become too severe, it should be regulated by poultice or cold-water dressings, and low diet should be strictly attended to.—*Lancet.*

New Method of Introducing the Catheter.

M. Maisonneuve read a memoir upon a new method of introducing the catheter, even in the most difficult cases. He preceded his description by pointing out the difficulties and dangers in many cases of introducing the catheter, and he described the various methods of its introduction, which, as they are known to the profession, we need not here enumerate. He described his method as follows: He first introduces into he urethra a very fine gum-elastic bougie, of size No. 1 or 2, and he then slides down upon this bougie a sound, open at both extremities, and proportioned to the calibre of the canal; the introduction of the sound is facilitated by means of a thread of silk or metal, which is fixed to the external extremity of the bougie. Having previously passed it into the canal of the sound, it suffices to push gently the sound upon the conducting bougie, first stretching the thread so that it may glide easily, and without causing pain, into the bladder. M. Maisonneuve says that in all cases where he has tried this method, he has succeeded, though many of them were serious, and all attempts to introduce the catheter by the ordinary methods had failed; and from his experience he draws the following conclusions:

1. The introduction of the catheter by means of the conducting bougie is the most easy and the most certain method known. 2. It succeeds perfectly where the ordinary methods are applicable. 3 It succeeds also where the ordinary methods fail. 4 It guards securely against painful explorations (tatonnemens douloureux), lacerations of the canal, false passages, &c. 5. It requires no particular dexterity, and can be used by the most unskilful. 6. It renders useless the "arsenal" of instruments recommended to overcome different obstacles, and requires the employment of the ordinary instruments only.—*Lancet, March* 1, 1845.

This method of passing the catheter Mr. Barrington states to have been known and practised in the Dublin Hospitals so far back as five years ago, when Dr. Hutton, of the Richmond Hospital, employed it. The mode there adopted is perhaps preferable to that of M. Maisonneuve.

A fine catgut bougie, eighteen or twenty inches long, was first passed within the stricture; a gum-elastic catheter, open at both ends, was then passed upon the catgut down to, and, by proper management, unerringly through the stricture. The difference, then, consists in employing catgut of such a length that enough may remain external to the urethra to be passed through the canal of the catheter with facility, rendering the use of string of any kind unnecessary.

Lancet, March 15, 1845.

Creosote in Nævus Maternus.—Dr Thornton informs us that of all the applications he has tried against nævus, the most effectual is creosote. He had treated three cases in the course of the year successfully with this substance. It is applied two or three times daily, more or less diluted. Excoriation, ulceration, and gradual disappearance of the nævus ensues; the cicatrix had always been smooth and sound.—*N. J. M., Dec.*, 1844.

SWEDENBORG'S ANIMAL KINGDOM.

Introductory Remarks by the Translator,

JAMES JOHN GARTH WILKINSON,
Member of the Royal College of Surgeons of London.

[*Continued from page* 168.]

If the reader can once succeed in apprehending it, there will be no danger of his letting it go again even among the perilous quicksands of modern experience. It is one of those truths that rest upon the facts within the range of the most ordinary observation, and require but little anatomical investigation to confirm and demonstrate them. It is visible in its ultimate effects during every action that we perform, and at every moment of our lives. Perhaps there is nothing in the history of physical science that is more illustrative of the native ignorance of the mind, or that better shews how far we have departed from the simplicity of nature, than the manner in which this grand office of the lungs has been overlooked; particularly when coupled with the fact, that it should have required a great and peculiarly *instructed* genius, by an elaborate process, to *place* it once again under our mental vision. But nature is simple and easy; it is man that is difficult and perplexed. Not only in the lungs, but in the whole body, the primary office is disregarded, and the secondary substituted for it. It has been supposed that the lungs inspire simply to communicate certain elements of the air to the blood; and expire for no other end than to throw out by means of the returning air certain impurities from the blood. Under this view, their motion is only of use for other things, or instrumentally, and not as a thing in itself, or principally.

And yet it is not confined to the sphere in which these secondary offices of the lungs are performed, but pervades the abdomen as sensibly as the chest, and according to the shewing of the experimentalists, extends also to the heart, the spinal marrow, and the head. It was therefore incumbent on the physiologist to shew what its function was in all the regions where it was present, and to declare its action as a universal cause, as well as its action as a particular cause. Now the motion itself which the lungs originate, is their grand product to the system: the inspiration and expiration of the air are but one part of its necessary accompaniments, being performed in the chest alone. Granting that the inspiration and expiration of the air are the particular use of this motion in the chest, what then is the use of the rising and falling which the lungs communicate to the abdomen, the heart, the spinal marrow, and the brain?—What office, analogous to respiration, does the motion of these parts communicate to the organs? It manifestly causes them all to respire, or to attract the various materials of their uses, as the lungs attract the air. For respiration is predicable of the whole system, as well as nutrition: otherwise the head would not be the head of the chest, nor the abdomen the abdomen of the chest; but the human body would be as disconnected, and as easily dissipated, as the systems that have been formed respecting it. The universal use, therefore, of the respiratory motion to the body, is, to rouse every organ to the performance of its functions by an external tractive force exerted upon its common membranes; and by causing the gentle expansion of the whole mass, to enable the organ, according to its particular fabric, situation, and connexion, to respire or attract such blood or fluid, and in such quantity, as its uses and wants require, and only such. Each organ, however, expands or contracts differently, according to the predicates just mentioned; the intestines, for instance, from articulation to articulation, to and fro; the kidneys, from their circumference to their sinuosity or hilus, and vice versa, the neighborhood of their pelvis being their most quiet station and centre of motion: and so forth. In a word, the expansion as a force assumes the whole form of the structure of each organ. In all cases the motion is synchronous in times and moments with the respiration of the lungs. The fluids in the organs follow the path of the expansion and contraction, and tend to the centre of motion, from which these motions begin, to which they return, and in which they terminate. The lungs, however, only supply the external moving life of the body; but were it not for them, the whole organism would simply exist in potency, or more properly speaking, would cease to be; or were it permeated by the blood of the heart,—a condition which can by no means be granted,—the latter would rule uncontrolled in all the members, subjugate their individualities, and not excite them to exercise any of the peculiar forces of which they are the forms. In a word, the whole man would be permanently in the fœtal state, for ever inchoate and ineffective.

It need not surprise the members of the New Church that no writer before or since the time of Swedenborg should have seen the primary function of the lungs in the human body. For it is shewn in those won-

derful theological treatises with which they are familiar, that the heart and lungs of the natural body correspond to the will and understanding of the spiritual man; and as the understanding or rational mind has hitherto brought out none of those truths which enable man spiritually to live, nor been an external cause co-operating with the Word as an internal cause in the work of regeneration, so it had in itself no ground from which to recognise the necessity of the above function in the human frame; but its lower chambers alone being opened, took cognizance only of the lower and relatively passive offices of its bodily correspondent, the lungs. Unwittingly it yielded up the sceptre of the body to the heart, and here again obeyed the law of correspondence. But the truth is that the lungs mediate between the brain and the body, precisely as the rational mind of man is intended to mediate between heaven and earth.

The brain supplies the body and the blood with life, and its functions in this respect combine nutrition, circulation, and respiration. It respires the ethers of the world, it nourishes its life with ethereal chyle, and it circulates the animal spirit elaborated therefrom through the corporeal system. It may be regarded as a unity which involves in principle and idea all the varieties that are manifested in the two inferior regions of the thorax and abdomen. Its cortical substances involve the functions of both the heart and lungs, because they are in the degree above both. They are so many corcula propelling the animal spirit through the medullary fibres and nervous system, and so many pulmuncula performing an animatory motion synchronous with the respiratory motion of the lungs, although not dependent upon it, but automatic or self-derived, and which indeed generates the motion of the lungs, as the end generates the cause, or the cause the effect. The ethereal medium that they respire they derive principally through what are termed by Swedenborg the corporeal fibres, which originate in the skin, and run back from the last boundaries of the body to the first in the brain. Now the physiologists have never discovered the animation of the brain, because they have never seen the respiration of the lungs in its primary light. Had they done this, it would have been evident that the respiratory motion exercises a traction upon the sheaths of all the great nerves, and expands them, and that this traction is the external cause of a nervous circulation; for were there no fluid to respond to the force, there would be a tendency to a vacuum in these most impressible organs, and their parts would be strained, or drawn asunder. But if there be a real circulation in the nervous system, it must have centres that propel it, and times and moments in which it is performed. We have already seen that in this case the fluid is externally drawn forth by the attraction of the lungs, consequently in the times of the respirations, and hence it must be drawn in by the brains in the same times; in short the animations of the brains must be synchronous with the respirations of the lungs. Hence it is that the brain supplies the body with internal motive force at the same instants as do the lungs with external; the heart only maintaining the organs in a state of potency and supplying what they demand by the influx of this compound attractive force operating according to their various fabrics.

It must not be inferred that a truth of such paramount importance in physiology as the animation of the brain, rests upon the slight chain of reasoning attempted above. No; its attestation is as general as the truth itself is universal. But since Swedenborg has taken the proof of it upon his own Atlantean shoulders, the reader is referred to his treatise* on the subject for further corroborations. But it may be useful to indicate, that the doctrine is in no way shaken by the existence of the pulsatile movement so readily felt in young children, nor yet of that other movement, alternate and not synchronous with the respirations, which has been observed by some experimentalists. The truth is that all the three movements proceed uninterrupted by each other; and that the alternate movement, which is referable to the blood rushing out by the veins during inspiration, is what chiefly masks the synchronous movement, which is automatic, or referrable to the brain itself.

There is no part of Swedenborg's system which is better worthy of attention than the doctrine of the skin. As the skin is the continent and ultimate of the whole system, so all the forms, forces and uses of the interior parts coexist within it. Moreover as it is the extreme of the body, and the contact of extremes, or circulation, is a perpetual law of nature, so from the skin a return is made to the other extreme, namely, to the cortical substances of the brain. Hence the first function of the skin is, "to serve as a new source of fibres." For the fibres of one extreme, to wit, the brain, also called by Swedenborg the fibres of the soul, could not of themselves complete the formation of the body, but could only supply its active grounds; and therefore these fibres proceed

* Economy of the Animal Kingdom, tr. ii., 1–68.

outwards to the skin, which is the most general sensorial expanse of the brain, and there generate the papillæ; and again emerging from the papillæ, and convoluted into a minute canal or pore, they take a new nature and name from their new beginning, and become the corporeal fibres, or the fibres of the body, which proceed from without inwards to the brain, and unite themselves to its cortical substances. These are the passives of which the nervous fibres are the actives; the veins or female forces of which the nervous fibres are the arteries or males; and "they suck in the purer elemental food from the air and ether, convey it to their terminations, and expend it upon the uses of life."

Besides this, the skin has a series of other functions which there is not space to dwell upon at present. Inasmuch as it is the most general covering of the body, therefore it communicates by a wonderful continuity with all the particular coverings of the viscera and organs, and of their parts, and parts of parts. And as it communicates with all by continuity of structure, so it also communicates by continuity of function; the whole body being therefore one grand sensorium of the sense of touch. In short, the animal spirit is the most universal and singular essence of the body and all its parts; the skin, the most general and particular form corresponding to that essence.

Having thus bestowed a cursory glance upon some points of Swedenborg's doctrine of the three spheres of the body, and their most general and particular continent, the skin, we shall now enlarge a little on certain subjects that have already been mentioned, in order to give them a more distinct place in the reader's apprehension. And first with respect to the circulation. It is clear that in assigning its due weight to the primary function of the lungs, we obtain a law which enables us to limit the functions of the heart and arteries; and the result is, that the heart and aorta simply propel the blood to the mouths of the arteries leading into the viscera, and the viscera themselves attract it thenceforth, and dominate over the circulation of their own vessels, commanding it to take place in the times of the respirations, and not in the times of the pulses of the heart. As one means to this end, the vessels which supply the organs, generally come off at right angles from the great artery.

But there is another branch of this subject which is worthy of attention. The circulation in the great vessels is comparatively inordinate or confused, because in them the blood is all mingled together in a heterogeneous mass, and propelled onwards by an external force; but the circulation in the capillaries is most orderly and distinct, being an automatic movement performed by the single globules of the blood, in vessels which correspond to them individually, and where they are perfectly at home. If a comparison be permitted, they constitute a medley crowd in the heart and aorta, but march separately, man by man, in the capillaries. Hence the blood in its mass can but imperfectly manifest its living endowments, but when sundered into its individualities or leasts, it distinctly exercises its dynamic nature, and flows spontaneously; for it is a spiral and circular force and tends therefore to a spiral gyration, or to circulation. Indeed in a universal sense, the leasts of the blood are the causes of the heart's action, and the grounds of the whole sanguineous movement; although speaking in generals, the heart, and the lungs acting on the viscera, are the joint causes of this effect.

The blood is the product of the whole organic system. The brain and lungs give it soul and spirit; the abdominal viscera, by means of the food, supply it with body or embodiment; wherefore each globule is an image of man inasmuch as it has both a soul and a body. Every viscus contributes a distinct share to its generation and regeneration. The animal spirit is its organizing principle. The blood consists, in the language of Swedenborg, of mere simples; that is to say, it contains the primal unities of all the series in the body, and being readily resolvable into each, can give origin and seed to all its possible compounds, whether they be solids or fluids: Nothing exists in the body that did not pre-exist in the blood. As it is distinctly compounded of a triple order of substances, so during each round of the circulation it is distinctly decompounded or resolved into each. Its spirit, spirituous lymph, and bodily portion are sundered as often as it circulates; the former is claimed by the cortical substances of the brain; the lymph is rendered back to the blood in a circle by the lymphatics; and the embodiment, by the veins. The reason why it undergoes this resolution is, that thereby, when its simples are disengaged, it gives birth to all the vital fluids, and renovates all the solids; and moreover submits itself to perpetual purification, self-examination, or lustration. Those portions of it which are no longer of use are thrown out of the system by various excretions, the loss thus occasioned producing that sense in the little veins all over the body, which in the aggregate we term hunger and thirst. The blood of the jugular veins which has been de-spiritualed in the

brain, is vivified afresh in the lateral sinuses, by a spirituous lymph sent forth from the pituitary gland, which is the conglobate gland of the cerebrum. Thus the effete spirit of the brain unites with its effete blood, and both together serve as menstruum, medium, or saliva for introducing the new chyle into the sanguineous system. It is for this reason that the thoracic duct is inserted at or near the bottom of the jugular vein. But the circulation of the blood, although it may be considered by itself, yet like all things in the body, is but a part of a more universal order, termed by our author the circle of life; and which involves in one the circulation of both the blood and the spirits.

All the fluids of the body institute circulations after the image of the circulation of the blood. Such may be readily seen to be the case with respect to the saliva, the bile, the fat, &c., &c.

The circulation of the animal spirits, supplied to the brain through the corporeal fibres from the ethereal media of the universe, as well as by the blood of the carotid arteries, and elaborated in the cortical substances, is not a simple circle, like that of the blood, but a transcendent circle, leaping from series to series, omnipresent in all things and conjoining all. For the spirit is propelled by the cortical substances or "corcula cerebri" through the medullary and nervous fibres; by the nervous fibres into the arteries, where it is inserted into the globules of the blood, and constitutes their life and soul; and it is carried back in the bloodby the carotid arteries to the same cortical substances, there to be purified, conjoined with fresh spirit, and begin its circle anew. The animation of the brain is the first moving cause of the circulation of the spirits; the respiration of the lungs the secondary or corporeal cause, which operates by a general traction upon the external membranes of all the organs, vessels, and fibres of the body. For the brains give the universal or most internal life of the body, and in this respect. as propulsive causes, represent the capillaries or distinct corcula of the nervous circulation; the lungs, the general, or most external life, and represent the one heart of the same.

The above doctrine may conveniently suggest the idea, that points of analogy are not points of sameness or identy, but in reality, of harmonic difference. The circulation of the blood is one thing, and images that of the spirits; but notwithstanding, the circulation of the spirits is quite another. Each fluid has its own peculiarities, and its circle is applicable only to its own sphere. It is an abuse of analogy if we use it to destroy and not to reconcile differences; and if so abused, it becomes a childish and paltry instrument, totally inadequate to guide the mind through the labyrinths of nature. To revert to the present case, it has been attempted to be shown, that the circulation of the animal spirits is a simple circle, precisely like that of the blood. But for the purposes of analysis, it ought to be paralleled with what is higher than itself, and not with what is lower. Let us take as illustrative the grand circle involved in generation; for "all things that involve an end constitute a circle." In this example, the male and female conspire to generate a new being; the male fluid is propelled out of the body into the body of the female, or from one series into another; here it is developed or embodied, and is again propelled from the maternal series into that of the external universe; afterwards it is developed inwards from the body to the mind, and when its circles of education and information are completed, it returns as a member of that society from which it proceeded, to commune with the principles that gave it origin in the parents, to amplify their sphere, and enlarge their amount of social life. The circulation of the spirits is more like this of generation, than like that of the blood; for being a universal it belongs to the sphere of universals, and is but poorly imaged in particulars, which are, indeed, but portions of itself.

We have already treated of the limits of the circulation considered as proceeding from the heart, and have had occasion to hint at the attraction exercised by the several organs. The truth is, that the latter demand different and varying quantities and qualities of blood at different times, according to their different states as determined by and determining the state of the body; and that the heart and aorta, as a propulsive power, can have no share in apportioning these. Hence an attractive force is given to the viscera themselves, whereby all the commodities in the body are placed at their disposal; or as Swedenborg says, "they are enabled to summon what they require, from the universal mass of the blood." For each organ, and each part and particle of each, is an individual member of a perfect society, possessing the form of a stupendous rationality whereby to discern its wants, and of an equal liberty to enable it to supply those wants from the community, on the condition of reciprocation of use: not the smallest intrusion upon its individuality by the common powers is permitted for a moment; for should this take place, disease is the inevitable consequence. But let it not

be imagined that the attraction exerted by the organs is of a violent character, or that that their movements are other than gentle and tranquil. It is unnecessary that such should be the case; inasmuch as there is always a propulsion or incitation corresponding to the attraction or invitation, so that what the organ demands is immediately supplied. For when the unities or leasts of an organ expand to draw in their blood, their vessels contract to propel it; and by virtue of the simultaneous expansion of the unities and contraction of the vessels, the size of the organ is scarcely altered, and its motion is almost imperceptible.

The motions of the organs of the body are an important subject in Swedenborg's theory; occasionally seen in glimpses by many writers, among whom may be instanced our own philosophic Glisson,* yet not recognized by them as a necessary law. It has been remarked before, that the lungs and the brains give each organ a universal motion, at once internal and external. But it would be an error to suppose, because the motion communicated is one and the same, that therefore it is not received and appropriated differently, in other words, modified, by the organs themselves. So truly is this the case, that the motion takes place in every instance in accordance with the geometrical form of the organ, as made up of lesser and least parts, and these forming axes, diameters, and circumferences, general, specific, particular, and singular. Always indeed it is expansion and constriction, these being nature's own motions, and pervading the universe, elemental, material, and organic. Nevertheless it is an expansion and constriction proceeding according to the form of the organ. As a general rule, the most fixed point of every organ is its centre of motion, from which its expansion and constriction begins, to which it returns, and in which it terminates. For each organ is an individual, made up of an infinity of lesser individuals, whereof one and all live their own lives, exercise their own forces, and perform their own actions, and only rely upon the general system for supplies, which they can convert to use in their own way, and according to their own essence: and this, no matter whether the supplies be supplies of blood and fluids, or supplies of motion. The material always comes from without, but the disposal of it from within. These motions convert the organs from powers into forces; so that it may be stated as a law, that the heart and the blood generate the body; but that the brain and the lungs make use of it, and wield it as an instrument of action. As a rude illustration of this, we may instance the case of human machines The fabrication of a steam engine by artificers in the workshop is one thing, and analogous to the formation of the body by the blood, the vessels, and the heart; but to make use of the same engine requires altogether a different series of powers,—fire, water, steam, and a new order of workmen, analogous to the brain, the lungs, and their motions.

As motion is a necessary condition of actual life in the whole body, and all its organs and their parts, so likewise is sensation. For without sensation the organs would not be able to exercise their attractions and repulsions with benefit either to themselves or the system. The cerebrum is our general sensorium, in which we are conscious of all the impressions that rise from the external sensoria, of sight, hearing, smell, taste, and touch; which sensoria occupy the circumference of the body: but the cerebellum takes cognizance, apart from our consciousness, of all the impressions that are made in the interiors of the body; namely, of every contact,* in general and in particular, between the solids and the fluids. Therefore the cerebellum is aware of the whole state of the kingdom of the body in its minutest details, and disposes and governs it agreeably to the ends for which corporeal life is instituted. Now the human frame, unlike that of other animals, is co ordinate with the *whole* external universe; it is an organization correlated and responsive to the entire series of the natural creation. The brain is a form of the elemental kingdom; the lungs, of the atmospheric world; and the abdomen, of the terraqueous globe. Nothing less than this can be the case, inasmuch as the body descends from the highest sphere to the lowest, and, by the heart and its vessels, reascends from the lowest to the highest, and thus doubly draws with it the order of the universe. Each degree of the body involves a sensation of its external co-ordinate. Of the external senses specifically, sight is co-ordinate with the ether, and apprehends its modifications; hearing, with the air, and perceives its vibrations; smell, with the effluvia of matter; taste, with the essences of body; and touch, with body

* Glisson is well worth consulting on the motion of the liver; see his "Anatomia Hepatis," pp. 62, 63, 67, 68, 69; 12mo., Amsterdam, 1659.

* It is suggested to the medical reader to consider, whether Swedenborg's theory, that the sense of touch, and its organism and accidents, pervade every particle of the body, lends any support to the remarkable view taken by Hahnemann, that seven-eighths of the chronic maladies afflicting the human frame are forms of psora, and that *all* such maladies are referable in some sense to three types of skin disease.

in its ultimate or concrete form. The first two senses therefore are atmospheric senses; the latter, material, and may be fitly regarded as different forms of touch. There are then three grand genera of touch. The first genus prevails all over the circumference, and constitutes touch proper: the second prevails in the innermost parts of the body, beginning from the tongue; namely, in the æsophagus, the stomach, the intestines, and all the viscera of the abdomen, and at the threshold of this series is called taste: the third genus prevails likewise in the innermost parts of the body, but beginning from the nares; namely, in the trachea, the larynx, and the lungs, or in the viscera of the thorax, and at the entrance to these is called smell. The sense of taste again is divided into as many species as there are viscera of the abdomen, and these species into as many particular differences as there are unities in each viscus. "From the variety of the particular sensations of one viscus, a common sensation arises; and from the variety of sensations of many viscera, a still more common sensation arises. And from all and each of these sensations conveyed by the fibres to the cerebellum, the soul, by means of this sense, here apperceives specifically the states of chylification, sanguification, and purification; in a word, of nutrition; and according to the perception, disposes those viscera to the conservation of the whole and the parts, which is the effect and use that this sense produces." The villi on the internal surfaces of the abdominal organs are the papillary sensoria of the above sense.

Digestion of Saccharine and Amylaceous Matters.

M. MIALHE has recently made numerous researches with reference to the physiology of digestion. The essential basis of the alimentation of animals, he states, is constituted by three distinct groups of bodies: albuminous, fatty, and saccharine matters. The labors of modern chemists have shown that albuminous substances become assimilatable through the assistance of the gastric juice, which, by its acid, swells these azotized products, and by its *pepsin* liquefies them, a phenomenon analogous to that of diastasis on amidon. Fatty matter becomes assimilatable by the intervention of bile, but with regard to feculaceous and saccharine matter, says M. Mialhe, there is nothing positive known. This lacuna in science he has endeavored to fill.

The new facts at which M. Mialhe has arrived, tend to show that all hydro-carbonaceous substances can only undergo the phenomenon of assimilation when they have been decomposed by the weak alkaline dissolutions contained in the vital humors; either immediately, as with glucose, dextrine, sugar of milk; or mediately, as with cane-sugar and amidon, which have to be first transformed in the economy, the one (cane-sugar) into glucose, the other into dextrine or glucose. As to hydro-carbonaceous substances, which are neither susceptible of fermentation nor of decomposition by weak acids, or alkalies in solution, such as lignite or mannite, they escape, in man, the digestive and assimilating action. But by what chemical action is the amidon transformed into dextrine and glucose? Numerous experiments have proved to M. MIALHE that this transformation is produced by the saliva, through a principle which this humor contains, a principle comparable, in every respect, to *diastasis*. In order to isolate it, human saliva, first filtered, is treated by five or six times its weight of alcohol, alcohol being added until precipitation ceases. The *animal diastasis* is deposited in white flakes. It is gathered on a filter, from which it is taken still moist, and dried in layers on glass, by a current of warm air, at a temperature of from 40 to 50 degrees (centig r;) it is preserved in a well-stoppered bottle. This active principle of the saliva is solid, white, or of a greyish white, amorphous, insoluble in alcohol, soluble in water and weak alcohol. The aqueous solution is insipid, neutral; the subacetate of lead does not give rise to a precipitate. Abandoned to itself, it soon becomes acid, and whether or not in contact with the air. This *animal diastasis*, studied comparatively with disastasis extracted from germinating barley, presents the same modes of action. It transforms amidon into dextrine and glucose; acting on starch, and elevating the temperature to 70 or 75 degrees, the liquefaction is nearly immediate. One part of this substance suffices to liquefy and convert two thousand parts of fecula. The agents, such as creosote, tannin, the powerful acids, the salts of mercury, of copper, of silver, &c., which destroy the properties of *diastasis*, act in the same manner with respect to the active principle of saliva. At an equal weight they both liquefy and transform the same quantity of hydrated amidon. It appears, even, that the active principle of germinated barley is seldom as energetic as that of saliva, which is owing to the greater facility of obtaining the latter in a pure state. Finally, as a last resemblance, the *animal diastasis* existing in the saliva of man rarely exceeds two thousandths, and this is exactly the proportion of the diastasis contained in germinating barley.—*Lancet.*

ACADEMIE DES SCIENCES--PARIS, 1845.

Researches on Generation.

The researches of M. Pouchet on the progression and the state of the seminal fluid found in the genital organs of female rabbits, have led him to the following conclusions;—From the sixth to the twenty-fifth hour, zoospermata are found constantly in the vagina and in the uterine cornua. Until the twenty-first or twenty-second hour, these animalculæ are very agile, but they soon after become less active, and towards the twenty-third hour they dry, and appear to undergo a kind of cadaveric rigidity, as characterized by the rectilinear direction which their caudal appendix assumes. After this period, they are only found lacerated. Sometimes, nevertheless, and principally when the death has been preceded by violent convulsions, living zoospermata are still found, towards the twenty-fifth hour, engaged in the entrance of the uterine extremity of the Fallopian tubes. They never ascend beyond a depth of twenty millimetres, the mucus which fills the Fallopian tubes, formed of dense globules, offering an insurmountable resistance. It is, therefore, only in the uterus, and, perhaps also in that part of the Follopian tubes which approximates to the uterus, that fecundation takes place in mammalia. If the zoospermata reach the ovaries, it can only be in the abnormal cases which give rise to extra-uterine pregnancies.—*Lancet.*

Mr. Bonjean on the poisonous effects of the Secale Cornutum.

The ergot of rye, taken as an alimentary substance, may give rise to two kinds of symptoms; to convulsive phenomena or to gangrene. These series of symptoms may present themselves singly or combined. A year ago, M. Bonjean attended a family in the vicinity of Chamberry, all the members of which were attacked with the convulsive form; he has lately observed, in the same neighborhood, a case in which the gangrenous form alone prevailed. A family composed of eight individuals—the father, mother, and six children, between the ages of two and seventeen—ate, during three weeks, bread containing one and a half per cent. of ergot. The father and mother merely experienced lassitude in the limbs; the three eldest children present no abnormal symptom. Two of the youngest only were attacked with gangrene; one, a boy, ten years of age, after eating the bread during fifteen days, felt a severe pain from the left groin to the calf of the leg. The feet and legs became tumefied, covered with phlyctenæ, and the gangrene, appearing at the inferior third of the legs, descendedt owards the feet, and ascended to the upper part of the legs, where it became limited. The other, aged twenty-eight months, was attacked in the same way, but on one leg only. There were no premonitory symptoms whatever in either case. The two children were admitted into the hospital at Lyons, where the gangrenous limbs were taken off, and they were subsequently quite cured.—*Ibid.*

On the Value of Vaccination and Revaccination.

In 1842, the Academy of Sciences offered a prize for the best treatise on the above subject. Thirty-five candidates responded to the call, and the perusal of their labors has proved so laborious an undertaking, that it is only very lately that M. Serres has been able to present a report to the Academy, in the name of the committee appointed to decide on the comparative merit of the essays. M. Serres' report is a remarkable document, and is also important from its conclusions having been adopted by the Academy after mature deliberation We extract the following data from this report:

"Vaccination preserves the human species from variola, but its preservative power is not absolute. Variola itself, either spontaneous, or produced by inoculation, does not preserve absolutely from future attacks, therefore it is not extraordinary that vaccination should not. Thus, Mead mentions having seen three variolous eruptions take place successively on the same woman; the son of Forestus was twice attacked with variola, and Dehaen states that one of his patients was attacked six times by variola with impunity, but died of a seventh invasion of the disease. Although, however, vaccination is sometimes powerless to preserve us from variola, it *always* diminishes the gravity of the malady. This property, which Jenner and his first successors did not even suspect, is thoroughly proved by the various facts which have been recently accumulated. In one of the most terrible epidemics of variola that has taken place in Europe since the discovery of vaccination,—that of Marseilles, in 1828,—more than ten thousand persons were attacked. Of these, two thousand only had been vaccinated, and of that number forty-five only died, whereas, one thousand five hundred of the eight thousand who had not been vaccinated were carried off by the pestilence.

"Vaccine matter evidently loses part of its efficacy in passing from arm to arm; it is therefore desirable to renew it as often as

possible. A remarkable fact mentioned by one of the competitors, supplies us with a means of renewing it, as it were, at will. A cow was vaccinated with matter taken from a child. Not only did the pustules rise, but they were communicated to other cows, so that the cow-pox was observed nearly in its natural state. The pustules were identical in both cases.

"The propriety of revaccination is now fully established. In Germany, the various governments have been induced to pay great attention to revaccination, owing to the circumstance of epidemics of variola having latterly manifested themselves with a severity to which we had become quite unaccustomed since the introduction of vaccination. Revaccination has, consequently, been resorted to on a very extended scale, and has had the effect of arresting the epidemics Thus, in Wurtemburg, forty-two thousand persons who have been revaccinated, have only presented eight cases of varioloid, whereas, one-third of the cases of variola have latterly occurred on persons who had been vaccinated. It is principally between the ages of fourteen and thirty-five that vaccinated persons are exposed to be attacked by variola. When there is an epidemic, the danger commences earlier, and children of nine years of age may be seized. Prudence, therefore, requires that, under ordinary circumstances, revaccination should be performed at the age of fourteen or fifteen, and four years earlier if within the radius of an epidemic of variola."—*Ibid.*

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On the Anatomy of the Sympathetic Nerve.

M. Bourgery states that the sympathetic divides at its cephalic extremity into two branches, one vertebral, the other carotidian. These branches offer five modes of termination, to which are associated the cephalic nerves and the pituitary gland. M. Bourgery looks upon the latter, along with Gall, MM. Blainville, Thierry, and Bazin, as a ganglion of the great sympathetic, which appears to be the intermediary, or the organ of reunion, of the encephalic mass—that is, of the psychological and instinctive nervous centres, and of the cephalic nerves, their most active agents, with the great sympathetic, which on its side represents the entire splanchnic nervous system. The most voluminous terminations of the great sympathetic, that which appears to constitute the suture of the splanchnic nervous system with the encephalic mass, takes place in the pituitary gland. That which forms the two median plexuses has for its object the anastomosis, external to the central ganglion, of the two lateral halves of the sympathetic. The apparent termination on the cerebral arteries may be considered more as an origin, and would appear to be no other than the proper visceral nervous apparatus of the encephalic mass, united in the middle—like all the extra-visceral plexuses—with the central ganglionic mass, the pituitary ganglion, but like these plexuses, continued on the arteries with the great common chain of the sympathetic. The last termination of the sympathetic consists in its anastomoses with the grey twigs emanated from the cephalic nerves. Considered in their common chain of connexion, the three kinds of nervous organs of sus-sphenoidal region, offer seven varieties of anastomosis, by means of which all the parts of the encephalic mass, and the origins of the proper nerves of the face, are placed in communication with the cephalic extremity of the splanchnic nervous system: and if we add the chain of the sympathetic, and of its annexed organs, we find that the entire central cerebro-spinal nervous system is in relation with all the splanchnic nervous system. This intimate connexion of the pituitary ganglion, and of the sympathetic, between each other, and with the cephalic nerves and encephalon, unites all the parts of the two great systems of organic and of animal life one to the other. It shows clearly the anatomical reason of the *consensus*, as prompt as lightning, which manifests itself between the nervous organs, and more especially between the cephalic organs.—*Ib.*

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The Functions of the Pancreas.

MM. Bouchardat and Sandras, following out their researches on the chemical phenomena of digestion, have recently ascertained that the pancreatic juice possesses the same properties as the saliva. This liquid, taken from the Pancreas of strong farm-yard fowls, was transparent and viscous, presenting a slightly alkaline reaction. Mixed with amidon jelly, it liquefied it and transformed it into dextrine and glucose By adding alcohol, it formed a white deposit, which also acted on the jelly of fecula in the same manner as diastasis. A temperature of 100, (centig.) or the adhesion of various substances, such as tannin, the mineral acids, or the metallic salts, destroyed its properties. The pancreas itself, extracted from animals, and carefully separated from the different vessels which pass through it, and from the blood by which it may be soiled, possesses in a high degree the property of giving rise to the transformation of fecula. A few fragments of the gland, mixed with starch, tepid, and very consistent, convert it, after a few minutes, into a liquid free from viscosity. Pounded and

mixed with water, they give a fluid, from which it is possible to separate, with the assistance of alcohol, a flaky precipitate, endowed with the power of dissolving fecula. Other organs, such as the liver, treated in the same manner, do not give the same results. We may therefore conclude from these facts, that the principal function of the pancreas is to secrete a liquid able to dissolve feculaceous substances, to allow of their absorption in the intestine by the smaller ramifications of the vena porta, and consequently, to admit of their utilization by the economy.—*Ibid.*

ACADEMIE DE MEDICINE, PARIS.

(MARCH, APRIL, MAY, JUNE.)

Autoplastic Operation in Cancerous Disease.

M. BLANDIN presented to the Academy a woman on whom he had extirpated an inferior eyelid affected with cancer. The loss of substance thus occasioned was then remedied by a flap taken from the forehead. This operation he considered calculated to prevent the return of the cancerous disease. The operation was successful. The views of M. Blandin, with reference to the influence exercised by autoplasty in preventing the return of cancer, were supported by M. Roux and M. Berard.

M. GERDY stated that he was not a great friend to autoplastic operations, the result of which was seldom or ever satisfactory. In the case of M. Blandin, he thought the operation would have been more successful if the flap had been taken from the cheek. He did not believe that the healthy flap would so modify the parts as to prevent the return of the cancerous affection. Cancer returns either from some of the tissues affected having been left in the wound, or in virtue of a general predisposition, the essential nature of which is unknown, and which autoplasty does not remedy.—*Ibid.*

On the Causes of Insanity.

M. BELHOMME, in a communication addressed to the Academy, endeavored to prove that insanity is always, and necessarily, connected with acute or chronic phlegmasia of the brain, or of its membranes. Chronic encephalitis, characterized by the hardening of the cephalic substance, coincides with chronic insanity, and with dementia, accompanied by paralysis, whilst acute inflammation, with softening, gives rise to acute insanity, or to mania with delirium. M. Belhomme supported his views by fifteen cases. The report of the lecture of M. Jolly, who was appointed by the Academy to examine the communication, gave rise to an interesting discussion.

M. JOLLY maintained that the opinions of M. Belhomme were inadmissible. It is possible, he stated, that physical and moral similitudes in families, or individual organization, may constitute the morbid hereditary predisposition so frequently observed in nervous diseases. It is also possible that anomalies in the intellectual functions may depend on some accidental molecular modification in the cerebral fibre. But we are not warranted, on that account, in asserting, in the present state of science, that material lesions—lesions of texture—are necessary to produce insanity. We are not sufficiently acquainted with the normal conditions of the intimate organization of the brain, to appreciate the modifications which may correspond to anomalies of motion, of sensation, of intellect. Microscopical anatomy may some day show us the connexion between the structure of the brain and the acts of the mind; but until this is accomplished, we are not authorized to do more than simply to observe facts. The attentive examination of the causes, the symptoms, and the progress of insanity does not enable us to recognise the characters of insanity in acute or chronic inflammation of the brain. Children and young people are very frequently attacked with inflammatory affections of the brain, but are not insane. Insanity is nearly exclusively experienced by persons of a nervous, irritable temperament. The lesions of the intellect do not require for their manifestation, inflammation, softening, hardening, or any other material lesion. Hereditary predisposition, a bad education, moral commotions, alone suffice to give rise to them.

M. ROCHOUX was ready to admit that it is impossible to attribute insanity to acute or chronic meningo-cerebritis; but, on the other side, he could not allow that lesions of the intellect could take place without a material alteration of the brain. There was no effect without cause. Insanity must depend on a lesion of the brain, or of the mind, and no one had ever attempted to establish the existence of diseases of the mind distinct from the brain. Every functional disturbance presupposes the disturbance of the corresponding organ. To assert that a lesion of the functions of the mind can exist independently of a lesion of the brain, is to assert that the same sounds may be obtained from a violin, whether the strings are tight or slack. The views of M. Belhomme, thus supported by M. Rochoux, were also defended by M. Ferrers in an animated discussion, whilst MM. Gerdy, Prus, and Castell, joined with M. Jolly in strenuously denying the possibility of connecting functional disorders of the brain with material lesions.—*Ibid.*

Fistula of the Urethra Cured by Autoplasty.

M. Jobert has again succeeded in curing by autoplasty an urethral fistula The fistula was situated at the root of the penis, in front of the scrotum, was two entimetres and a half in length, and the result of retention of urine. Two unsuccessful attempts were made, which M. Jobert attributed to the patient's laboring under chronic syphilis. He was treated for this disease, and then he proceeded to operate as follows:—After refreshing the margin of the solution of continuity, and excising the skin around the fistulous orifice to a width of several lines, two incisions, parallel to the axis of the penis, were made on a level with the inferior orifice of the fistula, and prolonged on to the scrotum, so as to comprise a cutaneous flap as wide as the denuded surfaces on each side of the fistula. This flap was then dissected off, dragged up, applied on the fistulous orifice and the denuded surfaces, and carefully attached by means of interrupted sutures to the surrounding parts. A sound of middle caliber had been previously placed in the urethra, and slight compression was exercised on the flap, in order to maintain it in its place. The adhesion was complete in the five-sixths of the extent of the fistula. There remained, however, a small latteral orifice, which gave considerable trouble. The twisted suture was resorted to several times, the edges having been freshened with the bistoury, but without success. This method of treatment, followed by cauterization with the nitrate of silver, proved at length successful, and the fistula became completely cicatrized.—*Ibid.*

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Relation between the Extent of the Brain and the Intellect.

M. Baillarger, in a paper on the above subject, states that he has been able to unfold the cerebral substance by a process different from that of Gall. He takes away gradually, and by a long and minute dissection, all the white substance, and when the brain has been thus reduced to a very slight thickness, the peripheric membrane developes itself as it were. Operating as we have stated, he has been able to model with plaster the extended hemisphere, and to take its exact measure. For the brain of man, M. Baillarger has found a medium of one thousand seven hundred square centimetres. The measure of the extent of the surface of the brain has been obtained in the same way.

If we now pass to the physiological application of these researches, we find, in contradistinction to what has been advanced, that the development of the intellect is not at all in relation to the extent of the brain, for the brain of dogs is smaller than that of sheep. Even in taking into consideration their relative size, the brain of the rabbit is found to present twice and a half as large a surface as that of man, who in this respect is at the bottom of the scale. In order for it to be otherwise, it would be requisite for the circumvolutions to be both more numerous and deeper. The brain follows this mathematical law: the volume is as the cubes of the diameter, whilst the surfaces are as the squares of these same diameters. Thence it follows that the most voluminous brains have, relatively, a very small surface. The cerebellum alone, by the extent of its surface, can bear comparison with the brain of the inferior mammalia. Thus the development of the intellect, far from being in direct proportion to the relative extent of the surface of the brain, appears to be in an inverse proportion.—*Ibid.*

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A new Mode of Treating Spermatorrhœa.

M. Brachet, of Lyons, stated that he had been induced, accidentally, to try the effect of pressure on the perinæum in spermatorrhœa, and had obtained very advantageous results. He had resorted to this mode of treatment in four instances, in each of which the cause was different, and had been successful in all. Evidently, this means of treatment would not apply to all cases, but he thought it might be useful when the disease was the result of atony, occasioned by the abuse of venereal excitement, or following repeated blennorrhagia. According to M. Brachet, the injurious effects of spermatorrhœa are the result of the too abundant deperditition of the seminal and prostatic fluid. The latter he compares to that which is furnished by the mucous crypts of the vagina. Compression, he says, by keeping the seminal fluid in its natural reservoirs, (the seminal vesicles,) accustoms the latter to retain it during a longer time; compression, also, modifies the physiological state of the urethra, of the prostate, and of the secreting glands. The apparatus by which pressure is applied is very simple. It consists of a leathern belt, from the back part of which descends a band, which is passed between the thighs, and which dividing, so as to leave the genital organs free anteriorly, is attached to the belt on each side. In the middle of the band is a small moveable cushion, which is adapted to the region of the perinæum, where the pressure is to be applied, and which is tightened as much as possible. Pressure thus exercised is very different to the circular compression of the

penis by rings or strings which has been recommended, but which exposes the patient to serious accidents, the least of which is the regurgitation of the spermatic fluid into the bladder.—*Ibid.*

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The Operation for Hare Lip in Infants.

M. Paul Dubois brought forward some interesting data respecting the period at which the operation for hare lip ought to be performed. He does not agree with the generality of surgeons, who think that it should be deferred for several years, or at least several months. He thinks, on the contrary, that great advantages are obtained by performing the operation soon after birth These views he substantiates by his own practice In various operations which he has performed, he has merely refreshed the margin of the solution of continuity, and then brought the parts together by means of insect pins and the twisted suture. The wound has always been dressed with the greatest facility, often, indeed, whilst the infant was asleep. The pins were withdrawn on the third or fourth day. Two of M. Dubois's patients swallowed blood: one vomited it; with the other, it followed the course of the intestinal canal, without giving rise to the slightest accident. This circumstance has some importance, as the swallowing of blood by infants has been given as a contra-indication. All the children were fed as before the operation, by means requiring suction—that is, the breast or the feeding boat; so that the early operation cannot be objected to on the plea of its necessitating an abstinence of several days' duration. It has been stated that the cries of the child might derange the dressing, but this objection is likewise unfounded, as it resists the child's cries, as well as suction. The principal advantages of an early operation are the following—the cicatrix is smaller, and more linear: the education of the child becomes much easier; and the anxiety and distress of the parents are calmed.

M. Roux thought that the early operation although occasionally useful, could not be generalized. He had seen serious accidents follow it. One child was found dead in its bed, another was seized with convulsions, which all but proved fatal. Hare lip, in his opinion, offered such a great variety of forms, that it was very difficult to lay down a principle applicable to all cases.—*Ibid.*

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Microscopical Anatomy of Tubercle.

In a communication on the above subject, M. Rochoux reproaches those who have made microscopical researches in pathological anatomy, with having examined the morbid tissues at too advanced a stage, when their degeneration had modified the characteristic features of the disease. Avoiding this source of error, he has arrived at novel results. If, for instance, a tubercle in its incipient state is placed under the microscope, it presents the form of a rounded, globular, badly circumscribed, production, of a diameter of 0.15 to 0.20 of a millimetre; it is lost, as it were, in the midst of sound pulmonary tissue In this state, it is impossible to isolate it, to extract it, without tearing numerous filaments, the remains of pulmonary tissue, of vessels and nerves, which form around it a kind of *tomentum*. Its color, which at a later period becomes of a dull, greyish white, is then that of gelantine, with a rosy tinge, the more marked the smaller the tubercle. If, after cutting it in two, the surface of the section is examined with a magnifying power of forty or fifty only, the morbid tissue appears homogeneous, as jelly or gum about to solidify; but under a magnifying power of five or six hundred diameters, it offers a very different aspect. We then perceive that it is formed by the interweaving of filaments nearly as small as those of cellular tissue, and containing no visible fluid in their intersticcs. The mode of texture is regular enough, and recals to a certain degree that of the crystalline lens. The incised surface presents a very pale-reddish color, with a metallic reflection.—*Ibid.*

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Pellagra in Gascony.

It appears that within the last few years, pellagra, a disease which has long exercised great ravages in the north of Italy, has been found to exist in the department of La Gironde, in Gascony, and that it is making rapid progress. The central board of health of the department, becoming alarmed at the extension of the disease, has latterly taken every possible means to ascertain its nature, causes, symptoms, and treatment. Every practitioner residing in the affected localities has been applied to, medical conferences have been held, and a vast amount of information has been collected. The board of health of La Gironde, considering that the data which their investigations have brought to light are of importance to humanity, recently addressed the results of its labors to the Minister of Public Instruction, with a request that they might be published under the sanction of government. The Minister having forwarded the document which he received to the Academy of Medicine, requesting its opinion respecting their value,

the committee appointed by the Academy to examine them, has, through the medium of M. Jolly, its reporter, recommended their immediate publication. M. Jolly's report contains the following interesting details with respect to pellagra as observed in France.

The existence of pellagia in the *Landes* of La Gironde was first noticed in print by M. Hameau in 1829. Since then it has been insisted on by various physicians, but more especially by M. Leon Marchand, a recent writer. "The most striking character of this affection," says M. Marchand, "is a squamous erythema, which occupies the uncovered parts of the body, principally the dorsal surface of the hands, and which returns every year, at spring, with the same series of symptoms, the intensity of the latter depending on the duration of the disease." The erythematous erruption, which may successively present itself under a papular, vesicular, or pustular form, disappears at autumn, leaving on the skin shining cicatrices, which assume the appearance of a burn. The general phenomena that accompany the cutaneous affection diminish, at first, along with it, to return again the following spring. As, however, the disease becomes more chronic, they not only assume a severer form, but last during the interval of the disappearance of the erythema. The principal general phenomena of the pellagra proceed from two sources, viz: First, from the digestive apparatus, redness and fissures of the tongue and of the lips, a scorbutic sanguinolent state of the gums, ptyalism, dyspepsia, vomiting, and diarrhœa. Secondly, from the cerebro-spinal system; pain and weakness of the limbs, titubation, vertigo, obliteration of the senses of the intellect, mania or dementia, generally presenting the form of suicidal monomania, with a tendency to drowning. In many cases there is progressive marasmus, slow and gradual sinking, often dropsy. The disease invariably terminates by death. Pathological anatomy has not hitherto thrown any light on the intimate nature of pellagra. "Its true nature," says M. Marchand, "must be sought for in the attentive study of the local and topographical influences which favor its development"

The locality in which endemic pellagra appears to exercise its greatest ravages, is the region which borders the Gulf of Gascony. It is the most sterile part of the country —a district exposed to the most depressing and the most debilitating influences; where everything (men, animals, and plants) languishes and dies before its time. The fœtid emanations from the marshes, the insalubrity of the habitations, deficient and bad alimentation, the dirtiness and scantiness of clothing—in a word, all the evils to which extreme poverty exposes, are the causes which contribute to the developement of this disease. But these causes alone are not sufficient to produce it, otherwise pellagra would be found wherever extreme poverty prevails. There exists, probably, some principle peculiar to the localities which the disease ravages, which has not yet been discovered.—Great stress has been laid on exposure to the sun as a cause of pellagra. M. Jolly does not think that it exercises so great an influence over its production as some writers suppose. Were it the real cause of this disease, the latter would have been observed previous to the commencement of the last century, when it was first described in Italy; moreover, it would be common in warm climates, which is not the case. Nevertheless, it is certain that the heat of the sun performs an important part in the symptomalogy of pellagra, as is proved by the constant return of the malady in spring. The opinion of M. Gibert, respecting the mode of action of the sun, is most likely correct. He states, that it burns the skin. The explanation of the lesion which the sun thus produces is to be sought for in the alteration that the skin of the patient affected with pellagra has undergone, along with the entire organization, in its intimate texture. It may be compared to the bark of a tree deprived of sap, which dries and cracks under the influence of the sun's rays.

Whatever may be the cause of the disease it appears to be above the resources of art when once declared. All the means of treatment which have hitherto been employed have proved useless. The plan generally followed is to protect the skin from the direct action of the sun, to combat by regimen and medicinal agents the various accidents which are the result of the general weakness, or of the lesions of the principal viscera; recourse is had to bleeding, baths, astringents, or narcotics, according to the nature of the symptoms and the indications presented. Such being the case, it is evidently principally prophylactic measures which are most needed, and it is to them that the attention of government should be mainly directed. It ought, therefore, to be the endeavor of government, by administrative measures, to improve the hygienic and sanitary state of the poverty-stricken population affected with this fatal disease.

In the course of the debate which followed the reading of M. Jolly's report, M. Gaultier de Claubry stated that he had seen cases of pellagra in the Landes and in the Asturias as far back as 1809. This fact is

important, as the first cases that were noticed in the Landes occurred in 1818 only. The disease, may indeed, have been long endemic in this part of France as in Italy, although not described until within a recent period. *Ib.*

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Contagion of Typhoid Fever.

M Gaultier de Claubry, in a communication read before the Academy, endeavored to prove—First, that typhus and typhoid fever (dothinenteritis) are identical. Secondly, that typhoid fever, like typhus is contagious. These propositions M. Gaultier de Claubry supported by numerous arguments drawn from his personal experience. He had within the last few years met with eight cases of undoubted contagion in his private practice, the patients being all in easy or wealthy circumstances. In concluding, he reminded the Academy that his views on this subject were also those of MM. Chomel, Louis, Andral, Moreau, Jolly, and many others.

M. Rochoux disagreed in every respect with M. Gaultier de Claubry. In his opinion, the diseases were perfectly distinct, differing in their causes, their symptoms, their pathological anatomy, and their treatment. *Ib.*

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On the Localization of Speech in the Anterior Lobes of the Brain

M. Belhomme endeavored to prove, by the analysis of ten cases which had occurred under his care, that speech is localized in the anterior lobes of the brain. His summary contains the following propositions: First. Any alteration in the faculty of language depends either on a cerebral affection, or on a lesion of the organs of communication between the brain and the apparatus destined to the articulation of words. Second. The *sudden* loss of speech depends on an hæmorrhagic lesion of one, or more especially of both, of the anterior cerebral lobes. Third. Convulsive and paralytic phenomena which modify language, must not be confounded with the sudden loss of the memory of words and subsequent difficulty of speech. Fourth. In an affection partially destroying the anterior lobes of the brain, and suddenly arresting speech, it is only when a cicatrix has formed in the brain that it recovers more or less its functions.—*Ibid.*

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Statistics of Bethlem Hospital, with remarks on Insanity. Part II.

BY JOHN WEBSTER, M. D., F. R. S., &c.

After referring to his previous paper, published in the 26th vol. of the Society's *Transactions*, the author makes some remarks respecting the period of the year when mental diseases were most prevalent, when the greatest number of patients were cured, and when the larger proportion of deaths occurred at Bethlem Hospital. These points he illustrates by a table compiled from the official registers, (which shows that most lunatics were admitted into the institution during the second and third quarters of the last twenty-two years, most were cured during the third and fourth quarters, whilst the largest number of deaths were met with in the last, but especially in the first quarter of the above series of years.) The author next alludes to the occupation of insane patients, and states that sixty-six per cent. of the inmates of Bethlem Hospital are now employed. This employment of the insane is found to have a very beneficial influence in their treatment, and tends materially to diminish the necessity of using personal coercion in the management of lunatics: in proof of which, the author states, that five years ago the weekly average of persons under restraint was thirteen, whereas at present, when the system of employing the insane patients is more developed than formerly, during some weeks only one, and occasionally, not even one individual is in restraint. The author subsequently gives a synopsis of twenty-eight autopsies recently performed at Bethlem Hospital by Mr. Lawrence, thus making one hundred post-mortem examinations of lunatics, if the seventy-two dissections previously reported are taken into the account The diseased alterations of structure are succinctly described in the twenty-eight cases now brought before the Society, of which the following may be given as a summary:—In twenty-five, there was infiltration of the pia mater: in twenty-four, turgidity of the bloodvessels; in nineteen, effusion into the ventricles; in twelve, fluid was found at the base of the brain; besides other varieties of morbid appearances. In twenty-two cases, the organs of the chest were diseased; and in thirteen, the abdominal viscera were more or less affected. In conclusion, the author makes some general observations on the facts contained in his paper.

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Electro Magnetic Clocks.

Which never run down, and never require winding, have been invented by a Mr. Brain. A writer in the Polytechnic Review says—"he set up a clock in my drawing-room, the pendulum of which is in the hall, and both instruments in a voltaic circuit, as follows: On the N. E. side of my house, two zinc plates, each a foot square, are sunk in

a hole, and suspended to a wire. This is passed through the house, to the pendulum first, and then the clock. On the S. E. side of the house, at a distance of about forty yards, a hole was dug four feet deep, and two sacks of common coke buried in it; among the coke another wire was secured, and passed into the drawing room window, and joined to the former wire at the clock. The ball of the pendulum weighs nine pounds, but it was moved energetically, and has ever since continued to do so with the self same energy.—The time is to perfection, and the cost of the motive power was only 7s. 6d. There are but three little wheels in the clock, and neither weights nor springs, so there is nothing to be wound up. To another friend in Battersea, he has given three clocks, two small ones, and one a hall clock, all moved by one current, and regulated by one and the same pendulum. This is all he has completed in England, having just reached Edinburgh, where he is to establish a manufactory of these clocks, which, for accuracy, cheapness, and utility, will, I believe, surpass every time piece hitherto contrived.

Extracting Teeth in the Mesmeric Sleep

The Nantucket Inquirer states that Rev. L. R. Sunderland lately put a woman in that place into the Mesmerice sleep, and that while in that state Dr. D llingham extracted a tooth in which two physicians had examined and pronounced to be firmly set in her head. The Inquirer says:

"During the cutting of the gums, fastening the forceps upon the tooth, and the actual drawing of the tooth, the patient did not exhibit the slightest consciousness that the keen eyed physicians could detect. She appeared to us (and we were upon the platform, close beside her,) to exhibit about as much sensation, consciousness, feeling as would be exhibited by a stick of wood into which a penknife had been thrust, and not a jot more. It was a successful operation, and the physicians stated to the audience that they were perfectly satisfied that the patient was in a state of perfect unconsciousness, totally insensible to pain; of which fact every fair minded person in the audience was undoubtedly convinced. What the agency was that produced this unnatural state, those who attended the lectures can judge for themselves, without any aid from us. Thursday evening, another tooth was extracted from the same person by the same operator, under the scrutinizing eyes of several additional physicians with similar satisfactory results."

Successful application of Mesmerism to a Surgical operation

Mesmerism, or animal magnetism, is attracting at the present day, no inconsiderable share of attention and investigation from all classes of the community, in both hemispheres. It finds advocates and opponents among the learned and illiterate, the profound and superficial, philosophers and physiologists. By many, its power and influence are doubted, by some denied, and by others derided as imposture. Whilst a cautious remove from that credulity which would swallow with avidity the most ridiculous absurdities, deserves the highest commendation, that scepticism, which closes every avenue to conviction, and discards belief in facts without investigation, because the human mind cannot comprehend them, merits reprobation. Our present knowledge of its nature and power is confined to narrow limits, and the discovery is a goal yet to be reached by some future voyager, that it is subject to the same universal laws that govern matter. To the future belongs the developement of its destiny—to the present, scrutinizing investigation into its concealed mysteries. Suffice it for my present purpose, to narrate facts presented to my own observation, without entering the broad field of hypothesis, or ascending into the regions of fiction; to relate in brief and simple phrase, one benign visitation of this incomprehensible agent, which like an angel of mercy from the skies, bore on its mission not only comfort and consolation, but entire immunity from the pain and torture attendant on a severe surgical operation. As the object of this communication is simply to report the fact that animated animal matter has been disintegrated without pain and without the knowledge of the patient, the particulars relating to the nature and progress of the disease will be necessary. Miss Cromett, the well known subject of the operation which has excited a large share of curiosity and interest in this place, possesses an exalted nervous temperament, with the least possible share of fortitude and firmness—acutely sensible to painful impressions, aggravated at the time, by an accumulation of morbid nervous irritability. When first advised by her physician, that excision was the only remedy to arrest the disease and stay the advance of death, so repugnant was the remedy to her feelings, that she avowed her preference for the latter alternative, rather than submit to the tortures of the knife.

In this state of painful anxiety and suspense, three months elapsed, adding vigor to the disease, at the expense of the patient's welfare. Representations of the dangers of

delay, of the certainty of a fatal termination, remonstrance and persuasion, were alike impotent to overcome her opposition and dread of the operation. At this critical juncture, some friends advised and aided her in procuring the services of Dr. Josiah Deane, of Bangor, an experienced and successful operator in Mesmerism. He came, remained five days, and favorably succeeded in magnetically subduing the patient. Untoward circumstances at this time forbade the operation, and a short delay was recommended for the removal of local inflammation.

After an interval of ten days, the local disease beginning to assume a more inauspicious aspect, Dr. Dean was again called in on June 28th, but owing to some adventitious illness, prudential considerations recommended a delay until July 3d, at 10, A. M., when the tumor, involving the whole of the right breast was removed by Dr. H. H. Hill, of this village, in presence of Dr. Hubbard of Hallowell, Doctors Snell, Briggs, Myrick, and Nichols, of this place, Rev. Mr. Burgess of the Episcopal Church, J. L. Child, Esq., Counsellor at Law, Mrs. Smith, and some other ladies.

The urgent solicitation of the patient prevailed over the concealment previously determined on, and she was apprized on the day previous, of the hour appointed for the operation. Notwithstanding her fancied fortitude forsook her, so irresistible was the power of magnetism, that in about ten minutes she was beyond the control of fear, and secure from the influence of pain. The operation was performed by two incisions, measured on the line of their curvature, twelve inches each, the whole enlarged glan removed, (weighing two and a half pounds,) the arteries secured, the wound carefully examined, the surfaces brought into apposition and partly secured by sutures, without a motion, a groan or sigh, or even the most remote indication of pain or sensibility. It would have appeared to an observer, "that life itself was wanting there," had not respiration given assurance that the spirit had not departed.

At this period, when a few more stitches would have completed the whole operation, the Mesmeriser unintentionally permitted his attention to be withdrawn from the patient, when she awoke to the consciousness of having passed an ordeal without a pang, which, without the oblivion of magnetism, would have severely tried the fortitude of the firmest, and have convulsed with the keenest agony every fibre that had been reposing in softest slumber. The acute sensibility to pain betrayed by the introduction of the remaining stitches, would, I think, convey conviction to the mind of the most obdurate disbeliever that such a result could be produced by no art of legerdemain, nor by any other known agent. The circulation was slightly accelerated—the respiration natural, and an entire freedom from the faintness, exhaustion and prostration, so often attendant on severe corporeal suffering.

The facilities furnished by this quiescent state, essentially aided the operator in abbreviating the time usually required in such operations. The writer was present during the whole process—has visited and conversed with her since, and up to this date (July 9th) she has been rapidly convalescent—having been visited by no secondary hæmorrhage, no inflammation, pain, sleeplessness, nor inquietude, and with better health than the last two months have afforded.—*Kennebec Journal.*

Augusta, July 9th, 1845.

The case of Miss Cobbett, above described, fell under our observation, and the material facts are truly stated.

JOHN HUBBARD,
H. H. HILL,
CYRUS BRIGGS,
ISSACHAR SNELL,
LOT MYRICK,
HENRY L. NICHOLS.

Having been present during a part of the operation, and had an opportunity to verify the facts above stated, I have no hesitation in certifying to their accuracy.

JAMES L. CHILD.

The Wonders of Electricity.

The Hartford Courant says, that on the 26th ult., Mr. Fowler of Mansfield, took a bed at Nottingham, and in the morning was found apparently dead from poison. The usual remedies were applied without effect, when electricity was resorted to. At the first application of the conducting wire to the chest of the patient, he rose up, but gradually fell back again. At the second shock he rose up, crying out "Oh," and then fell back again; but on the third shock he started up, crying out, "Oh God!" and sat upright with ease. In a short time afterwards, he asked for something to drink, and tea and coffee were administered to him; in three quarters of an hour he dressed himself, and appeared almost entirely recovered. He had purchased two ounces of laudanum, and had taken the whole of it in two doses. Some disagreement with his wife is said to have been the inciting cause.

Statistics of Insanity.

According to an abstract of returns recently made to the British Parliament, of the number of lunatic and idiot paupers in the 589 unions of England and Wales, the following facts have been developed;—

	Population.	*Lunatics.*	*Idiots.*	*Total.*
England..	13,026,664	7,274	6,882	14,153
Wales . . .	884,173	379	820	1,199
	13,910,837	7,680	7,702	15,452

In addition, there is a population of 1,574,371, not included in these unions, where the returns show the number of lunatics to be 1,086; idiots, 458; total, 1,544.

(Communicated for the Dissector.)

Boston, August 9th, 1845.

Dr. Sherwood:

I was very glad to see by the last Dissector, that you and Mr. Fowler proposed to start a Mesmeric Journal. I deem it a matter of importance, and only regret, that it is not your plan to associate it with one or the other of the journals already in your care. Periodicals multiply so fast that one cannot reach the whole unless abounding in funds.

Phrenology and Mesmerism are each incomplete without the other; why not have a Journal devoted to the two.* Both sciences suffer for want of a better knowledge of their principles among those who know a little and *think* they know every thing. Mesmerism, especially, is exposed to much opposition from the pretensions of those Charlatans who think to make their little knowledge and great pretensions a means of playing upon the curious and of obtaining a livelihood. No doubt there are many who honestly think they understand the science, who have read but little and thought less, and who might be induced to read a popular periodical.

Besides these, many are led from curiosity and some, as it were, accidentally to attempt to mesmerize without knowing the power of the agent which they thus tamper with. I will mention some cases in my own experience.

Mr. S., a friend of mine, curious to see the wonders of Mesmerism, magnetised Miss S. F., who was a natural sleep-walker. She was very susceptible, and in a few moments he for the first time saw a person in the Mesmeric sleep. He was elated and curious, and began to astonish himself and others with wonderful experiments. After an hour or two he awakened her, and she seemed as usual. But there was a great call to see her in the sleep, and he elated at the idea of "showing off."

In a few days the subject was so affected, that as soon as she fell asleep at night, she appeared like a crazy person, could not be confined to the bed, or her room, and it was very difficult to rouse her. In this state of things, S. called on me in great excitement and anxiety of mind, and in the most unfit state possible, for having a subject under his control. I fully believe that if he had not been able to obtain advice, his friend would have become permanently insane. Timely treatment, however, brought her into the control of a calm magnetizer and secured her recovery and entire relief from any tendency to sleep-walking. She has been well for 3 years, and a good subject.

A. R. complained of the headache, and a person present who had seen another mesmerize attempted to relieve her. He charged her head until it ached no more, and left her in that state for a town some miles distant. The effect of this seemed to increase for a day or two until she could tell whether her mesmerizer was sitting, eating, walking, or talking, and yet she could attend to business. Her friends were compelled after 3 or 4 days to send for her mesmerizer, and with the aid of one who understood it relieve her from this unpleasant and dangerous state.

I was called after meeting one Sunday afternoon to see S. W. who had been several days in the mesmeric state, having occasional intervals when she appeared naturally conscious, and then relapsing into a distinct mesmeric and clairvoyant state. With proper treatment, she was relieved of her unpleasant situation, but I think she had been in the mesmeric state eight days.

B. N. a young man about 18, had been frequently mesmerized by myself and others. One day he came to my study to be mesmerized, having felt quite unwell for a few days. Under the most gentle mesmeric influence I could not prevent his being thrown into distressing spasms. I consulted two somnambulists and found that Mr. L. had magnetised him (the first one he had ever tried,) and then excited different organs of the brain, and left his head in a state of confusion which no one can understand who has not had much experience in Phreno-Mesmeric experiments. The consequences would have been very injurious but for timely attention.

By such facts as these I am more and

* This is a mistake in supposing Mr. Fowler or myself proposed to commence a new Journal. We only offered to disseminate a knowledge of important facts in mesmerism, &c., through our respective Journals.—Ed.

more impressed with the importance of earnest effort to spread light on this interesting subject.

Many of us have facts of interest to others, and of great importance to those who are every day awakening to an interest, and especially, should it be known that no one is guiltless who ignorantly meddles with an agent so important and powerful.

O. H. W.

Thomasville, Geo., August 25, 1845.

DR. H. H. SHERWOOD.

Dear Sir:—I received the lectures of J. Davis on Clairmativeness, by the Rev. Gibson Smith, and am truly obliged to you for the favor. On reading them, I was strongly impressed with the wonderful statements of the clairvoyant, relative to the opening of his spiritual sight;—the correctness of which is fully corroborated by Swedenborg in his experience. As an illustration of this fact, I will cite you to the work "Angelic Wisdom concerning Divine Love and Wisdom," No. 252, where it is declared, "that the natural man is a full man when the spiritual degree with him is opened; for he is then consociated with the angels of heaven, and at the same time consociated with men in the world; also, that his spiritual mind is filled with a thousand arcana of wisdom and a thousand delights of love by the Lord, and that he comes *into* them after death when he becomes an angel. In No. 257 of the same work, it is further stated; "1. That the natural mind can be elevated even to the light of heaven, in which the angels are, and perceive naturally what the angels do spiritually, thus not so fully; but still the natural mind of man cannot be elevated into angelic light itself. 2. That man, by his natural mind elevated to the light of heaven, can think with angels, yea, speak; but then the thought and speech of the angels flow into the natural thought and speech of the man, and not the reverse: wherefore the angels speak with man in natural language, which is the man's vernacular. 3. That this is done by a spiritual influx into the natural and not by any natural influx into the spiritual. 4. That human wisdom, which is natural so long as a man lives in the world, can in no degree be exalted into angelic wisdom, but only into a certain image of it; the reason is, because the elevation of the human mind is made by continuity, as from shade to light, or from grosser to purer. But still a man with whom the spiritual degree is open, comes into that wisdom when he dies, and *may also come into it by the putting asleep of the sensations of the body*, and then by influx from above into the spirituals of his mind. 5. The natural mind of man consists of spiritual substances: wherefore that same mind after death, when a man becomes a spirit or an angel, remains in a form similar to that in which it was in the world. 6. The natural substances of that mind, which, as was said, recede by death, make the cutaneous envelope of the spiritual body in which spirits and angels are. By such envelope, which is taken from the natural world, their spiritual bodies subsist, for the natural is the containing ultimate. Hence it is that there is not any spirit or angel who was not born a man. The Arcana of Angelic Wisdom are here adduced, that it may be known what the natural mind with man is, and what the spiritual, which is also further treated of in what follows," throughout the work.

The principles laid down in this important work, are but imperfectly known to the world, for they have appeared to transcend the common sphere of human knowledge. Hence the little attention comparatively, which they have attracted, aside from the receiving of the New Church doctrines. But the time is coming, yea, now is, as is fully believed, when a very different estimate will be placed upon them. Another century under the providence of God, and nothing will be found in the old and labored structure of Physick and Metaphysics, but the voice, "he is not here, but is risen."

Very respectfully,

WM. HUNNEWELL, M. D.

MAGNETIC SLEEP.

Continued from page 168.

In the first state of magnetic sleep, persons retain more or less of their intellectual faculties, and are more or less susceptible to external influence.

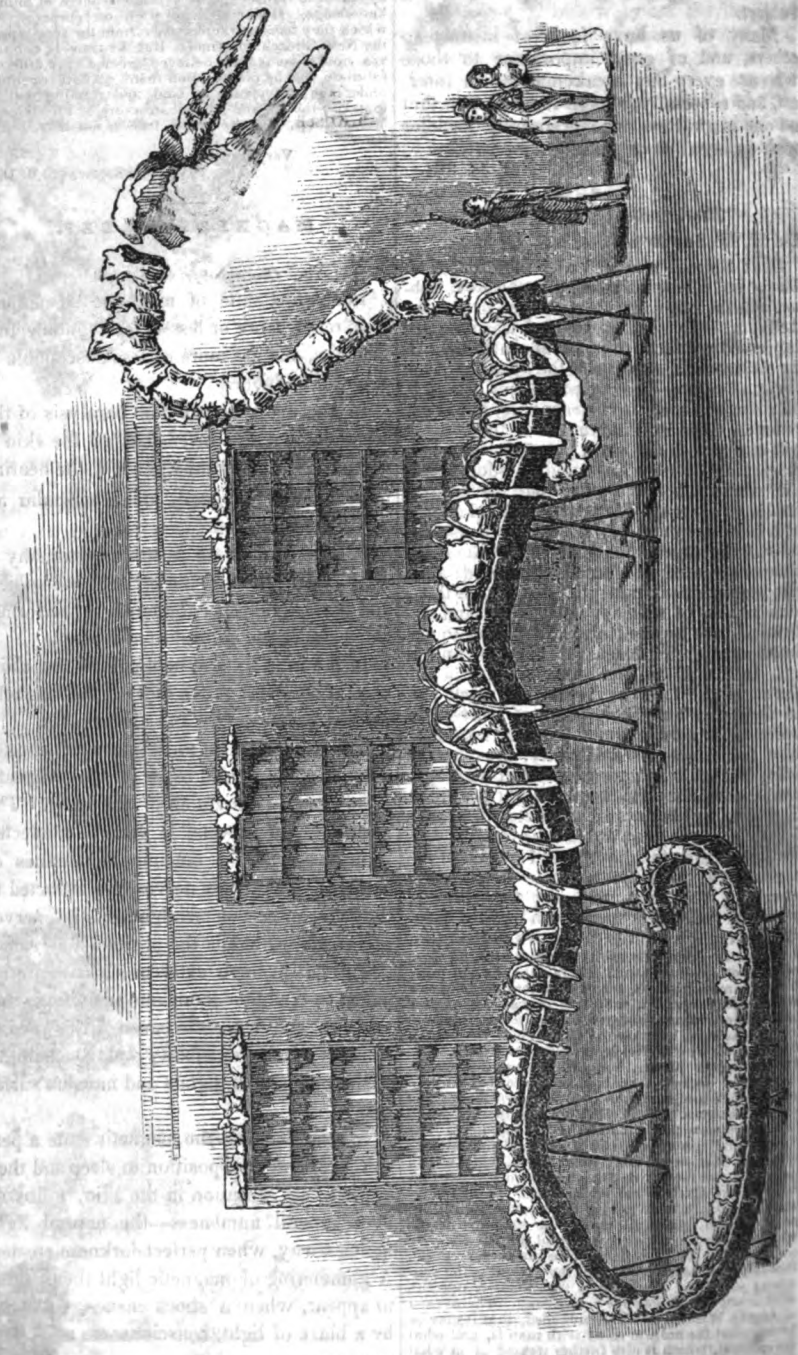
In the second state the paralysis of the muscles, and the insensibity of the skin is complete—the natural sight lost, the hearing more or less impaired, and a muscular attraction established.

In the third state a strong sympathy is established between the mind of the subject and the magnetiser—the mind of the former being under the control of the latter.

In the fourth state the mind of the clairvoyant soars far above that of the magnetiser and becomes free and independent.

These phenomena are the consequence of reversing the natural order of the magnetic or spiritual organization of the body. The negative and insensible forces connected with the inner or mucous membranes or surfaces, and molar nerves, are attracted to the outer or serous membranes, and nerves of sensation, while the positive and sensitive forces in these external surfaces are repelled to the inner or mucous membranes and surfaces, and hence the cause of this reversed order of the sensibility and insensibility of the opposite or serous and mucous surfaces.

In passing into the magnetic state a person feels first a disposition to sleep and then a prickling sensation in the skin, followed by a general numbness—the natural light fading away, when perfect darkness ensues. A glimmering of magnetic light then begins to appear, when a shock ensues, followed by a blaze of light, consciousness and clairvoyance.



THE HYDRARCHOS,
Or, Great Fossil Sea-Serpent.

Astounding as the progress of geological discovery has been, for the prodigies of the animal kingdom which it has developed, and the enlarged views of the pre-historical epochs of our globe which it has demanded, it has hitherto produced nothing so highly calculated to impress both the scientific and the popular mind with the wealth of its resources and the magnificence of its instruction, as the stupendous fossil skeleton represented in the annexed engraving. In presenting to us the osseous and petrified remains of a marine serpent whose original length was evidently, at least, 130 feet, with a bulk in due proportion, we have tangibly and palpably realized not only the ophicular descriptions of the ancient poets and historians, heretofore deemed fabulous, but the attestations of modern mariners and voyagers, which assert the existence of a similar terror of the ocean, even in our own times, and off our own shores. The serpent of the Deucalian deluge, slain by Apollo Pythius, is beheld, with scarcely the aid of the dullest fancy, in the Apollo Saloon in Broadway. And the gorgeous portrait of the Leviathan, (Heb. *levi-ten*, or "doubled dragon") in the matchless poetry of Job, has found its first conclusive prototype in this Hydrarchon—so strikingly, so, indeed, to every scholar who will undertake a critical examination of the original language, as to completely supercede every animal heretofore proposed by commentators as the subject of the description, together with the Missourium, recently proposed for this purpose by Dr. Koch, the discoverer of this more appropriate exemplar. He who, "when he raised himself up caused the mighty to be afraid;" who, "laughed at the shaking of the spear, and spread sharp-pointed things upon the mire;" who made "the deep to boil like a pot of ointment;" who made "a path to shine after him, so that one would suppose the deep to be hoary," *is here*, in bony majesty, filling us with wonder and awe, at the proofs we behold of his speed, destructiveness, and incomparable power. Indeed, we are confident it will ultimately be a point of unanimous opinion that the Leviathan is the apt and distinctive title which this re-discovered creature should permanently receive.

It was discovered by Dr. Koch, (pronounced K-och) a zealous German Geologist, in the early part of the present year (March, 1845,) in a small [illegible]rie in Clarke Co., Alabama, near the S[illegible]douge, called by the Indians, "Snake River." The field in which it was found, had been but a short time in cultivation, and the vertebræ first disinterred were turned up by the plough. Dr. Koch was induced to explore this district for the purpose of procuring, if possible, a perfect skeleton of the gigantic saurian, denominated from the immense dimensions of its vertebræ the Basiliosaurus, or the King of the Lizards, which had been found in the vicinity, some years previous, by the late Dr. Richard Harlan, of Philadelphia. It appears, by the following extract of a letter upon this subject, from Professor Silliman, addressed to the Editors of the New York Express, (Sep. 2, 1845,) to be extremely questionable whether the bones thus supposed to constitute the Basiliosaurus were not, in reality, portions of another massive specimen of the sea-serpent, now called by Dr. Koch, *Hydrarchos Sillimanii*—a name which, it will be seen, the Professor very modestly and justly deprecates, suggesting, instead, the merited suffix of *Harlani*, to whatever principal name (instead of Hydrarchos, from *Hydra*, a water serpent and *Archo* to rule) may be finally adopted. He says:—

"Several years ago, the late Judge Creagh, of Clarke Co., Alabama, found similar bones on his plantation, in such abundance, that they were often destroyed, as far as possible, by fire, in order to get rid of an incumbrance that interfered with agriculture; the negroes, also, were in the habit of building their fireplaces of them. The late Dr. Richard Harlan, of Philadelphia, and more recently of New Orleans, where he died more than a year since, first described and figured these bones, and supposing them to belong to a gigantic fossil lizard, he imposed the name of Basiliosaurus or King of Saurians or Lizards.

He several years afterwards carried with him to London, some of the bones, and they were there reviewed by the great compara

tive anatomist, Professor Owen, of the Royal College of Surgeons, who was of the opinion that the animal must have had more resemblance to the whales than the lizards This opinion Dr. Harlan had the candor to present to the Association of American Geologists, together with the bones, at their meeting in Philadelphia, in April, 1841, where I heard his statements. Not long after, Dr. Bulkley brought to this city, and eventually to Albany, an entire skeleton of the animal, which is between seventy and eighty feet long, and is now in the State Geological Collection at Albany; but I believe it has not as yet been set up. This skeleton was fully described by Dr. Bulkley, in the American Journal of Science and Arts.

Dr. Kosch, the proprietor of the skeleton now in this city, made a journey of discovery a few years since into Alabama and other Southern regions, with particular reference to this animal. He had the rare good fortune, as the result of his perseverance, aided by the kind assistance of the inhabitants, to disinter the stupendous skeleton which is now set up for exhibition here.

It has, evidently, been done at great expense and personal toil, and the public, while they owe a debt to Dr. K., will, when paying it, receive a high gratification in contemplating the remains of a race of animals whose length exceeded that of all other creatures hitherto discovered; the spinal column of this skeleton as now arranged measures 114 feet in length. The skeleton having been found entire, enclosed in limestone, evidently belonged to one individual, and there is the fullest ground for confidence in its genuineness. The animal was marine and carnivorous, and at his death was imbedded in the ruins of that ancient sea which once occupied the region where Alabama now is; having myself recently passed 400 miles down the Alabama river, and touched at many places, I have had full opportunity to observe, what many geologists have affirmed, the marine and oceanic character of the country.

Judging from the abundance of the remains (some of which have been several years in my possession) the animals must have been very numerous and doubtless fed upon fishes and other marine creatures—the inhabitants of a region, then probably of more than tropical heat; and it appears probable also, that this animal frequented bays, estuaries and sea coasts, rather than the main ocean. As regards the nature of the animal, we shall doubtless be put in possession of Professor Owen's more mature opinion, after he shall have reviewed the entire skeleton. I would only suggest, that he may find little analogy with *whales*, and much more with *lizards*, according to Dr. Harlan's original opinion.

Among the fossil lizards and saurians, this resembles most the Pleisiosaurus, from which however, it differs very decidedly.

Most observers will probably be struck with the snake-like appearance of the skeleton. It differs, however, most essentially, from any existing or fossil serpent, although it may countenance the popular (and I believe well founded) impression of the existence in our modern seas, of huge animals to which the name of sea-serpent has been attached. For a full and satisfactory statement of the evidence on this subject, see a communication by Dr. Bigelow, of Boston, the 2d volume of the American Journal.

Dr. Kosch has committed one error in naming the fossil skelton now presented here for inspection. By every claim of scientific justice, the epithet—Harlani, should be suffixed to whatever other principal name may be finally adopted. It is but simple justice to the memory of our most distinguished comparative anatomist—who first called the attention of the scientific world to the stupendous fossil animal of Alabama: and there can be no propriety (however kindly it may have been intended)in imposing the name of another individual, who can claim no other merit in the case, than the very humble one of endeavouring now, as well as formerly, to awaken the public attention to the most remarkable of our fossil treasures. Dr. K. is therefore bound to recall his new epithet, and restore to Dr. Harlan the honor which is his due. I remain, my dear sir, with great regard, your friend and servant,

BROOKLYN, L. I., Sept. 2d, 1845.

B. SILLIMAN.

P. S.—It should be remarked that Dr. Kosch has also brought to light the most gigantic fossil skeleton of the Mastodon family that has ever been found. It was exhibited in our cities, and is now in the British Museum, having been purchased for two thousand pounds sterling, by that institution.

If the bones examined by Professor Owen, in London, and the "entire skeleton, between seventy and eighty feet long," now in the State Geological collection at Albany, be those of a creature identical in kind with the Hydrarchos, it is but little complimentary to the anatomical science of the examiners that they should have confounded them with those of any known variety of the saurians. The teeth, at least, should have been taken as evidence of a decisive distinction. None

of the saurian family have teeth of more than one fang, while the incisors of the Hydrarchos have two, more and more forked as we proceed from the anterior to the posterior of the jaw. Dr Koch thinks that these incisors, while like those of all the serpent tribe, have also some analogy to those of a marsupial animal — a singular thing enough, if we overlook the fact that all serpents are so far pouched animals as to swallow, or present an internal receptacle of refuge for their living young. It is evident, moreover, that the Hydrarchos did not masticate its food, but gorged it entire, although, says Dr. Koch, it was provided with palate bones which might have been used simply to crush its food. "Its greatly elongated snout was armed with fifty or more spear-shaped incisors whose fangs were deeply inserted in spear-shaped sockets. The pivocation is in the extreme anterior ones, and only marked by a groove; the spear-shaped crown of these teeth is divided into more or less minor spear-shaped fronts, which increase or diminish in number according to the situation the tooth occupies in the ramus; the central one of them is the largest, and those nearest the gum are the smallest. These crowns are covered by a thick coating of enamel, which had a rough surface, and are marked by small scale-like elevations which are narrow, lancet-shaped, and elongated, with their points upwards." "All the incisors are so set in the ramus and maxilla, that their extremities have an inclination backwards towards the palate, like the shark, and that the victim caught could easily enter the mouth, but could not possibly escape." The canine teeth correspond with the incisors in this position, while they are from six to eight inches long.

That the creature was an air-breathing reptile, is conclusively inferred from the nasal cavity, in which the posterior vents are at the back part of the mouth, enabling it to respire deeply and freely. It is not improbable that, like the Pleisiosaurus, this stupendous serpent was a coasting rather than a deep ocean reptile, as indeed are all known marine creatures of a kindred form. Not only its necessity of breathing, but the prodigious size and muscularity of its cervical vertebræ, indicate its habit of rearing itself above the water; and when we also examine the peculiar structure and marvellous strength of its massive lumbar vertebræ, which may be regarded as the axis of its muscular power, we feel authorized to conclude that it could erect nearly two thirds of its entire length from this basis, in a majestic curve above the surface of the tide—often, doubtless, in tranquil seasons, a glowing mirror of its gorgeous form and stately movements. Its eyes, too, which were from six to eight inches in diameter, were so prominently situated on the forehead as to secure it a vast circle of vision, and render it a vivid object of terror; and when Job says of his leviathan that "his eyes are like the eyelids of the morning," the force and beauty of the poetic hyperbole are as appropriate to the eyes of the Hydrarchos as to those of any animal, not purely imaginary, of which we can form an idea.

Upon the general osseous structure of this mighty being, we will quote the description given by Dr. Koch:—"The propelling motion of the animal was, like that of all the serpent tribe, dependant upon the action of its powerful vertebræ, and the strong muscles and ligaments acting in harmony with them. The strong and lengthy tail, was more particularly used as a rudder to direct its course, as well as for the purpose of propelling. The transverse processes, which are very large in the whole spinal column, are more especially so in the caudal or tail vertebræ; the canal for the spinal marrow is very much compressed and flat, and the spinous processes have a great inclination backwards, [probably enhancing its springing or ejaculative power]. The dorsal and lumbar vertebræ are greatly elongated, measuring each from fourteen to eighteen inches in length, and having a circumference of from twenty-four to thirty inches. Their construction differs from those of any animal with which I am acquainted, as each body of these vertebræ is composed of five sections. In the centre, we observe the main body to which all the pro-

cesses are attached, and which measures from five to seven inches in length: to both extremities of this is a pelvis. The section is anglelozed, measuring from three to four inches in length, and to the extremities of these again we find a pelvis. The whole is anglelozed and ossified together in an adult, but will separate in younger animals, as I have had an opportunity of observing personally. [Dr. Koch found several imperfect skeletons of younger specimens of this creature.] The cervicle, or neck, and the coxyxal, or tail vertebræ, have powerful processes, but their bodies have not the additional divisions described above, as found in the dorsal and lumbar vertebræ. The ribs are of a very peculiar shape and form; so much so that I know of no animal to which I might compare them. The greater number are small and remarkably slender on their superior extremities, until we arrive within two thirds of the length toward the inferior extremities, where they begin to increase in thickness most rapidly, so that near the lower parts, where they are flattened, they have three or four times the circumference that they have on the superior extremities, and have very much the curve of the sickle From the whole of their construction, we may justly form the conclusion that the animal was not only possessed of a fleshy back of great power, but also of remarkable strength in its belly, by which means it was enabled to perform very rapid movements. Notwithstanding its two fore feet, or paddles, are quite small in comparison with the rest of the skeleton, yet they are in proportion with the short and thick humerus and ulna or forearm, which, together with the paddles, must have been concealed under the flesh during the life of the animal, in such a manner as to be only perceptible through muscles and cartiliges, similar to the fins of an eel. The humerus and ulna are not unlike those of the Icthyosaurus; and each paddle is composed of twenty-seven bones which form, in union, nine forward and backward articulating joints."

Upon this description we have only to remark that the peculiar form here correctly assigned to the ribs of this ponderous creature, in being so much thicker and stronger at the part of the curve where they turn to bend under the belly, is evidently an admirable provision of nature for sustaining the immense superincumbent weight of its mass, when resting upon a shore, or depositing its bulk for repose, upon the bottom of any other shallow waters; and as a respiring reptile, this sea-serpent must have often enjoyed the ease of such a position, fearless of every foe. That none of the saurians, nor any other animals, should be found to exhibit this very striking singularity of costal structure, is simply because they were otherwise furnished and did not need it; while to this creature, devoid of legs, and all pedal points of support, the provision was indispensable, and he accordingly possessed it. After all, the ribs seem exceedingly slight for so bulky a mass, and there can be no doubt that they were strengthened with those well-knit bands of intercostal cartilage and muscle, which supply the place of osseous ribs in the large conger eel, and other varieties of the serpent race.

Concerning the natural habits and capacities of this wonderful animal, comparative anatomy will spread a rich field of beautiful analogy and scientific induction.

Whether he was amphibious, to the extent of our present water snakes, may well be doubted from the evidence afforded by his side fins of a more decidedly piscine character. The last joint of his tail, too, indicates a final bifurcated fin; and the finding of this termination of the vertebræ, cannot but be regarded as a most felicitous circumstance, for while it tends to determine the animal's distinctive nature, it also proves an admirably tapering symmetry of form, peculiar to the serpent species.

The following is a summary of Dr Koch's unpublished description of the upper and nether stratification of the spot and neighborhood in which these stupendous fossil remains were discovered; and we have great pleasure in presenting to our readers a matter of so much scientific curiosity:—

A. A stratum of diluvial gravel with shells.

B. A stratum of a blood-red color, from a deposit of clay, highly impregnated with iron, and exhibiting grey veins.

C. A stratum of peculiar lime stone, forming in some places remarkable terraces, in divisions or steps, from five to seven feet high, and from thirty to forty horizontal breadth, exhibiting great regularity. These occur in locations, in the vicinity, where traces of a most violent and rapid current appear, and apparently of diluvial action. This lime-stone is termed "chimney-rock," by the inhabitants of the neighborhood, and is so soft as to be sawed into blocks for building, with a common cross-cut saw.

D. A stratum of volcanic origin, forming an extensive bed of volcanic matter, inclosing and cementing various kinds of fossil wood, some partly in a crystaline state and others reduced to charcoal. These specimens of fossil wood, which increase as we leave Clarksville and approach the Mississippi, prove the existence of dry land vegetation at this epoch; and from the admixture here found of fresh water shells with a large number of beautiful marine fossils, the spot seems to have been connected, at the time it was on the surface, with some shallow sea or bay. In Clark and Washington counties this stratum is frequently laid open, forming, indeed a considerable portion of the present surface, and often appearing like a dark brown vegetable mould, mixed with corroded volcanic substances and calcareous matter. Its volcanic origin is clearly traceable whereever it is laid bare; fragments of lava are thrown for miles around the vicinity of Clarksville, and we frequently find extensive beds, formed of a mixture of sand, iron ore and lava, once in a melted state, but now broken in layer, or smaller sections. Sometimes pieces of pumice stone are found here with bituminous coal, and an extensive bed of the latter is said to exist in the Tallehalla Hills in Clark Co.

E. A stratum of yellowish lime rock, containing fossil remains of myriads of animals and shells. In this stratum, at a spot near a chasm, where it had been lifted to the surface, and where the superincumbent strata were thrown to the right and left, by volcanic action, was found the skeleton of the Hydrarchos, or as we would have it called, the *Leviathan*. The vertebræ, with the exception of one or two joints that had been turned up by the plough, were found and dug out in the natural order in which they lay, and in which they are again put together in the skeleton as exhibited.

F A stratum of quartose sand, ten or twelve feet thick, which Dr. Koch conceives to be a continuation of the stratum marked "I," (see below.) He says that at Clarksville he found the upper section of this stratum, containing oysters of a large size, while, on the Tombigby side of the dislocated elevation, he found the lower portion of this stratum, containing oysters in quite a young state of growth. He adds that at Coffeeville, the same stratum appears ten or fifteen feet thick, the lower portion as marl, and the upper as laminated lime rock of the same color as at Claiborne.

G. A stratum of rich green sand, containing highly brilliant shells, of a light green color. This stratum is particularly characteristic, having a bed of oysters entirely different from those in the underlying bed (I), and forming a bank which appears never to have been disturbed. Indeed the shells of many of these bivalves still remain united.

H. A stratum of quartose sand, fourteen or fifteen feet thick, containing shells of oysters and other oceanic shells. Here, in the neighborhood of Clarksville, occurs a miniature species of the saw-fish, its saw, although of a similar construction to that of the existing species, being but about three inches long, instead of as many feet Several species of oysters occur here, which must have originated at this epoch, as they are not found either above or below. "I discovered" says Dr. Koch, "that this last bed is identical with the one of green sand (G) mixed with blue clay, and with an over-lying osseous conglomerate, containing principally the remains of sharks; the first being also mixed with yellow lime stone, and the second with mould of the prairie of Alabama: the latter proving by its numerous fossils to be the upper section of the transi-

tion series, uniting the highest cretaceous with the lowest eocene region. The yellow limestone and the green sand both contain the remains of the largest reptiles; for the Zuylodon, [by some called the basiliosaurus] I discovered at Gay Head, Martha's Vineyard, where it occurs only in the green sand; and in Alabama, where it as exclusively occurs in the yellow lime stone. The remains of extinct crabs occur in both localities, of an identical character; and several species of sharks and saurians, found in the osseous conglomerate of Gay Head, are identical with those of the prairie mould of South Alabama.

I. A stratum of light blue and yellowish limestone, in some places 70 feet thick, as a rich greenish white marl. Where it occurs as a limestone rock, it has strongly the appearance of an uninterrupted bed of the same species of oysters, small and frequently mingled with the casts of oceanic shells, which formed the principal portion of the above mentioned under-lying bed. As we ascend the oysters increase in size, that they may be termed the giants of their race, forming almost a solid bed.

J. A stratum of dark greenish sand, in some places 15 feet thick, containing a great variety of shells, all belonging to those species which we find in deep open seas in tropical latitudes. They are generally in broken fragments, with a few in good condition. We also find a few young oysters, of a kind belonging to the chalk formation. Dr. Koch considers the whole of this bed as the upper part of the secondary formation, and consequently of a far older date than has heretofore been assigned to it.

From this clear and interesting account of the strata among which the Hydrarchos was found, and which in Dr. Koch's exhibition room is illustrated by a sketch on canvass of their present dislocated position, relatively to the perpendicular bluff in the neighborhood where they appear in their original and undisturbed level, it appears that there was one stratum of volcanic origin and formation, and three strata of oceanic deposite, piled above the remains of this animal, upon the surface on which he expired. As the volcanic stratum D, occurs next above the one E, in which these remains were found, it is not improbable that the immense submarine volcano which then burst forth, was the immediate cause of this creature's destruction. But the strata, C. B. A. above this volcanic one, being oceanic, must have been deposited at three several and distinct periods, or geological epochs, when the ocean arose and overflowed the strata that had previously been formed. Geologists, as yet, have furnished us with no data by which we can determine the length of those periods, nor indeed any chronological key whatever to the stratification of the earth. Thus is geology left without a chronology which alone can harmonize its phenomena, and elevate it to the dignity of a science. That chronology, however, like every other, must be sought for, and, we have long thought can only be found, in an astronomical source, developing and demonstrating the changes in the position of the earth's axis towards the plane of the ecliptic and the sun, under the influence of the spiral motion of the magnetic poles, as calculated and published in our Astro-Magnetic Almanac for 1843. From the calculations there given it appears that it requires 2,304,000 years, or one complete siderial revolution of the earth's axis, for the ocean to deposit two strata; and, consequently, that the period of of 3,456,000 has elapsed since the three oceanic strata were deposited over the skeleton of the Hydrarchos. We say nothing of the time during which the volcanic stratum was formed immediately over these remains, because this occurred in the interval between the formation of the yellow limestone stratum in which they were found, and that of the limestone stratum C, next above the volcanic stratum itself. But since the deposit of the third oceanic stratum A, a period has elapsed of 1,008,000 years, during which the ocean has again advanced from the equator towards that latitude, in its progressive formation of a fourth stratum; so that this time must be added to the one before given, to make the total period 4,464,000 years, since the Hydrarchos was destroyed. And immense as this period may seem to those who are unac-

customed to the contemplation of the astronomical causes of stratification, it cannot be abridged without resorting to a succession of miraculous causes to explain the phenomena which undeniably exist It was sometime in the last intermediate period of 1,008, 000 years, that the new subterranean disruption of the strata of that locality occurred which raised these stupendous relics from the place of their protracted oblivion, to become the wonder of the present age.

Motion of the Magnetic Machine.

In running the vibrating Magnetic machine, we sometimes find a point of about the size of a small needle projecting from the end of the screw, which rests on the vibrating spring and impedes its motion. This should be removed with a penknife or file, when the spring will again vibrate in the best manner.

Experience has also shown that the spring is sometimes bent by pressing the screw so hard upon it so as to prevent it from vibrating. In this case, the spring must be straightened, when it will again vibrate in the usual way.

LE ROY SUNDERLAND.

The tenth and last lecture of this gentleman on the Human Soul, was delivered, according to previous notice, in Morris Place, to a crowded and highly intelligent audience on Saturday evening last. Long before the appointed hour the house was filled, and "expectation stood tip-toe," to witness the extraordinary phenomena promised for the evening. At half past 7 the lecturer made his appearance, and immediately commenced the experiments, which were brought on while he was in the act of explaining some few things peculiar to his new theory of mind, denominated Pathetism. In the course of some fifteen minutes, about a dozen of the audience were found to be in a state of trance; and six of the number arose, one after another, and walked, in a peculiar unnatural gait, up to the platform, and by the assistance of the lecturer seated themselves upon the sofa. Among those taken upon the platform under the power of the charm, was Dr. H. G. Payne, Mr. Ketchum, and a young man by the name of Althiser. The other three were ladies. After causing Mr. A to dance, and a few other results, Mr. S. proceeded to prepare one of the ladies for a surgical operation, and invited the medical faculty, the clergy and gentlemen of the press, present, to the platform, for the purpose of having them inspect the tooth to be drawn, and notice the manner in which it was done. He then took hold of Dr. Payne (who was still under the influence of the spell,) and led him up to the lady seated in the chair. And now occurred a sight upon which, probably, mortal eyes never gazed before! It was to see the somnabulic Dr. in the process of extracting that tooth, while he and the patient were in a state of trance, and neither of them able to open their eyes or move a muscle without consent of the lecturer! The tooth was very firmly set, and it required an extraordinary outlay of strength to extract it. The lady sat, during the operation, without the slightest manifestation of consciousness, though she is well known to be one of the most fearful and timid in her natural state: so much so, that she has been thrown into spasms, it is said, when attempts have been made to draw her teeth when she was awake.

In a few minutes after, the Dr. himself was seated in the front chair, the spell still upon him, and another physician present, (Dr. Lyman,) proceeded to perform a similar operation upon him! It was one of the wisdom teeth, and had grown in such an unnatural manner, as rendered the extraction exceedingly difficult. Five times the key or forceps slipped from the tooth, and the violence done to the jaw was such, that the Dr., we learn, has scarcely been able to open his mouth since: and though he declared that he suffered no pain at all at the time, it would seem that he has since suffered enough to make it up.

This experiment was intensely interesting, and highly satisfactory to the audience; as we suppose it the first and only one of the kind ever performed since old Adam was put into the "deep sleep," for the purpose of having the rib taken from his side.

After the above, Mr. S. informed the audience that another lady was present in a state of trance, who would submit to have two of her teeth drawn, if they had patience or a desire to see any more blood shed, A wish being expressed to see it done, Dr. Payne was now restored to his natural state, and in a few minutes he drew two of her

molar teeth, while she manifested not the slightest knowledge of what was going on. And both ladies operated on declared, after being restored, they had no knowledge whatever of any thing done to them while upon the stage in the state of trance!

What Mr. Sunderland has accomplished during his visit to this city, has abundantly confirmed the newspaper reports we have seen of his wonderful performances in other places; which, in the production of psychological phenomena, especially those peculiar to what are called spells and charms, place him far before all other men of whom history has given us any account. He has evidently left a good impression on the minds of our citizens, as was manifest by the audience, last Saturday evening, when he declared his determination, at some future day, to visit our city again.—*Troy Budget.*

"Clairmativeness."

DEAR SIR:

The publication containing "All the Mysteries of Human Magnetism and Clairvoyance Explained, by the celebrated Jackson Davis of Poughkeepsie," promised in the Tribune some time since, by Rev. G. Smith, has just come to my notice; and, as I know many of your readers feel considerable interest in the subject, I beg the privilege of offering a few remarks concerning it. And, I am the more inclined to do so, from knowing, as I do, that many candid persons like Mr. Smith have been so completely carried away with the oracular proofs of young Davis, as to admit and believe most or all he has said without the shadow of a doubt! Had these friends heard as many "revelations" of theories from somnambulists as it has fallen to my lot to listen to within the last seven years, I do believe it would have very much moderated the ardor of their faith in the "Clairmativeness" of Mr. Jackson Davis. Swedenborg was a far more remarkable Somnambulist than Davis, or indeed than many others of the present age who have been thought to be so very extraordinary. More beautiful theories were never conceived, perhaps, in the human brain than were put forth by Swedenborg, while in a state of Somnambulism, or one identical with that to which we now apply this term. Somnambulic revelations of theories have often been made by Mormons, French Prophets, Anabaptists, Methodists, Catholics, Presbyterians, and others. Witness the Trance of Rev. Mr. Tennant of New-Jersey. These visions, or Somnambulic descriptions, may be classed with the phenomena of Dreaming, and are no more to be depended upon as truthful than many cases of dreaming, which are of constant occurrence.

Many of the representations made by Davis, are not only puerile, but they are false in fact, as any one may easily know. See page 34 of his book. "Clairmativeness," he tells us, "is a compound word, and literally signifies clearly reversed"!!! "Clair," is a French adjective, and literally signifies "clear," and not "clearly," as Mr. D. thought; and, then as to the literal meaning of "mativeness," who knows?

His stories about the inhabitants of Saturn, may be classed with the visions of Joe Smith. I no more believe them than I do the following, where (page 36) he speaks of himself in the following terms:

"When in the state that I now am, I am master of the general sciences, can speak all languages, impart instructions upon those deep and hidden things in nature, which the world have not been able to solve, as I have done in these lectures [!] can name the different organs in the human system, point out their office and functions—tell the nature, cause and symptoms of disease, and prescribe the remedies that will effect the cure," &c. &c.

Did that youth ever converse with any intelligent person, in a foreign language? And, into what egregious delusion must that mind have fallen which could utter such language as the above! Many things he affirms about the state denominated the "magnetic sleep," I know to be untrue, but it would not be worth the space to point them out here. Page 21, he undertakes to prove that "magnetism" is "animal heat," and the cause of all "feeling or sensation;" and says: "Take for example a limb that has received a paralytic shock—it is entirely insensible to touch, no sensation can be produced in it."

This is a great mistake as every Pathologist knows, and shows how really ignorant this youth is, notwithstanding his assumption that he is "Master of the general sciences!" I have seen and treated numerous cases of paralysis, where the sensation was far greater than in other parts of the system not affected.

Mr. Davis seems to have borrowed largely from numerous writers in his sleep, and from one he has quoted ideas about the "sympathetic nerves," page 10, and the effects of manipulation, page 21, without giving credit for them.

The pamphlet is interesting as a Somnambulic performance, though it contains much that amounts to nothing, even if admitted to be true; and still more which may be easily demonstrated to be false in philosophy and unsustained by matter of fact. In saying this much, however, I must not be understood as attaching the least blame to Mr. Davis, or his amanuensis, Rev. Mr. Smith. The former told his somnambulic visions, containing some truth, mixed up with a vast amount of fancy, and the latter gentleman believed the whole. Time will show that they were both deceived, as thousands of others have been before them who have depended upon similar revelations for what they should believe both in science and religion.

LE ROY SUNDERLAND.

BOSTON, Mass. Sept. 25th 1845.

Tribune.

This number completes the second volume of this Journal The first number of the third volume will be issued on the first of January next.

Erratum.—Page 215—Article "Magnetic Sleep," 18 lines from the bottom of the second column, for molar read "motar."