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MAGNETIC, OR ELECTRICAL THEORY OF THE CIRCULATION OF THE BLOOD.

We now redeem our promise, which we made in a note at the bottom of page 27, second number and second volume of the St. Louis Magnet.

In connexion with the theory of the circulation of the blood, our design is to show how the body and mind too, are replenished. We are taught physiologically, that the body is thrown off at least once in seven years by insensible perspiration and again replenished by the vital organs, in accordance with the laws of vitality. Reasoning from analogy as well as from effects to their causes, we can come to no other conclusion, but that the mind undergoes the same changes. The mind is of the same form and size of the body—it is ramified throughout the whole body. We cannot put down the point of the finest cambric needle on any part of the body without the mind's being conscious of it. Hence, we can come to no other conclusion, but that the mind is of the same form and size of the body. The fact is, the body is composed of gross globules, which may be perceived by a powerful microscope—the mind of infinitely small globules, which cannot be seen even by the aid of the most powerful magnifying glass. The mind, then, is to the animal body what the magnetic fluid is, to mineral matter. We find, too, that the mind is governed by the same laws that the body is. If we exercise the mind too much, it becomes weak and deranged; and if we do not exercise it sufficiently, it is weak in proportion to the deficiency of exercise. The same principles govern the body.

We now pass to the circulation of the blood. We know, from observation and experience, that electricity pervades all matter; therefore, the atmosphere which we breathe contains more or less of this ethereal

fluid. We are also aware that electricity possesses the property of *attraction and repulsion*. Upon this principle, we solve the problem of the circulation of the blood. Dr. HARVEY discovered how it circulated; it was left for another age to discover the cause of its circulation. We observed that the atmosphere contained electricity, and we now further observe, that this electricity is inhaled into the lungs with the atmosphere. This ethereal fluid possesses the power of passing through the lungs, as it does all other bodies; and here it mingles with the blood and gives it that high florid color peculiar to arterial blood. The blood is thus rendered magnetic, and is positive; it is then thrown to the heart, from which it is distributed in every part of the system through the arteries. As the blood passes from the arteries to the veins, it is conveyed through small hair like tubes, which are called capillary vessels. Here the blood parts with its electricity, and consequently its high color. It is now venous blood—negatively charged with electricity, and of a dark color. The nervous system has a stronger affinity for the electricity than the blood, which merely acts as a conducting medium, between the lungs, or atmosphere and the nervous system. The lungs become positive in consequence of having received a fresh supply from the atmosphere. The blood having given off its electricity to the nervous system, is negatively charged, and hence, it rushes to the lungs to receive a new supply of the ethereal fluid, becomes charged, and consequently positive, and again rushes throughout the system, distributing the life, giving principle to every organ—becomes negative, and again rushes to the lungs to be supplied with the electric fluid, which becomes *animal galvanism*, by being secreted by the nervous substance. Hence, the blood circulates upon the principle of positive and negative electricity. The blood becomes positive at the lungs, and negative in the capillaries, which connect the arteries with the veins; hence, the law of equilibrium is maintained between the lungs and nervous substance, through the agency of the blood. There is a beautiful analogy between the circulation of the blood and the action of the vibratory galvanic battery, which will give our readers who are acquainted with that interesting instrument, a very fine practical demonstration of the electrical theory of the circulation of the blood. The horse-shoe magnet is charged by the battery as the lungs are by the atmosphere, and becomes positive—the hammer, which represents the blood, is attracted to the positive pole of the magnet and becomes positively charged, and hence is repulsed by the positive pole of the magnet and

thrown against the negative point above where it parts with its electricity or magnetism—becomes negative, and is again attracted to the positive pole of the magnet, and thus it is continued as long as the machine is kept in order.

The heart subserves its purpose, in the circulation of the blood, which, however, is mechanical, and does not interfere with the electrical theory of its circulation.

We will continue this article in our next number, by giving the electrical theory of animal heat.

We shall then be prepared to explain the manner in which the body and mind, too, are replenished, and consequently sustained—how they grow, and increase in size and strength, and why they decrease in size and strength.

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For the St. Louis Magnet.

SALEM, 19th June, 1846.

*Dear Dr. McNair:* The Magnet has come to hand and all is explained.

Here is a case of Hydropathy detailed for publication—not to feed the vanity of any one, but to benefit the afflicted. All the facts here stated can be substantiated by the most undoubted testimony, if any are not satisfied with a mere recital of the facts as they transpired.

Mr. H—, of this place, was attacked on the 13th of May last, with Sciatica in the left hip. During ten days he suffered the most excruciating pain from which he could get no relief, day or night—being wholly unable to stand or walk, lie down or get up without help. Throughout all this time, the most approved remedies were resorted to, but all to no purpose. No relief came, and the disease grew worse. At length, when popular cures had proved to be no cure at all, he ventured to try the COLD WATER CURE. The first thing done was to envelope the patient in a wet sheet, (right out of cold water,) placing him in bed under other covering. Here he remained about two hours and a half, drinking frequently small draughts of cold water. In an hour and a half he was in a copious perspiration—the pain had measurably subsided, and the patient was under no excitement. After sweating one hour he was removed, though reluctantly—it being the first time he had been comfortable for many days—and the shower bath was

applied, accompanied with much friction. The next morning the treatment was similar when the pain ceased, the cure was effected, and from that day to this the patient has continued to be entirely well. In three days after commencing with cold water as a remedy, he was able to attend to his business as usual. He wishes his case to be known by others, that they may, if occasion requires, go and do likewise; believing they will experience the same happy result. And to this end these remarks have been hastily penned by

AN EYE WITNESS.

## MEDICAL.

CLAIRVOYANT Examination, of Miss——, by C. EAKER:

"This patient's system is very much deranged, and has been for a long time. The liver and spleen are both very much effected, which causes a great deal of pain in her right side and limbs. Her nervous system is quite weak and irritable, which throws the patient into frequent spasms. There is some scorofulitic humor in her system, which shows itself occasionally on the surface. The blood circulates very unequally, and does not determine sufficiently to the extremities."

REMEDIES.—"Queen of the Meadow, 1 1-2 oz.; Comfrey, 2 oz.; Lobelia leaves, 1 oz.; Clivers, 2 oz.; Yellow Dock Root, 3 oz.; Blood-root, 1-2 oz.; Golden Seal, 2 oz.; make into three pints syrup, and let the patient take half a wine glass full three times per day."

"The action of the battery should be passed through from the pubic region to the lumbarvertebræ. The negative pole of the battery must be placed over the pubic region, and the positive pole over the lumbarvertebræ; which, at the same time, may be passed down the whole length of the spinal column. The negative pole may also be placed over the region of the liver, while the positive pole is being passed along the spinal column. The negative pole may then be placed under the bottom of the feet and the positive to the back of the neck. The whole operation should not occupy more than twenty minutes."

"At the close of two weeks it will be necessary to make another examination, and alter the prescription."

Second Examination.—"Her nervous system is very much improved. The liver and spleen are also very much improved, and require but little more to bring them into healthy action. The blood is quite firm."

pure still, and too much hurried in its passage from the heart to the lungs, which still tends to exhibit slight symptoms of spasms. The principal object is now to purify the blood, and lessen this hurried action, by imparting more iron to the blood."

**PRESCRIPTION**—"Sarsaparilla, 3 oz.; Poplar bark, 2 oz.; Dogwood bark, 1 1-2 oz.; Cherry bark, 1 oz.; Golden Seal, 2 oz.; Lady Slipper, 2 oz.; Lobelia herb, 1 1-2 oz.; Solomon Seal, 2 oz.; Capsicum, 2 drachms. Make into three pints syrup. Dose as usual."

2dly. "Extract Dandelion, Sulphate of Iron, and Carbonate of Potash, equal quantities; make into four grain pills. Let the patient take one of these pills three times per day for two weeks."

3dly. "The patient should bathe her feet in warm water, made costic with Salsoda, or common ley, twice per week, just before going to bed, and her head and body should be bathed as often in cold water—this should be done early in the mornings."

4thly. "The patient must be careful to eat but little at a time, and drink no strong tea or coffee. Should take considerable exercise in the open atmosphere."

5thly. "The Magneto-Electrical Machine should still be applied as before; but twice per week will be sufficient."

"Another examination may be necessary before this patient entirely recovers."

**Third Examination.**—"The patient's system is now in a very healthy condition, with the exception of a slight derangement in the uterine organs, and the blood. There is also a slight irritation in the vagina."

**PRESCRIPTION.**—"Take White Oak bark, Witch Hazel bark and Sumac Berries, equal quantities, and make into a decoction. To each pint of this decoction, add one drachm of Alum; to be injected up the birth place once per day, until all the irritation ceases."

2dly. "The Alterative syrup should be taken three times per day for three weeks. Dose, half a wine glass full. This will serve to purify the blood. The patient will require nothing more. She will now entirely regain her health."

This patient had been in delicate health from her fourth year, until the present; being now about thirteen. She had been treated by a number of physicians, and had, of course, taken a great deal of medicine, without receiving any permanent benefit. Her parents became so discouraged with the regular practice, that although residing some two hundred and fifty miles from the city, was induced to send their daughter

ter to us for treatment, the result of which is before our readers. We heard yesterday from the patient, that she was still improving in health, and her friends were perfectly satisfied that she was entirely recovered. She was under our care some three months, and it is now about two months since she returned home. No symptom of her old disease has been discernable since. This was a great triumph, as the disease was of some nine or ten years standing. But this is nothing for the Duodynamic practice. It has failed in no instance in our hands, where organic or structural derangement had not taken place. We have tested it severely in the very worst cases of almost every class. It is mostly patients, who have gone through all kinds of treatment, and then given up to die who give us a trial. Our practice has, notwithstanding this unfair trial of its remedial powers proven itself adequate to this severe test, in every instance. We might fill our Journal with the various cases which pass through our hands; were we to notice every one as minutely as we might. We do no more than state the simple facts in respect to the few cases which we do report, for fear of wearying the patience of our readers; and for fear, too, of crowding out matter which might be more interesting and instructive. Our object is merely to report a sufficient number of cases to demonstrate the theory which we advocate.

## ELECTRICITY.

As soon as the different nature of electrics and conductors had been ascertained, and it was known that electrical effects were in proportion to the friction which produced them, philosophers endeavored to construct machines for the greater accumulation of the electric fluid. To Otto Guericke, the inventor of the air-pump, we are indebted for the first of these; it was a globe of sulphur, turned rapidly on an axis by means of a wheel and treadle, the friction was produced by holding the hand against the globe. L'Abbe Nollet added a *conductor*, this was a brass rod suspended by silk from the ceiling. Dr. Watson suspended three globes in a similar manner, and added a *cushion* to each; this latter was a very great improvement; the conductor was suspended from the ceiling as before. Mr. Wilson used a glass globe instead of one of sulphur, added much to the portability of the machine, by sus-

pending the conductor on silk lines stretched across two pair of glass rods, placed on the stand of the machine itself. Now also a screw was first used to modify the pressure of the cushion, and points attached to the conductor. For the next great improvement in this apparatus we are indebted to Mr. Nairne, who employed a cylinder of glass, which he supported vertically; he attached a spring to the cushion, used amalgam upon it, and supported the conductor upon a single glass pillar; thus in his hands that which was before cumbrous and comparatively ineffective, became a useful, a portable and easily constructed instrument, rendered, however, yet more convenient and powerful by the horizontal position of the cylinder, and the silk flap soon afterwards suggested by Dr. Priestly. This was the history of the cylinder machine, and the following is its usual and simplest construction, thus:—

A glass cylinder having upon each end of it a cap of wood or brass, and supported by a stand with two uprights. The end of one cap is turned with a pivot, which fits into a hole near the top of one of the uprights. The other cap is turned with a similar pivot, and has beyond this a flanch and a square gudgeon, upon which a handle fits. This end of the cylinder is supported in a similar manner to the other end, but instead of a hole merely being bored in the upright leg, a portion is cut away, that the cylinder may be the more easily taken out and put up again in its place; it may be secured, when there, by a pin run through the upright just above the axis of the cap. Behind the cylinder is a cushion which extends in length to within an inch of either end of the cylinder, it is from one to two inches in width, according to the size of the cylinder; on the lower part of the cushion is glued a flap of leather (the rough side outwards,) and on the edge of the leather the silk flap which passes over the cylinder when in action. The cushion is supported sometimes by a thick rod of glass with a wooden spring at the top of it; at other times a springy piece of wood alone is used. It is fastened at the top to the cushion by a hand-screw, which passes through the support, and is fixed by a thread in the back of the cushion itself. The lower end of the support for the cushion is made so as to slide backwards and forwards, either on the top, or still better underneath the stand, and is held in its position by a thumb-screw.

The *prime conductor* is formed either of wood covered neatly with tin foil, or of metal. It has round and smooth ends, at one of them a ball and wire for the suspending of various apparatus, at the other a projecting wire furnished with a row of points to collect the fluid when dis-

turbed by the cylinder. It is necessarily supported upon a glass pillar, sometimes attached at the lower end to the same stand as the rest of the machine, in which case the conductor runs parallel to the cylinder, and has the points driven into the side instead of the end. At other times it is fixed to a separate foot. At the top of the conductor are two or three holes to afford greater facility in performing experiments. The cushion is attached to the spring, and glass leg which supports it.

*To make a Machine.*—In making a cylinder machine, observe carefully the following directions. The centre of the cylinder, of the cushion, and of the conductor should be of the same height. The lower part of the cylinder, unless in a very small machine, should be at least 10 inches above the foot of the stand beneath. The glass pillar of the prime conductor not less than 14 inches long, the conductor itself about as long as the cylinder, and from 2 to 3 inches diameter; the points projecting nearly an inch. The silk flap should be thin and extend to within an inch of the points. Fix the caps upon the cylinder thus:—Make some cement according to the following receipt, which have melted ready for use: roughen with a file the glass on each end of the cylinder, and bore a small hole through the axis of that cap which does *not* bear the handle; this done, stop up the inner end of the hole again with a small piece of dough, putty, or clay. Now grease the outside of this cap well, put it in an upright position, half-fill it with the melted cement, warm well the end of the cylinder, put it upright into the prepared cap, let it remain till the cement is hard, and then clear out the hole through the centre by a hot wire; being very careful that it is at all times afterwards left open. This is necessary as a vent for the heated air, which of course will be liable otherwise to burst the cylinder, not merely when the other cap is fixed to it, but ever afterwards when the machine is in action. The hole being thus opened, the other cap may be fixed on in the same manner; a second hole however is not necessary. The cause of greasing the outside of the cap is, that any cement which flows over may not stick to it.

By attending to the above description and observations, an electrical machine may be made out of a common sample phial, capable of giving sparks, charging a Leyden jar, and performing most of the simple electrical experiments.

*Electrical Cement.*—Put together in a pipkin over the fire, 2 lbs. of yellow rosin, 4 ounces of bees'wax, and a quarter of a pint of linseed oil; to which add, when melted, about half a pound of red ochre; stir

them together and they will be fit for use when wanted ; the cement must never be heated so much as to be frothy.

*To work the Machine.*—Warm the whole well before the fire, and cleanse it from all damp and dust. Take off the cushion, scrape away all dirt, spread evenly upon it some fresh amalgam, put it back in its proper place, and fasten to the screw, which connects it with its upright, a brass chain, the other end of which reaches to the table or floor, or the walls of the apartment. Upon now turning the handle, streams of fluid will be seen to issue from the cushion, and passing under the silk, to fly off at its edges. To collect the fluid, place the conductor with its points about a quarter of an inch from the edge of the silk, which will so readily attract the fluid from the cylinder, that sparks proportionate to the extent of the glass surface rubbed may be taken from it, being very careful however that the glass stand of the conductor be perfectly dry. The pressure of the cushion against the cylinder is to be regulated by the screw on the stand at bottom.

*Note.*—If the machine be small, it will require frequent warming ; the power of a machine is generally increased by rubbing the cylinder for a minute or two with a slightly-greased rag, or by putting one hand upon the cushion.

The rationale of the action going on, is this :—the fluid passes from the earth through means of the floor, walls, &c., to the chain suspended from the cushion, here friction, which is the cause of the disturbance, takes place. The disturbed fluid passes to the glass cylinder, and is confined from escaping by the silk flap ; that ceasing, the fluid would fly to any thing around, particularly to a pointed body, or a lighted candle, but this is prevented by the superior attraction for it from the nearer end of the prime conductor put to receive it. Thus it will be at once seen that an electrical machine resembles a pump ; the earth may be likened to a well of water ; the chain to the lower pipe of a pump ; the cushion is the sucker ; the silk the nozzle, and the prime conductor is like a pail to hold the fluid.

[From the Vicksburg Weekly Sentinel and Expositor.]

## NEUROLOGY.

During the last two weeks, Dr. J. R. BUCHANAN has been engaged in the delivery of a series of Lectures to a private class of gentlemen in the city of Jackson, upon the science of Neurology. In consideration of the great satisfaction which the class have derived from the Lectures, and the experiments performed by Dr. B., and in view of the benefits which must result to mankind from the propagation of this new and interesting science, the class selected the undersigned as a committee to prepare a Report on this subject for publication.

It will be recollected that some years ago, much curiosity and speculation was created in this country by the science of Phrenology, as taught by Doctors GALL and SPURZHEIM. Their discoveries extended only to the *location* in the head, of distinct organs or developments of the brain, each of which was believed to perform a separate and distinct office from the whole mass of the brain. In proportion to the greater or less development of these distinct organs of the brain, the mental characters of persons were found to differ; and hence, the peculiarities of every mind were traced to the peculiar shape of the head. Phrenology was discovered by the visual observation of the size and shape of the human head and brain, and pretended to nothing but the establishment of the fact that the brain was the seat of the mind, and that the difference in minds was caused by the difference in the size and shape of the several distinct organs of the brain. In the study of Phrenology, Dr. BUCHANAN was led to believe that the distinct convolutions of the brain were not only the organs of peculiar characteristics of mind, but that each convolution had also a peculiar *physiological* effect on some portion of the body. In the course of his investigations he discovered by experiment that the brain could be stimulated to action by *external means*, and that there was a class of persons in whom the organs of the mind could be severally effected by the application of the hand in an appropriate manner. Knowing that the nerves were the channels of a regular connection between the brain and the body, he conjectured that the stimulation of any part of the brain must produce an effect upon the part of the body with which that part of the brain sympathized. To test the truth of this conjecture, he placed his finger on a single convolution of the brain of an impressible person, thereby stim-

ulating the same to more than usual activity. While under the influence of this stimulation, the subject of the experiment would state his sensations, both of mind and body, and in what region of the body the sensation was felt. In this manner, and in similar methods, experiments were repeated over the whole surface of the head and body, and the result was, not only the discovery of numerous mental organs previously unknown, but also the further discovery that every convolution of the brain was susceptible of a distinct action, and that when excited to action each convolution of the brain had a specific influence over our sympathy with a corresponding portion of the body—a sympathy so intimate and inseparable, that by touching any portion of the body with the hand, the sensation would be distinctly felt in a corresponding convolution of the brain.

By these experiments Dr. B. enlarged and corrected the old system of Phrenology—added thereto a novel and interesting system of Cerebral Physiology, and finding that his discoveries presented a complete view of the whole constitution of man, sought a more comprehensive term than Phrenology for this more extensive Science. Regarding all the powers of the human constitution as inherent in, or flowing from the *nervous substance* of the brain, and body, he selected the term **NEUROLOGY** for the nomenclature of the new Science.

Having briefly explained the origin of the Science, we will now speak of the Lectures delivered before the class in this city.

When the Lectures commenced, several members of the class were familiar with the cerebral locutions of the different organs of the mind by Gall and Spurzheim, but none were acquainted with the location of the organs subsequently discovered by Dr. BUCHANAN, nor did we believe it susceptible of proof that each convolution of the brain had a separate corresponding sympathetic organ in the body. To demonstrate the truth of this position experiments were resorted to. By applying the palms of his hands to the foreheads of several members of the class, and slowly withdrawing them, he found a number of persons who were attracted towards his hands, as he drew them back; this was the test of *impressibility*. These impressible persons were then directed to place their hands upon different parts of the body of any member of the class, and describe the mental sensation produced thereby. In this way the most novel disclosures were made. The limits of this report will not permit us to recite the experiments in detail, but suffice it to give a few examples. By a diagram of the head prepared by Dr. B. the head is

subdivided into several parts. The *forehead* is the region of *intellect*—the *top* of the head is the region of *Virtue*—the *back* of the head, from the crown, along the occipital region, is the region of *Power, Energy, Health, &c.*—below the occipital knob, and *behind the ear*, is the region of *Crime*—and in *front* of, and *below the ear*, is the region of *Disease, Debility, &c.*

The impressible person, by placing his finger on the various parts of the breast bone, would experience sensations corresponding to the Intellectual region of the head—such as foresight, sagacity, judgment, wit, reason, &c. The trying the experiment on the side of the chest, from the region of the nipple to the collar bone, he would get sensations of love, religion, philanthropy, benevolence, friendship, &c., corresponding to the organs in the region of virtue. Then touching the shoulder and arm, he described sensations of dignity, pride, ambition, love of power, hardihood, health, energy, &c., corresponding to the organs of the brain in the region of power. Then touching the back below the shoulder blade, he would describe sensations of coldness, drowsiness, and an inclination to sleep, corresponding with similar organs in the brain. By experimenting upon the organs of Somnolence and sleep, without any Mesmeric procedure two members of the class were reduced to the somnolent condition, so that their eyes were closed, and the physical control over them suspended. In this condition, Dr. B. executed the organ of mirth, and they laughed vehemently in their sleep, and one of them stamped the floor with his foot; then by a touch on the region of irritability and combativeness, they became morose, contracting the brow, compressing the lips, and clenching the fists, as if for a desperate fight. They were kept in this state several minutes; and other organs were touched with like effect. Dr. B. then placed one of the fingers of each sleeper on the forehead of another person, and they awoke and sprung to their feet as suddenly as if under the effect of an electric shock. They then stated that they were conscious of the presence of persons, and could hear distinctly what was said, but they had no power to open their eyes, or exert corporeal action, except as stimulated on the different organs by Dr. B. In the course of the Lectures, experiments, both by Dr. B. and the members of the class were made on many other cerebral and corporeal organs, producing results equally wonderful and convincing of the truth of the Science; all of which, except the cases just mentioned, were made in a perfectly natural condition of the parties, without the production of any somnolence.

Among other experiments, we should not omit those upon *Autographs*. Dr. B. asserted that in the *impressible* constitution, a remarkable power might be developed, which would enable the person when in contact with a piece of writing, to sympathise with the mental condition of the writer to such an extent as to appreciate and describe the leading traits of his character; and in proof of this doctrine, he placed either a letter, or the signature of a person of public notoriety on the most intellectual or intuitive region of the forehead of an impressible person, and directed the person to state his physical and mental sensations. The subject would then state what region of his brain was most excited, and the general effect produced on his mind, and give his opinion of the general character of the writer from these sensations. After the description was given, the autograph would be shown, and to the astonishment of the class, the description of character invariably coincided with the known reputation of the writer. In this manner, experiments were made upon the autographs of GEORGE WASHINGTON, General JACKSON, THOMAS H. BENTON, MARTIN VAN BUREN, JOHN C. CALHOUN, Gen. CASS, Gen. E. P. GAINES, and many other public and private characters; and the descriptions were so faithful that the performer would frequently state not only the general outlines of character, but also the author's *occupation* in life—the *offices he has held*—the *objects of his ambition*—the estimation placed on him by the public; and finally call the author's name. On one occasion, the class invited a number of ladies and gentlemen to hear a lecture on the philosophy of *color* and *music*. After the conclusion of the Lecture, a member of the class observed to Dr. B. that one of the spectators present had a full development of the *intuitive region*, and that the audience would be gratified with the experiment of an autograph upon him. An autograph was accordingly applied—the subject soon showed signs of great mental excitement, and proceeded to describe a character which no one, familiar with the peculiarities of JOHN RANDOLPH, of Roanoke, could mistake. He also stated, that the writer, at the time of writing, was *sick* and *in bed*. Before the signature was disclosed, the same letter was placed on the head of another impressible person—he concurred in the general characteristics given by the first performer, and in the fact that the writer was sick and in bed. In addition, he was asked what were the writer's opinion of the ladies. He replied in substance, that he had an aversion to the ladies, and treated them with great disrespect. The letter was then shown to the audience by Dr. B., and it proved to be a letter from John

Randolph to Bela Badger, of Pennsylvania; and he stated in the letter that while writing the same, he was very sick, and confined to his bed. The aversion of Randolph to the ladies is a matter of notoriety. Several members of the class have tried similar experiments on persons not belonging to the class, and similar results have been obtained. The public will, no doubt, regard these statements as too miraculous for belief; but we have witnessed the experiments, and hereby attest their truth.

The Science of *Neurology*, as presented by Dr. Buchanan, purports to be a complete system of Asthropology. It is the only system of which we have any knowledge, which combines Mental Philosophy and Physiology, with Phrenology, and thoroughly explains the connecting links of these distinct Sciences. Anatomy and Physiology have heretofore been studied independently of their relations to the mind; and mental science has been studied apart from its relations to Anatomy and Physiology; but as Psychology and Physiology are intimately blended, and inseparably connected in fact, these partial views afford a very unsatisfactory system of Philosophy. Neurology remedies all these defects, explains all the mysteries heretofore clouding these separate sciences, and unfolds the entire mental and physiological structure of man. It establishes beyond all question that the brain is the common centre of the human constitution, in which all the powers of mind are located, and act by appropriate organs on the body; and that it is also the focus of the physiological system in which the nervous forces, presiding over animal life, may be located, and their relations traced. By direct experiment on the brain or body of the living man, each point of contact develops a peculiar faculty of the mind, trait of character, or power of the body; and the combined result of these experiments presents not only an extensive and beautiful system of Mental Philosophy, but the most extraordinary and finished system of Physiology which has ever been presented to the world.

We feel no hesitation in saying that Dr. B. has opened a great highway to the philosophy of Man, and we see nothing to obstruct the progress of further discovery. The system of Phrenology, which he has already developed, is one of vast extent, and supplies the innumerable defects of the system of Dr. Gall. In his application of the new system, we have witnessed a delicate analysis of character, and an accuracy in pointing out the peculiar Phrenological and Physiological developments of different individuals, which might alone be regarded as a sufficient proof of the correctness of the theory. In a class of forty gentlemen, we have seen Dr. B. determine by a glance at their heads, the structure, the

physiological action, and peculiarities of the lungs in each individual; stating, with a precision to which every man gave his assent, their different powers of respiration, their tones of conversation, and their respective peculiarities of delivery, both in common conversation, and in public speaking. The science is therefore one of practical utility. It enables the student to determine readily the peculiarities of each man's bodily constitution, as well as the constitution of his mind. To the practitioner of medicine such a power over the human system must be of incalculable value. It will enable him to point out the defects in each body, and to trace diseases to their origin; it will give him a skill in the administration of medicine heretofore unknown to the healing art.

While on this point we will mention an experiment. On one occasion, as the members of the class entered the room, Dr. B. gave to each man a paper folded after the manner of a medical preparation; he directed us to hold it between the palms of our hands, until we felt the effect, and then describe the same. In the space of five minutes several persons were sensibly affected, and in the course of half an hour, nearly every member of the class was in a state of perspiration, and evidently under the influence of a strong opiate. The class were then directed to state from their sensations, what the papers contained. Several physicians immediately pronounced it *Morphine*, and the whole class finally came to that conclusion; the papers were opened, and found to contain ten grains of *Morphine*. This goes far to prove that the human system receives an influence from every substance brought in contact with it, and therefore that medicines may be administered as well by external as internal application, and even without physical contact with the skin. This doctrine is a part of Dr. Buchanan's theory. He states that some persons are so highly impressible and sensitive to external influences, that they cannot only be influenced by medicines, but by metals and minerals, which lie many feet under ground. To this susceptibility he attributes the success of many persons in finding the location of water under ground by the use of twigs, or limbs of trees—the power is not in the twig or limb used by the water hunter, but consists of the attractive influence of water upon their own bodies. This fact Dr. B. claims to have established by absolute experiment upon the constitutions of persons who possessed this singular power. If these experiments are continued, and prove successful, we may soon have a class of men so highly impressible by mineral substances, as to enable them to locate mineral regions with certainty.

The singular relations which Dr. B. has traced between the action of

the mind and the physiological movements in the body, the circulation of the blood, the secretions and muscular action, have that simplicity and grandeur which are found in all the laws of nature, when fully understood, and in fact, constitute nothing more than the Natural Philosophy of Man.

The science of Phrenology has been objected to by some, on the ground that it led to Materialism, and was therefore in hostility to the spiritual doctrines of the Church. Dr. Buchanan's experiments entirely dissipate this objection. While he shows that the brain is the mere organ of the mind, and the seat of life and action, he also demonstrates that the action of the mind is not confined within the brain, it is not a ponderable substance confined by the laws of attraction to any particular spot; but is a spiritual essence, capable of unlimited expansion—communicating not only with all that is past, but reaching far into futurity. If the experiments upon Autographs prove any thing, it is that the writer communicates thereto an indelible and imperishable mental or spiritual impression—an impression entirely beyond the reach of optical discovery, but which when brought in contact with the intuitive or spiritual region of the mind, is so plainly perceivable as to reveal the character of its author, and his capacity for the various offices of life. If this be true, (and we cannot deny it without rejecting the evidence of our senses,) why may not the same spiritual power look into futurity and discover the destiny of man? Such a capacity is entirely above and beyond the laws of matter—it is an influence acting upon, and governing matter—a divine omniscience, verifying the truth of the assertion that man was created after the image of his Maker. Take from a man his mind, and he is no longer a man, but gross and offensive matter.

The views of Dr. Buchanan upon the laws of Light, and of Sound, and their connexion and analogy with Mind, constitute an interesting portion of his Lectures; and should his future discoveries in these and other branches of his Science be as successful as the past, we may indulge the hope of attaining an insight into the spiritual nature of man heretofore unknown to the scientific world. The boldness of the views which he presents of the more exalted powers of the mind coupled with illustrations by experiments on the brain, are such as must delight the most ardent Philanthropist. A System of Philosophy in which there is so much of elevation, so much of spiritual beauty, so much that is gratifying to our moral and religious sentiments, and at the same time so much of practical utility to all mankind, cannot but excite the most deep and abiding interest.

It is but justice to Dr. Buchanan to say that he advances no views, and urges no doctrine, which he does not fully sustain by experiment. He pretends not to work miracles—his object is not to gain the reputation of a mountebank, nor to be a temporary wonder with the ignorant—but he devotes all the energies of a vigorous mind, and a profound education, to the experimental developement of the qualities and capacities of the whole human system. That great *terra incognita*, the *brain*, is his principal theatre of action, because it contains the governing principle of life—from this source he excavates his Philosophy, and those who are ignorant of its principles, and disbelieve its truth, have only to witness his experiments to be overwhelmed with the conviction that Neurology is the true Science of Man.

Dr. Buchanan is a *Kentuckian*—a citizen of the United States ; his discoveries and his fame belong to us. Let every man encourage him—let croaking be hushed, and jealousy smothered—let him have the countenance and support of all intelligent and philanthropic men—he is no traitor to his country—no foreign spy in our midst. His Philosophy can do no harm, but may result in the most incalculable benefit to mankind.

JOHN D. FREEMAN,  
C. R. CLIFTON,  
DANIEL MAYES,  
J. E. MATTHEWS,  
T. C. THORNTON,  
WM. S. LANGLEY,  
W. H. YOUNG,  
A. B. CABANISS.

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DE OBFUSCATIONIBUS.

[Continued]

But I have not yet quite done with Mr. JOS. GLANVILLE. You have seen that his object was to prove the reality of witchcraft. In the course of his argument he has the merit of having anticipated and refuted the celebrated argument of David Hume against miracles. This is alluded to much to the honor of Glanville by Tennemann as may be seen in his manuel of Philosophy ; and in order to do justice to Glanville's discrimination I shall give you his argument on this point before introducing his account of the celebrated Irish healer, *Greatrax*,

which ought to make another important figure in the evidence of Mesmerism :—for the advocates of Mesmerism claim for it a power of healing certain diseases. In Glanville's argument he labors to refute all objections brought against his views, and among them he states one in these words : "Miracles are ceased, therefore the presumed actions of witchcraft are tales and allusions;" upon which he remarks, that "to make a due return to this, we must consider a great and difficult problem, which is, *what is a real miracle?*" You will recollect, that Hume says, that "a miracle is a violation of the laws of nature; and as a firm and unalterable experience has established these laws, the proof against a miracle, from the very nature of the fact, is as entire as any argument from experience can possibly be imagined." This argument has convinced thousands and thousands, although it is absolutely and utterly demolished in the very first few lines of Glanville's answer to the objection above stated against witchcraft. His language is quaint but very clear and decisive. "I think," says he, "it is not the strangeness or unaccountableness of the thing done, simply, from whence we are to conclude a miracle. For then, we are so to account of all the *magnalia of nature*, and all the *mysteries* of those honest arts, which we do not understand."

"Nor, is this the criterion of a miracle—that it is an action or event *beyond all natural powers*; for we are ignorant of the extent and bounds of nature's sphere and possibilities: and if this were the character and essential mark of a miracle, we could not know what was so; except we could determine the extent of natural causalities and fix their bounds, and be able to say to nature, *Hitherto canst thou go, and no farther*: and he that makes this his measure whereby to judge a miracle, is himself the greatest miracle of knowledge or immodesty."

One must be an unexcusably careless or thoughtless reader not to see in this beautiful passage a full answer, and most decided rebuke to David Hume's assertion, that our "Experience has established" the laws of nature; that is, in plain English, that nothing can happen in nature, of which we have not experience—that nature can go no "further" than we already know.

Glanville proceeds to state what constitutes a real miracle, but in order to fortify his first position above, he says: "That such things as are only strange and unaccountable performances, above the common methods of art and nature are not ceased, we have a late great evidence in the famous Greatrax; concerning whom it will not be impertinent

to add the following account which I had in a letter from the Rev. Dr. R——, Dean of C——, a person of great veracity and a philosopher. This learned gentleman is thus pleased to write"—But before giving the letter I will premise, that the "falling sickness" alluded to in this account as having been cured by Greatrax, is described by Sir Wm. Temple (vol. 3; page 379) as *Epilepsy*—and this, in immediate connection with an accusation against Mahomet that he was subject to such *fits* and that he called them *trances* in which he pretended to receive instructions in the will of God :—The letter adduced by Glanville reads thus :

"The great discourse now at the Coffee Houses, and every where, is about Mr. G. the famous Irish healer, concerning whom it is like you expect an account from me. He undergoes various censures (opinions) here, some take him to be a Conjuror, and some an Impositor, but others again adore him as an Apostle. I confess I think the man is free from all design, of a very agreeable conversation, not addicted to any vice, nor to any sect or party, but is, I believe, a sincere Protestant. I was three weeks together with him at my Lord Conways, and saw him, I think, lay his hands upon a thousand persons, and really there is something in it more than ordinary : but I am convinced it is not miraculous. I have seen pains strangely fly before his hand, till he hath chased them out of the body, dimness cleared, and deafness cured by his touch : twenty persons at several times in fits of the Falling Sickness, were in two or three minutes brought to themselves, so as to tell where their pain was, and then he hath pursued it till he hath driven it out at some extreme point ; Running Sores of the King's Evil dried up, and Kernals brought to a suppuration by his hand ; grievous sores of many months date, in a few days healed ; Obstructions and Stoppings removed ; Cancerous Knots in the breast dissolved, &c., &c.

"But yet I have many reasons to persuade me, that nothing of all this is miraculous. He pretends not to give testimony to any Doctrine, the manner of his operation speaks it to be natural, the cure seldom succeeds without reiterated touches, his patients often relapse, he fails frequently, he can do nothing where there is any decay in nature, and many distempers are not at all obedient to his touch. So that, I confess, I refer all his virtue to his particular temper and complexion, and I take his spirits to be a kind of Elixir and Universal Ferment ; and that he cures (as Dr. M. expresses it) by a sanative contagion.

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SWEDENBORG'S ANIMAL KINGDOM.

Introductory Remarks by the Translator.

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

It will be the aim of the following remarks to give a general view of the doctrines of the "Animal Kingdom," and of their relation to the past, present and future state of science; and in so doing, to address those chiefly who are acquainted with the theological writings of SWEDENBORG, as forming the class by whom, at present, the work is most likely to be read, and to whom it may be the most useful and satisfactory.

The evolution of the natural sciences amounts to the creation of a new sphere in the human mind; and since this development has not taken place under the auspices of theology, but either in direct or tacit opposition to the prevailing church; since it proceeds from without, and proposes knowledge and intelligence as ends distinct from spiritual life; therefore it constitutes a sphere which is not in unison with the current doctrines of religion, but from the beginning has menaced their subversion; and which, unless reduced to order, is opposed, however true its materials in themselves may be, to the understanding of all genuine truth. It was a perception of this character in science, and also of the fact that the universal human mind was becoming immersed in scientifics, that impelled SWEDENBORG to enter the field of nature, for the purpose of demonstrating in an order corresponding to the order of heaven, and thereby of making it a medium to spiritual and sacred truths. This was his paramount end in the construction of the "Animal Kingdom."

The system therein propounded rests upon the foundation of experience; namely, of such experience as the learned world had accumulated at SWEDENBORG's time, not indeed upon the particular experience strictly and proximately belonging to any one science; for such experience would be inadequate, in the present imperfect state of our insight, to suggest the universal truths that each science involves; but upon the general experience of all ages in all the sciences. This, it is to be presumed, was SWEDENBORG's meaning, when he likened himself to one of the racers of olden time, who before he could merit the crown, was commanded to run seven times round the goal; and again, when he declared that we must be instructed by all things of one thing, if we are to know that one thing thoroughly. As his theory is not derived from particular experience, so it cannot finally be either confirmed or denied

by any isolated fact or facts. For it is a conclusion from the order and tenor of facts universally; in a word, from an integral survey of nature. Unless this be borne in mind, the very largeness of the field from which his inductions are drawn, and the very strictness of mind which caused him to test them through all the sciences, will only make them seem the more like baseless hypotheses. In this case the analytic process may easily be mistaken for the synthetic, and SWEDENBORG may be charged with committing the error which he begins his work by denouncing in others.

SWEDENBORG announced the starting-point of his method in the first lines of his first chapter; namely, that "the use or effect which produces the end must be the first point of analytic enquiry." First comes the question of fact or result; next, the reasoning upon it. Unless we reason from uses, what chart have we in the exploration of structures? To illustrate this, let it be supposed that a complicated tissue—for instance, the skin—presents us with three undoubted effects, say of absorption and excretion; from these effects we infer the existence of a threefold organism to produce them; for effects imply causes, and functions forces, motions, accidents, &c., are predicates and unvarying signs of substances. Having proceeded so far, we have then to distribute the effects to their proper organic causes in the tissue; and thus effects furnish the rule for the first analysis of a structure. In many instances indeed it will be impossible to trace effects to visible organic causes, in which case the mental sight must take up the operation, and continue and complete it, and this, by the assistance of the several instruments and appliances which are now to be mentioned.

It is impossible to understand either the Word or the works of God, without doctrines, which in both cases require to be formed by "one who is enlightened."* The doctrines made use of by SWEDENBORG, in the "Animal Kingdom," are the Doctrines of Forms, of Order and Degrees, of Series and Society, of Influx, of Correspondence and Representation, and of Modification. These doctrines themselves are truths arrived at by analysis, proceeding on the basis of general experience; in short, they are so many formulas resulting from the evolution of the sciences. They are perpetually illustrated and elucidated in the "Animal Kingdom," but never stated by SWEDENBORG in the form of pure science, perhaps because it would have been contrary to the analytic method to have so stated them, before the reader had been carried up

* Arcana Cœlestia, n. 10582.

through the legitimate stages, beginning from experience, or the lowest sphere. Each effect is put through all these doctrines, in order that it may disclose the causes that enter it in succession, that it may refer itself to its roots and be raised to its powers, and be seen in connexion, contiguity, continuity, and analogy, with all other things in the same universe.† They may be compared to so many special organs, which analyse things apparently homogeneous into a number of distinct constituent principles, and distribute each for use as the whole requires. To deny any of these doctrines, or to give them up in the presence of facts that do not range upon them at first sight, is to nullify human mind as the interpreter of nature.

The Doctrine of Forms teaches that "the forms of all things, like their essences and substances, ascend in order and by degrees from the lowest to the highest. The lowest form is the angular, or as it is also called, the terrestrial and corporeal. The second and next higher form is the circular, which is also called the perpetual-angular, because the circumference of the circle involves neither angle nor rectilinear plane, being a perpetual angle and a perpetual plane; this form is at once the parent and measure of angular forms. The form above this is the spiral, which is the parent and measure of circular forms, as the circular, of angular forms. Its radii or diameters are not rectilinear, nor do they converge to a fixed centre like those of the circle; but they are variously circular, and have a spherical surface for a centre; wherefore the spiral is also called the perpetual circular. This form never exists or subsists without poles, and axis, foci, a greatest circle, and lesser circles, its diameters; and as it again assumes a perpetuity which is wanting in the circular form, namely, in respect of diameters and centres, so it breathes a natural spontaneousness in its motion. There are other still higher forms, as the perpetual-spiral, properly the vortical; the perpetual-vortical, properly the celestial;* and a highest, the perpetual-celestial, which is spiritual, and in which there is nothing but what is everlasting and infinite." There is then a scale of forms, whereof the higher are relatively more universal, more perfect, and more potent than the lower. The lower again involve the higher and the highest, and are generated by them: so that where there is an angular body, there is a circular form and force intimately present as its ground; where there

† By a universe, Swedenborg appears to mean any complete series as referable to its unities.

* Swedenborg here uses the term celestial, not in the sense which is peculiar to it in his theological writings, but more with the meaning attached to it in the phrase, "celestial globe," as pertaining to the form of the universe.

is a circle, it is the limit of an interior spiral ; and so forth. For nature operates from the very principle of geometry and mechanics, and converts them all to actuality and use. The purer substances in creation gyrate through the higher forms ; the less pure circulate through the lower, or are fixed in the lowest. All the essentials of the angular form are opposed to each other, whence the origin of gravitating and inert matter, intrinsically unfitted for motion. But the other forms, according to their eminence, are more and more accommodated to motion and variation.

The Doctrine of Order teaches that those things which are superior in situation, are also superior in forces, in power, in dignity of office, and in use ; and that a similar law determines the situation of the parts of things, and of the parts of parts. Corresponding to the highest or first of the series of subordination, is the central or innermost of the series of co-ordination.

The Doctrine of Degrees teaches the distinct progressions through which nature passes when one thing is subordinated to, and co-ordinated with another. There are three discriminated degrees in all things, both natural and spiritual, corresponding to end, cause, and effect. In the human body there is a sphere of ends, a sphere of causes, and a sphere of effects. The body itself, comprehending the viscera of the abdomen and chest, and the external sensoria of the head, is the sphere of effects ; the brain, and the whole of its appendages, are the sphere of causes ; the cortical substances of the brain are the sphere of ends or principles. These spheres are subordinated to each other in just series from the highest to the lowest. The highest degree or sphere is active, the lowest is passive and re-active. The above degrees, in their order, indicate the progression from universals and singulars to generals or compounds. But every organ again involves the same triplicity of spheres ; it consists of least parts, which are congregated into larger, and these into largest. All perfections ascend and descend according to degrees, and all attributes, functions, forces, modes, in a word, all accidents, follow their substances, and are similarly discriminated. Each degree is enveloped with its common covering, and communicates with those below it thereby.

There is no continuous progression from a lower degree to a higher, but the unity of the lower is the compound of the higher, and in transcending that unity, we leap out of one series into another, in which all the predicates of force, form, perfection, &c., are changed and exalted. The Doctrine of Degrees enables us to obtain a distinct idea of the gen-

eral principles of creation, and to observe the unity of plan that reigns throughout any given organic subject; and by shewing that all things are distinct representations of end, cause, and effect, it empowers the mind to refer variety to unity, as the effect to the cause, and the cause to the end, and to recognize the whole constitution of each series as homogeneous with its principles.

[Continued.]

[From the *Botanico-Medical Recorder*.]

"Among the various advocates of electricity and neurology, none seem to apply them more judiciously than Dr. McNAIR, of St. Louis; though he even had better leave out of the prescriptions of his clairvoyant, the few poisons recommended."

"We make these remarks preliminary to a short article from Dr. McNAIR, which in the main is so good, that we take pleasure in transferring it to our paper. It will be found in the *Magnet*, vol. 2, p. 5. We make a few comments."

For this high compliment to our *Electrical Theory*, we thank Prof. CURTIS very kindly. We fear, however, from the Prof.'s. comments, that he has not quite caught the spirit of our theory. This, as we feared, would naturally grow out of the hasty sketches, which we have penned; not having time nor room, to do the subject that justice which it certainly demands. We have, as yet, done little more than state the propositions, and the few corollaries consequently deduced. In time we will endeavor to fill up all the blanks. We must confess, however, that we cannot agree with many of the Prof.'s. restrictions upon our theory. Was it consistent with the course which we have marked out, we would take up several of the comments, particularly (3) and (4,) and show the principles which we hinted at, to be mathematically correct. But, this course would lead to little more, than controversy. We do not expect every person to fall in with our peculiar views to the very letter. We are merely thinking for ourself, a privilege, which we not only grant to our readers, but we should think them recreant to their duty, did they not exercise that noblest of all faculties, in judging of every matter for themselves. Hence, we are pleased to have our views commented on; and should we not be convinced of errors, into which we may run, others, may by that means, be prevented from falling into those errors. We investigate, reason, and write for truth, and not for any particular theory, into which our prejudices may lead us.