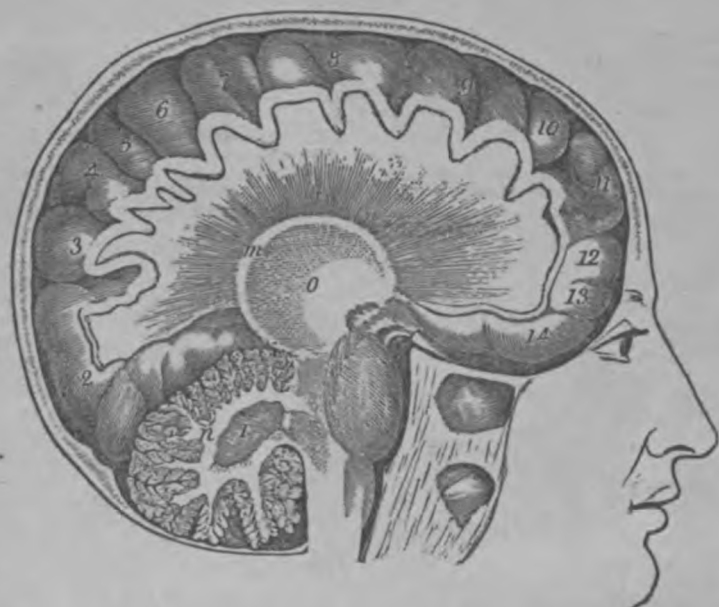


THE
MAGNET.



BY LA ROY SUNDERLAND.

The design of this work is the investigation of all the Laws which appertain to Human Life, and which are concerned in the production of those states of the Mind called Somnambulism, Insanity, Dreaming, Second Sight, Somniphany, Trance, Clairvoyance, and various other Mental and Physical Phenomena, which have, hitherto, remained shrouded in mystery. Its pages are enriched with Essays and Communications, detailing Facts, in illustration of Cerebrology, which teaches the Influences and susceptibilities of the Human Brain, and the method of controlling its separate organs by Pathetism; together with such information as may assist in the most successful application of this wonderful agent to the relief of Human Suffering.

MONTHLY, \$2 PER YEAR, IN ADVANCE; 18 $\frac{1}{2}$ CENTS, SINGLE.

NEW YORK:

PUBLISHED AT THE SUN OFFICE, CORNER OF FULTON
 AND NASSAU STREETS.

Two sheets: Periodical.

THE MAGNET.

TERMS.—The publisher will forward the numbers of the *Magnet* as they come from the press, to Agents, on the following terms:—

1. For \$6, fifty copies of one number; or, four copies for one year.
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6. Agents must give *particular instructions* as to the manner in which they may wish each number forwarded.

THE MAGNET.—Is the title of a new monthly periodical just commenced in New York, by the Rev. La Roy Sunderland, a gentleman of an inquiring philosophic mind, who has for some time past devoted himself to the investigation of a subject, the immense importance of which can as yet be but imperfectly estimated. The grand design of "The Magnet" is to call attention to such facts connected with Physiology, Phenology, and Pathetism, as may lead to some knowledge of those laws which govern the human mind, and it will therefore form, as it were, a central point around which information of the most interesting character will be collected. The important matter of "Cephalogy," as it is called, will of course be a leading theme in the columns of "The Magnet." To the examination of this, Mr. Sunderland has given great attention, and proposes now to furnish the details of his experiments. We recommend "The Magnet" to the liberal patronage of the public. It proposes to be, in fact, the bulletin of the philosophical exploration now going on both in Europe and in this country, and therefore should obtain a circulation commensurate with the importance of the topics to which it is devoted.—*The Pennsylvania*, May 20, 1842.

Its editor seems to be every way qualified for his task, as appears both from the high testimonials to that effect, and the style of the publication. We have risen from a perusal of the first number with highly gratified feelings, and would say without hesitation, that to our view, the work promises to be well worthy of the patronage of the reading community, and well calculated to meet the wants of those who are desirous to become thoroughly acquainted with the truths of Pathetism. The work is written with evident ability and skill, and we doubt not will be by the public favorably received.—*New England Weekly Review*.

New York, March 2, 1842.

The subscribers have witnessed numerous cerebral experiments performed by the Rev. La Roy Sunderland, by which various phenomena were produced in the mental exercises of the patient, such as Sleep, Singing, Laughing, &c. &c.; and the states of mind resembling Madness, Monomania, Insanity, &c., were brought on and removed in a few seconds of time. In our opinion, there was no collusion in the production of these phenomena; but, as far as we can judge, they seem to have been brought about by the application of laws to the human system which have not been well understood heretofore, and which have not received that attention which the importance of the subject would seem to demand.

H. H. SHERWOOD, M.D.
Rev. ISAAC COVERT,
Prof. E. WRIGHT,
O. S. FOWLER,
Rev. J. H. MARTYN.

The first number of the *Magnet* has been issued; and, judging from it, we expect the work to be one of great and increasing interest.—*Oxford Republican*, May 20, 1842.

Whether these new and startling discoveries are real or fictitious our readers will judge for themselves, when we remind them that the Rev. La Roy Sunderland is known to the public as a man of distinguished abilities and unblemished character.—*State Banner*.

The new discoveries in Human Physiology and Psychology which Mr. Sunderland proposes to unfold, are indeed of the most astonishing character, and, substantiated, will place Phenology and Pathetism among the most important of the positive sciences. We know Rev. La Roy Sunderland, and we can say with the utmost confidence, that neither his integrity nor sagacity will be questioned by any who enjoy his acquaintance.—*N. Y. Tribune*, Feb. 23, 1842.

From a personal acquaintance with Mr. Sunderland, who is a most talented and worthy man, we have no fear but he will do the subject justice. He has already published several valuable articles on the results of his investigations, and is, we think, as fully prepared as any other man to defend the position which he has taken. A fair opportunity is now given to all who feel any curiosity upon this subject, to have that curiosity gratified.—*People's Advocate*, March 31, 1842.

The high standing of the editor for integrity of character and scientific attainments, will be a guarantee that the design of the *Magnet* is what it professes to be, to search after truth.

As the *Magnet* will be conducted with great ability—to judge from the number before us, and as what is called "Pathetism" is attracting a large share of public attention at present; those who have any desire to investigate, or to obtain correct views of the subject, will do well to become subscribers.—*Lancaster (Pa.) Examiner*, May 25, 1842.

The character and talents of the editor—the novelty of the subject—the ability displayed in the contents of the first number—the neatness and beauty of the execution of the Magazine—give it strong claims upon the attention of the scientific and curious, as well as the general reader.—*Sacket's Harbor Journal*.

From the prospectus, and the well known character and distinguished ability of the editor, we anticipated a scientific work of great utility and importance, and the contents of this number have satisfied us that our anticipations will be realized.—*Freeman and Messenger*.

There is one thing that is very certain, it will prove a very curious work, and we do not see why it may not prove useful. It comes well recommended by eminent literary and scientific men.—*Gospel Messenger*.

This is a very neat and beautiful pamphlet on the subject of magnetism. Mr. Sunderland has evidently studied his subject with great care and attention, and presents a pamphlet of no ordinary interest. He speaks with becoming modesty, is a man of truth, and therefore is entitled to be heard. The theory is very interesting, and has important practical bearings; our faith in it, as yet, we confess is rather feeble.—*Lib. Standard*.

THE MAGNET.—The first number of this work has been received. It bids fair to prove interesting and instructive to the scientific reader. We are much pleased with the number before us, though not capable of fully appreciating the subjects investigated.—*Rushville Whig*.

As far as we have been enabled to examine it, we find its contents very interesting and curious.—*Phil. Daily Chronicle*, May 25, 1842.

The articles are written by scientific men, and disclose many singular facts in relation to Magnetism.—*Lowell Courier*.

The publisher has issued the first number of a New Periodical, to be entitled the *Magnet*, devoted to the consideration of Physiology, Phenology, Physiognomy, Pathology, Psychology, and Magnetism. This number contains much that is interesting and curious.—*N. Y. Herald*.

The first number of the *Magnet* has been issued. It is well executed typographically, and contains a good variety of articles upon the principles at which it aims.—*Oneonta Journal*, May 19, 1842.

THE MAGNET.—This novel and interesting work, has made its appearance. It is got up with taste, and contains 24 super-royal 8 vo. pages, with numerous cuts illustrative of the subjects of which it treats.—*Tocsin of Lib.*

It is neatly executed, and appears to be conducted with ability.—*The Carthaginian*.

THE

MAGNET.

VOL. I.

NEW YORK, MARCH, 1843.

NO. 10.

PATHEOLOGY.

For the Magnet.

WHAT IS IT?

BY W. B. FARNESTOCK, M.D.

Dear Sir,—In the January number of your very interesting work, the Magnet, I observed, under the head "What is It?" some remarks respecting the various ways in which different persons are affected by what you denominate *Pathetism*. I some time since, in answer to Dr. Mitchell's report, published in the "Lancaster Intelligencer," gave my views of the cause why different persons exhibited different phenomena whilst in the somnipathic state; and I now take the liberty of sending the same to you, in answer to some of your queries respecting the same phenomena. I have, up to this date, pathetised about ninety different individuals, of various ages, temperaments, &c. and have had but ten, out of the whole number, whom I considered completely in a state of somnipathy.

It is generally expected, that every person who is said to be in this state, shall exhibit the same phenomena. This is true, so far as the state is perfect; but it must be remembered, that all do not enter this state perfectly, and that there is such a thing as a partial state, in which only one, two, or more of the senses are subdued at the same time, whilst the rest remain in their natural state, and of course cannot exhibit the peculiar phenomena which always occurs when such senses, &c. are truly pathetised.

I have had several in a partial state, who were unable to open their eyes, or move a limb, contrary to my will, yet they could not see; heard all that was said,—had feeling, taste, smell, &c., and yet, when the organs of the brain were touched, they would describe the feelings as they came on, and said they were almost irresistible, viz.: when I excited the organ of wit, they would laugh, and say, "I do not know at what I am laughing, yet I can scarcely restrain it," &c.

Another case. A young lady, whom I have pathetised several times with the same results, appears to be in a semi-sleep, and whilst in that state, hears no one, is insensible to pain, yet with her eyes bandaged will imitate me, or place her hands and fingers in every possible position in which I may choose to place mine;—yet not a single organ of the brain can be excited. When an attempt is made by others to touch her, she shrinks from them; and as soon as she is spoken to by me, wakes up, even at the first word addressed to her,—remembering nothing that

has passed, nor aught that she has done. Her waking up does not destroy the effects of my will, for I can make her raise her arm, contrary to her own will, although she is looking at it and endeavouring to resist its elevation, &c.

In these cases, the sense of seeing was not affected; and when this is the case they cannot see, and this is the reason why some do not see as well as others, although to all outward appearances they are sound asleep.

I have had others, on the contrary, whose sight was pathetised, and who described and named things and persons both in and out of the room correctly, of which I myself, nor any other individual in the room, had the slightest knowledge; and yet they could hear, had feeling, and were conscious of all that passed around them.

Sometimes the memory is not pathetised, as in the above case. and when this is the case, they remember all that has passed, when they are relieved. The same is the case with the sense of touch, feeling, sensation, taste, smell, or with every other sense, organ, or faculty, which is not under the operator's influence.

The above statement of facts in relation to a partial state of somnipathy, I think go to show, conclusively, the reason why all do not exhibit the same phenomena, independent of their natural dispositions, and will enable those who are interested in the science to explain many things which were before considered discrepant. I ascribe all the failures which have taken place in Clairvoyance, and what you call Cephalogy, to an imperfect somnipathic state, which is caused, either by the disposition of the subject at the time of entering this state, or to a natural or constitutional wakefulness of certain senses, organs, or faculties, &c.

I will mention another case here, which induces me to believe that there is a sense independent of the sense of touch or that of feeling pain—which, for sake of distinction, I have called *sensation*. The case is that of a young lady, of a nervous sanguine temperament, who, when touched by other persons whilst in a state of somnipathy, experiences no sensation, although she says she sees them touch her. This is a remarkable case, and is, unquestionably, different from those who have a fine sense of touch, although they have no feeling of pain. She, too, possesses an exquisitely fine sense of touch, and can distinguish any number of articles placed in her lap, and return them to their right owners. She is insensible to pain also, yet feels no sensation when touched by others.

Lancaster, Pa. Jan. 17, 1843.

PATHETISM.

BY JOHN KING, M.D.

Dear Sir,—Allow me, through the columns of your valuable journal, to continue an account of cases under my care, which may probably prove useful to those engaged in advancing the sacred cause of Pathetology.

1. A case of St. Vitus's dance, of some thirteen years' standing, and which has been unsuccessfully prescribed for by physicians in this country and Europe, has for several months past been treated by pathetism, and I am happy to state, that the patient is now entirely cured. About three months since, this patient was so far recovered, that, except when laboring under great excitement, no diseased motion was observable, and I confidently looked for a speedy cure; my anticipations, however, were not so soon realised. One day in the latter part of last October, this lady was attacked with what appeared to be an acute inflammation of the right eye. I pathetised her for it, as had been done successfully at several previous times, and left, expecting to find her as usual on my next visit; but I was disappointed. I found her in great pain in the right side and limbs, which were, to all appearance, completely paralyzed. With some little difficulty I placed her in the somniphathic state, and, strange as it may appear, pathetism had not the slightest effect upon the paralyzed side. This singular state lasted for three days, when it terminated in acute rheumatism of the whole side and of the brain; the pain in this last organ being situated in that portion in which firmness is located, and so severe that delirium was the result.

Notwithstanding the vast amount of benefit this lady had derived from pathetism, her friends, alarmed at this new affliction, became very much opposed to a continuance of it, and wished her to engage another physician, or have me prescribe medicines and omit pathetising her; but, in her intervals of sanity produced by pathetism, she would not hearken to them at all, as she had already been nearly ruined in health, for life, by the various medicines at different times prescribed for her. I regret that I must also state, that an operator here mentioned to some of her relatives, that she had been pathetised too long, that pathetism had produced this other disease, and that it was dangerous to be pathetised for so long a time. In consequence of this, all her relatives, with two or three exceptions, used all their influence against me; yet, notwithstanding, I determined to make them bow to and acknowledge the power and efficacy of pathetism; and I succeeded—the lady being, at present, free from both diseases, and enjoying good health.

The pain in her head was so severe, that several times it completely awoke her from a state of somniphathy; and on one evening, it awoke her thus five times in the course of half an hour, though, ordinarily, no noise or pain, as far as known, would have produced such a result. Whenever this delirium attacked her, I was uniformly summoned, and always succeeded in placing her in a calm sleep in about five minutes, and this was repeated so often and so invariably, that at last her friends became satisfied, that a disease of such severity could not be *produced*, and likewise *removed*, by the same cause;—and pathetism triumphed over prejudice, envy, and ignorance. The young lady had no convalescence, for when the disease was removed *she was well*, and had not to convalesce from the debilitating effects of medicine.

I can assure you, that if ever I felt proud, it was in the cure of this case; for all who knew her, had heard that pathetism had produced some serious dis-

ease from which it was not expected she would recover; but now, all are astonished, satisfied, and believe. I would remark, that the cure of both the above complaints was very much hastened by pathetising the sympathetic points, or poles.

2. The next is a lady subject to epilepsy. She has been pathetised for some months, but on account of pregnancy has not been cured, although the fits have been less often and less severe. At about the sixth month, the fits attacked her about every three weeks, being invariably followed by severe labor pains, uterine hemorrhage, and other symptoms of abortion, and which I am positively certain no medicine could have prevented from taking place. By pathetising the uterine sympathetic points, as given in the diagram I forwarded to you some time since, all these symptoms ceased, although in the last two attacks I feared very much that I should not succeed, so severe were these symptoms. I report this case, as showing particularly the power of pathetism in preventing miscarriages in somniphathists; and I would likewise relate, in order to prove the confidence which may be placed in the proper action of the sympathetic points, that in this patient, and others, whenever they have needed physic, the desired result has always been produced by pathetising the point for defecation.

3. A few evenings since I was called to two ladies, who had been pathetised several times,—one of them was a somniphathist. They had been pathetised the evening before I saw them, and the next morning their pathetiser left the town. Through this day, and up to the time I visited them, neither were able to walk; in the one there was a coldness, swelling, pain, and partial paralysis of the left limb, extending from the hip; in the other, the same symptoms in both limbs, but commencing at the knees. After having pathetised them, rapid passes were made on the parts attacked, which, much to their surprise, as well as that of some of their skeptical friends, completely removed their difficulty. Whether this peculiar condition of the limbs of these ladies was owing to the previous process of pathetising, I am not prepared to say, although the somniphathist informed me that it was in consequence of the influence of the last pathetism not having been entirely thrown off.—With the exception of the pain and swelling, the appearances undoubtedly resembled the paralysis produced by pathetising a limb.

4. I was called not long since to pathetise a young lady, as some of her friends desired to witness her clairvoyance, for which she is celebrated. I pathetised her, and an individual present who called himself an operator, wished her to travel with him. As a general rule, I am opposed to this, and more particularly when, as in the present case, the patient had already made a long journey; but, not knowing what arrangements had been made between them before my arrival, I very unwillingly consented. He then conveyed her to England in a packet, and during the voyage she became sea-sick—so much so, that it required all my exertion to prevent her from vomiting. As soon as landed, instead of allowing her time to rest, and to have the disagreeable feelings removed, he hurried her from one place to another with such rapidity, and with such increasing distress to the patient, notwithstanding my pretty broad hints to the contrary, and her own urgent entreaties, that finally I lost my patience and temper, and would allow it no longer. I then pathetised the necessary sympathetic points with much relief to her; and causing her to sleep in this state, slowly and gently conveyed her back, and after a sufficient time, awoke her.—When awake, she stated that she did not feel as well

as usual, her sensations were such as she experienced after a long journey—very much fatigued, and feverish.

The next morning I was again sent for: found her quite unwell, pulse accelerated, considerable fever, and severe pain in various parts of the system. She had passed a very restless night. I again pathetised her, and after having removed all her sufferings, through means of the sympathetic points, she informed me, that, had she not been sustained and strengthened by me on the previous night, "*she would have awakened in convulsions, and the power of clairvoyance would have been completely destroyed.*" She awoke quite well, and quite overpowered me with her thanks and grateful feelings.

It is one thing to place a person in a state of somniphathy, but it is another, and one much more important, to know how to conduct him when in this state; and no person should ever allow himself to pathetise, until he fully understands the rules by which to manage a case properly and successfully. I have seen so much injury to patients, by the hurried questions of the operators, by the impatience manifested at their tardy replies, and by the evident anger of the pathetiser, when his patient, who has been teased beyond endurance, refuses to speak at all, that it seems to me, the importance of patience, mildness, forbearance, benevolence, and no feelings of curiosity, cannot be too much or too often impressed upon their minds. Having pathetised more or less for the last thirteen years, and having in late years witnessed much of the management of other pathetisers, I have found, that the greatest enemy against which pathetism has to contend, is the opinion so universally assented to by operators, that "it can do no harm to their patients." This is certainly a great error, for, although pathetism is one of the greatest blessings ever bestowed upon man, yet with all other blessings it is liable to be abused, and then most truly deplorable results must inevitably ensue. Is it not, then, the duty of every operator, to make known every fact of this kind which may come under his notice, that the public may understand all the advantages and disadvantages following a proper or improper management of pathetism, and from this be more careful in their selection of pathetisers?

New Bedford, Mass. Jan. 1843.

For the Magnet.

SHALL THE MAGNET BE CONTINUED?

Mr. Sunderland,—You ask, "shall we continue the Magnet beyond the present volume?" *Of course you shall.* You undertook to establish a magazine, as the organ of certain classes of anthropologists, and you have done so in the midst of hazards and difficulties. You began, when here and there a fact, scattered through the public journals, was recorded only to be laughed at; scorn, and ridicule, and contempt, was the portion of all who gave, what you call pathetism, a hearing. Travelling mountebanks and pilfering imposters were the professors, and credulous fools and silly women the pupils and dupes. You, then, insisted that the subject was respectable, and ventured to attack all that catchpenny collusive display; warned the public against imposture, stripped the cloak off the mysteries, and invited all to see and examine, and practise, with the care of philosophers and the watchfulness of skeptics,—not before gaping crowds, but in private; not as a raree-show, but as a serious and scientific inquiry. And, to aid this inquiry, to collect facts and publish them, to provide the means whereby all who were experi-

menters, in all parts of the country, might have the benefit of the experience of all, and give their united voice to an incredulous community, you have kept up a journal worthy of a place in the boudoir of the lady, on the tables of the drawing room, and in the libraries and studies of men of letters and of science. And even now, you are reaping your reward in the respect with which the subject is already treated. Now, the scholar and the man of the world are both ready to admit, that there is *something* in it, and that it may be the beginning of a new knowledge of man. Those who experiment are multiplied tenfold, and those who believe an hundred fold, since your first number was published; and they, surely, will not so disgrace their new faith, as not to patronise and support the only organ of its doctrines in this country. (Is there another in the world?)

Are not the difficulties of a new journal now surmounted?

Have you not a subscription list, upon which to build up the work?

Have you not an increasing list of valuable contributors, whose communications are increasing in interest and value?

Do not the community look to it as the established organ of the science?

If a magazine was wanted at first, is it not tenfold more important now, when facts come in a less questionable shape?

If the Magnet is discontinued, shall we have its place supplied at all?

Shall we get another journal of such fairness,—a receptacle of facts respectably attested, of all theories reasonably and properly stated,—coloured by no prejudices, and biassed by no favouritism,—established, not to glorify any body, or any made-up theory, but to promote science? If you fail for want of support, will it not be a disgrace to the subject—an argument against it more formidable than the ridicule and prejudice with which it has had to contend? Will not each of your subscribers continue his subscription another year, and induce one of his neighbours to subscribe? A little effort of that sort from many hands will give you great help, and those of your readers who will not do so much as that, whatever may be their notions in other branches of pathetology, may feel pretty sure that they have not that proper sympathy which should characterise the followers of a new doctrine. Put my name down for another year; and I shall send in another name before this volume is finished, and I hope more, provided you publish careful records of your own experiments and observations. I expect much from your ripe experience, and I think nothing should be kept back from us, who have no time to devote to experiments. I make these last remarks, because I see on the cover of the last number, that the mesmeric sleep is not always necessary to clairvoyance. The experiments and facts showing that, should have been carefully detailed in the Magnet at the time, and not merely alluded to on the Magnet long afterwards. When the Magnet is bound that will be lost, and some one, having seen the hint, will follow it out, and found upon it some new *ology*, appropriating to his own glory, as a discoverer, facts which are old stories to you.

Please print this—but print the whole or none.

New York, Jan. 20, 1843.

E.

AMPUTATION OF THE LEG DURING A STATE OF SOMNIPATHY.—The first case of a surgical operation, as far as we know, ever performed in this country, was detailed in the fourth number of the Magnet. The following ex-

traordinary relation is from the London correspondent of the Journal of Commerce :

A most extraordinary surgical operation has been performed, the particulars of which will be found detailed in a couple of columns of the Morning Herald of the 26th ult. James Wombell, 42, a laboring man, had suffered for a period of five years with a painful affection of the left knee joint. He was admitted into the hospital at Wellow, in Nottinghamshire, and it was decided that an amputation should take place above the knee joint, and it was accordingly done while the patient was under the influence of mesmeric sleep! On the 1st of October this wonderful operation was thus performed, as given in the words of the mesmeriser, one Mr. W. Fopham, a lawyer of the Middle Temple, London; "I again mesmerised him in four minutes. In a quarter of an hour I told Mr. W. Squire Wood (the operator,) that he might commence. I then brought two fingers of each hand gently in contact with Wombell's closed eyelids, and there kept them still further to deepen the sleep. Mr. Ward after one earnest look at the man, slowly plunged his knife into the centre of the outer side of the thigh, directly to the bone, and then made a clear incision round the bone to the opposite point on the outside of the thigh. The stillness at this moment was something awful. The calm respiration of the sleeping man alone was heard, for all others were suspended. In making the second incision the position of the leg was found to be more inconvenient than it had appeared, and the operator could not proceed with his former facility. Soon after the second incision a moaning was heard from the patient, which continued at intervals until the conclusion. It gave me the idea of a troubled dream, for his sleep continued as profound as ever. The placid look of his countenance never once changed for an instant; his whole frame rested, uncontrolled, in perfect stillness and repose; not a muscle or a nerve was seen to twitch. To the end of the operation, including the sawing of the bone, securing the arteries and applying the bandages—occupying the period of upwards of twenty minutes—he lay like a statue. With strong salvolatile and water he gradually and calmly awoke, and when asked to describe what he had felt, thus replied: 'I never new any thing more, (after his being mesmerised), and never felt any pain at all; I once felt as if I *heard* a kind of crunching.' He was asked if that was painful; he replied, 'No pain at all; I never had any, and knew nothing till I was awakened by that strong stuff.' The 'crunching' was the sawing his own thigh bone. The first dressing was performed in mesmeric sleep, with similar success and absence of all pain."

This case is so important, that I have condensed its principal features, and when I consider the gravity with which the operation was surrounded, the numbers who were present, the unquestionable rank and respectability of the professional gentlemen, and the utter absence of all affectation, I must candidly admit that scepticism is staggered, and that we are no longer in a position to deride or despise influences so extraordinary, important and practical.

PATHETISM IN THE 15th CENTURY.

The celebrated Paracelsus was born in the year 1493, and died when only forty-six years of age. He was a great cabalist, physician, and astrologer, and appears to have been intimately acquainted with all the secret and occult properties of nature. He was the first we know of, who ever treated upon *animal magnetism*; and his performances in that

time were such as to astonish the world and to draw upon him the united gratulations of the diseased and the infirm. His method notwithstanding it is so clearly laid down by himself, and demonstrated by a variety of pleasing examples in his works, has lain dormant till the present time; and now it begins to convince mankind that the secret and occult properties of nature are not yet half known or understood; nor their advantages received with that thankfulness and regard which ought incessantly to be poured forth to the great Author of our being for the blessings that may easily be derived from them. This was the opinion and nearly the words of Paracelsus himself, who has been recorded by all our biographers as a learned, judicious, and ingenious philosopher. Yet his having been so much addicted to ceremonies, and performed in connexion with them, so many wonderful things, caused it to have been supposed, that he did by the agency of spirits what was really the true and genuine effects of nature only.

In the writings of Paracelsus we find many surprising examples of the power of *sympathy* and of *antipathy* by means of amulets, telesms, &c., compounded of nothing more than natural ingredients: and he particularly describes an infallible method for making a compound and forming it into an image of any bird or beast, by which that bird or beast will be destroyed, or its death effected, though it may be at a distance. So likewise by the hair, fat, blood, or excrements of any animal, the diseases of that animal may be cured, and its life preserved, or destroyed. This is seen in the *armary ungent*, and the *sympathetical powder*; it is astonishing to human comprehension, what surprising effects these are capable of producing on the bodies they are intended for.

Thousands of other strange inventions might be here described according to the exact form in which we find them, but for the reasons elsewhere assigned the reader must be content with their intimation only. As many Europeans have the ability of effecting such astonishing things by the medium of telesms, periapts, &c., so also the Tartars have a faculty of producing similar effects. The art of *transplantation* is recorded among magic and the charms. Laws were enacted by the legislatures in England, France, Spain, Italy, and the eastern countries to prevent these practices. But I am confidently informed that it is now done in the more remote parts of Europe. The method is by giving peculiar baits or preparations to any domestic animal, fevers, agues, coughs, consumptions, asthmas, &c., may be removed through a certain process or operation with that animal. Or, the diseases can be transplanted or removed from one person to another. This is sometimes done by burying certain things in the ground; yet though these things are supposed to be done by magic, still the effects are derived from the sympathies and the antipathies in nature; for many persons without knowing any thing of the cause, how, or why it is effected, more than the mere external forms, words, or touch, which is most simple, can remove diseases, take off warts and other excrescences, and perform many surprising cures at a distance from the patient, and even without ever seeing or knowing him. So by a similar property in the sympathy and antipathy of nature, certain leaves, roots, or juices, rubbed upon warts, or carious substances, or upon the hands, breast, legs, or other diseased parts of the body, and buried in the ground, remove or cure the same. These experiments take effect according to *mediums* or correspondence of disorganizations or putrefactions between the diseased parts of the body and the sub-

stance used, as it is decomposed in the mother earth, from which the human force is principally derived. Nor is it to be wondered at that natural things, being fitted to the *mediums*, compounded of correspondent or sympathetic ingredients, should produce such effects, without any supernatural agency.

This is perfectly exemplified in that extraordinary preparation called a *magical lamp* which being lighted, foretells the death of the party of whose blood it was prepared. It is compounded after the following manner: take a good quantity of the venal-blood luke-warm as it comes out of the vein, which being chemically prepared with the spirits of wine and other ingredients, is at last formed into a sort of candle, which being once kindled, or lighted, never goes out till the death of the party, or person, of whose blood it was composed: when he is sick or in danger, it burns dim and flickers, or is troubled: and when he is dead, it is quite extinguished. Of this composition a learned philosopher has written an entire tract, viz.: *De Biolychnio*, or, The Lamp of Life. Hence

"While the lamp holds out to burn,
The vilest sinner may return."

LIFE.

For the Magnet.

ANIMAL LIFE.

BY DAVID PORTER, M.D.

Sir,—I have perused, with much interest, the numbers of the Magnet which you have sent me; and although I see much that seems incredible, particularly as regards clairvoyance, yet I am struck with some remarkable coincidences with my own views, which shall appear anon.

I find you consider that "Pathetism differs from all other branches of science. It is governed by laws of its own," &c. However true this may be, in relation to the external influences of what you denominate pathetism, I shall endeavor to show, that as regards the *internal* relations of living bodies, displayed in their ordinary functions, the established laws of galvanism are all sufficient. With fond hopes, nevertheless, that our different routes may converge, I shall trudge on in my own, in expectation of meeting you, ere long, in the temple of science.

To the term *life*, as applied to the functions of organised beings, I have no objection, so far as it is made to express an intelligible fact. But, as a mere expression of impenetrable and inaccessible mystery, I do object to it. Whatever, in living beings, is not understood, is very apt to be referred to life, and there is an end of the matter. Every thing is to be explained in general by it, but nothing in particular. In fact, so strong is the prevailing disposition to mystify this subject, that any thing explained intelligibly is scarcely admitted to throw light on life itself, but is rather contemplated as so much withdrawn from the gross amount of the doings of this mysterious agent. I will not attempt further, at present, to disprove, or even to state, the opinions of authors on the subject; for I frankly confess, they have always appeared to me more unintelligible than the subject itself. Let us, then, examine the human body, as perhaps the most complicated specimen of a living machine.

In viewing man, we discover, at once, that he is divided into two parts, viz. soul, or mind, and body. Although intimately united and mutually operative, they consist of distinct principles, endowed with distinct properties. So far from materialism (with which I have been sometimes charged), I now freely

declare, that I have never been able to trace the remotest analogy between mind and matter, except what is necessarily implied in their mutual influences. They are clearly distinct in principle, distinct in properties, and distinct in the laws by which they are regulated. They operate on each other—but *how*, we cannot tell. One thing is clear: even in their reciprocal influences they keep distinct, each exhibiting its appropriate actions and laws. They are, consequently, susceptible of separate investigation, and as subjects of inquiry must be taken separately.

With regard to the soul, or immaterial part, I leave it to the psychologist, after observing, to avoid all misapprehension, that I consider the soul of man, which alone is capable of acting with reference to a future and separate state, is alone made susceptible of it. Inferior animated beings have, connected with their bodies, a corresponding, but mortal principle, which in its constitution and operations has an exclusive reference to their present state, and cannot survive it. This principle, in a decreasing degree of perfection evidently descends to the lower orders of animals; and exhibits the evidences of instinct, which I conceive are palpable, not only in them, but even in the remotest vegetable. That thought is not a *common* property of matter, I need not insist. That the peculiar properties of bodies, so far as successful investigations have gone, arise from the common properties of matter, is a fact which will be scarcely controverted. It must, then, according to a plain philosophical maxim, be received as a principle, until at least one unequivocal exception is produced. And hence we cannot adopt thought as a peculiar property of any material body, until the possibility of its origin from extension, divisibility, and the other common properties of matter, is shown. But I cannot follow this subject further, nor is it necessary for my present purpose. Physical action, whatever may be its remote or exciting cause, is, in principle, physical; that is to say, it arises directly from physical properties, and according to physical laws.

Let us, then, take up the physical part of man, and see whether in operation it exhibits any thing necessarily incompatible with, or additional to, what obtains in unorganized or inanimate matter. At present, I shall only glance at a few functions which have been considered most inexplicable. Of these, generation and growth come first in order. Let me now ask, what regulates the formation of a chrysalis? We certainly express but little more than an acknowledged fact, when we say it is composed of particles having definite forms, with polarities of some kind, which incline them to range in orders most favorable to equilibrium. Accordingly, we would naturally expect in bodies of this kind, not only definite forms, but, as regards the polarity of particles, equilibrium rest. Such a body, I admit, could not have any internal operations or functions; but it is easy to conceive, that two such bodies might be brought together with sufficient affinity to cohere; and yet, such polar discrepancies as to produce incessant mutual operations. These operations, in connexion with their new and complicated affinities, may obviously increase, and develope beings of forms and functions corresponding to the primary forms and arrangements of their parts; and this is all that takes place in generation and growth, so far as physical processes are concerned.

I hope the reader will still keep in mind, that an acquaintance with the immediate causes of the particular forms of natural bodies (which would involve an acquaintance with the particular forms of their component particles), is not pretended at present. I profess only to designate those properties of matter

under the direction of which various forms of particles are made to give various, definite forms, to inanimate bodies, or special numbers or arrangements of them, to develop the forms and functions of animated beings.

With the developments of minds we have nothing to do at present, nor even with its operation on the structure we are contemplating; but the immediate effects of that operation, I wish to show, are physical, and perfectly analogous to the effects of mere physical causes. This is true, not only of operations of the mind of man, but of its corresponding principle in the lower order of beings, down to the last traces of instinct in vegetables. They are all equally explicable, without the aid of any imaginary *principle* of life.

In order to proceed intelligibly with the functions, however, my general plan of the whole must first be understood. Viewing the body as a machine, we are struck with the variety of its powers. Every intelligible machine must obviously have some grand moving power, commensurate with its operations. Whether this power be water, steam, weight, or whatever else, it is plain, that in depriving it of the mystical omnipotence of a principle of life, and placing it in an intelligible light, we must bring to view some adequate physical cause. This can no more be found in the tissues, than the movements of the parts of any machine can be found in the wood, iron, or brass of which they are composed. The grand moving power of animal bodies, is what, for want of a better name, I am obliged to call Galvanism.

Let us, then, contemplate the human body as a complicated galvanic machine. We discover, at once, an arrangement of the nervous system so much resembling a battery, that we can approach it under this aspect, with some interest. The brain and ganglia may represent plates, and the nerves communicating wires. The brain and ganglia are each, for some purpose not hitherto understood, composed of two substances,—a cineritious, or cortical, and a medullary substance. Here we have two substances in contact, well calculated for generating galvanic power. Let us now suppose (for this is the result of my investigations,) that the arrangement is calculated to render the eighth pair of nerves, and perhaps others of the respiratory system of Mr. Bell, positive, and all others negative. The nerves are well known to be good conductors, and, consequently, calculated so to act with their opposite extremities on the various fluids and tissues, as to bring their opposite polarities respectively towards the opposite sides of ganglia. Without a plan of the nervous system such as I have been in the habit of using in my demonstrations, it will be impossible to give a correct notion of this interesting arrangement; but for my present purpose, this sketch may answer. Let us now proceed with the particular functions.

Muscular motion is so well known to be an effect of galvanic power, that it need only be named as an effect of the galvanic action of a nerve in contact.

Absorption, which, as a vital function, has been considered an inscrutable mystery, is presented under an aspect which furnishes its own explanation. A positive branch from the par vagum, terminating on the inner surface of the right auricle, in contact with the venous blood, may obviously attract through it oxygen, chlorine, carbonic oxide, acids, water, and all other negative substances with which the venous capillaries may come into contact. While, in like manner, antagonising negative nerves, terminating in what are termed lymphatic glands, may attract to them chyle, lymph, albumen, and other more positive or alkaline substances, whence they may be propelled through the vasa efferentia into the circulation. Here we have a view of lymphatic absorption

which stands self-explained. These opposite absorptions are accomplished precisely as are all attractions—by the opposite poles of a galvanic machine. Until I get through, however, I only ask an admission that these *may be* physiological truths. Hereafter, I will attempt to show that they *are* so. Permit me further to say, that in thus presenting life as an appellation of the mere physical operations of living machines, arising from the well-known properties of matter, (which, however they may exceed in *perfection* all human art or ken, yet involve no other *principle* than is displayed intelligibly in machines of human construction,) I am not conscious of any disposition to “beg off,” or ask “more time,” in order to explain what, in my opinion at least, “life is.” And when it is recollected, that, on the ground taken, an acquaintance with the nature of the soul, or instinct, is no more necessary to an understanding of those physical functions denominated life, than is an acquaintance with the nature of man, in order to understand the operations of a machine of his own construction, and under his immediate control, I hope you will understand my theory of life so well, as to hear the proof with patience.

Rosstraver, Pa. Jan. 14, 1843.

For the Magnet.

WHAT IS LIFE?

Sir,—Being favored with a number of the Magnet, I find it filled with useful and interesting matter. But what creates special interest in the work, in my mind, is the desirable proposition of Dr. Porter, to “demonstrate that the anatomy of living bodies presents galvanic structure, which, according to acknowledged laws, not only produces the physical functions, but executes the purposes of the immaterial part, or mind of man, and instinct of inferior organised beings.” The subject of animal life, and its operations, is in itself very important, though intricate; and I am glad to know, that you are about to be favored with the views of a medical gentleman, who has had unusual opportunities for investigation, and who for years has ranked high as a scientific physician, and who has been remarkably successful in his profession.

In connexion with the subject proposed to be examined by Dr. Porter, I hope he will particularly come out on the symptoms and treatment of disease.—When he practised medicine in this city, I know he resolved the science of disease, as well as the science of life, into galvanic laws, and applied remedies accordingly. He has used acupuncture more than is generally done by physicians, and found that the needles became magnetic; which occurred in my presence. He told me, that he had seen the needles give out sparks, and ascertained that the sparks consisted of *negative* electricity,—which last facts have not, I believe, been noticed heretofore.

I trust your readers generally, as well as myself, would be gratified with a fuller development of views, which have such a practical bearing on the interests of suffering mankind. Under the conviction that they have this bearing, I think it not out of my province, though a minister of the Gospel, to give them my attention, and to recommend the careful examination of the subject to others.

I am, Sir, your's very respectfully,
S. C. JENNINGS.

Pittsburgh, Pa. Jan. 16, 1843.

ITALY.—The cattle of Italy—cows and oxen—are a noble race. They are long-limbed and finely shaped, and are almost universally of a dull white or a greyish color—very beautiful animals—their horns

very long, sharp and wide spreading. The ox is of great size and strength. They are far superior in shape and beauty to those of our own country.

PSYCHOLOGY.

TRANSPPOSITION OF THE SENSES.

We give the following under the head of Psychology, because we are at a loss under what better term to place phenomena of this kind. It is from a French Medical Journal, and is not unlike many other details of this character, described in medical works.

In examining this account, the reader will bear in mind what we have heretofore said of that *sense*, peculiar to certain states of the system, which perceives without the use of the eye, and hears without the use of the ear.—We have a patient, who, when in a state of somniphathy, hears and sees from the pit of the stomach. Indeed, there are multitudes of cases of this kind, and abundantly sufficient to demonstrate the existence of such a *sense*, beyond all reasonable doubt.

The following account was drawn up by Dr. Duvard, of Caen:

Mademoiselle Melanie has enjoyed good health up to the age of twenty-one, when she began to suffer from dry cough, with pain in the chest and headache; in January 1841, she was attacked by pleurisy on the right side, and since then has continued to suffer from pain in that region; the catamenia now decreased in quantity, and was finally arrested.

In the month of July, 1841, I was first called on to visit the patient; she then exhibited all the signs of pleuritic effusion. After a variety of treatment continued for several weeks, a seton was inserted in the patient's side, and she was compelled to have an enema—a remedy which she had previously refused to submit to. A few hours after the administration of the enema, she was seized with a most violent attack of hysteria, which continued for several hours. The attacks of hysteria recurred, with the same violence, for several successive days, and seemed to be excited by the ingestion of food, which she continued to eat with avidity, in spite of remonstrances.

Six days after the first attack of hysteria, the patient became suddenly dumb, and continued so for three days, being unable to articulate a single word; on the fourth day she recovered the power of speech, at the termination of a severe hysterical attack; the surprise, however, expressed by those about her at hearing her speak, threw her into a fresh fit, which lasted for three hours, and ended in catalepsy; this was on the 30th of August, 1841. From this period the patient was seized every day with several attacks of catalepsy, alternating with hysteria, and lasting about half an hour.

During the cataleptic accesses there was complete insensibility of every part of the body; the limbs remained in the most fatiguing positions without stirring; the respiratory movements were imperceptible, and the pulsations of the heart, which could scarcely be felt, were from 60 to 70 a minute. After a few days the cataleptic fits became longer, and lasted for several hours, being, however, occasionally interrupted for a minute or two, whenever the girl coughed. Sometimes she would turn round in her bed or sit up; at others, she would suddenly start up, without opening the eyes, and place herself on the edge of the bed, or on some piece of furniture, in a most fa-

tiguing posture; in this state would she remain, until a fit of coughing came on, or until she was brought back to her bed. Although the eyes were constantly shut, she avoided every obstacle carefully, and seemed heedless of risks which would have alarmed any one in a normal state. On one occasion, she left her bed during a fit of coughing, ran to the window and opened it; before any one could come to her assistance, she had one foot out of the window, but the cough suddenly ceased, she became cataleptic, and remained in the same position until some people came and placed her in bed.

When the fits of hysteria and catalepsy ceased, the patient recovered all her faculties, and merely complained of fatigue, and her ordinary pain at the side.

Five weeks after the first attack of catalepsy, Middle. Melanie fell several times into a state of natural somnambulism. She would get up without opening her eyes, walk about her room, arrange her furniture, and enter into conversation with those about her, often mentioning circumstances which she would have wished to conceal; after remaining in this state for several hours, she fell into a state of catalepsy, indicated by apparent suspension of the respiration and complete silence.

On the 12th of October, a few days after her first access of somnambulism, I found the patient in a state of catalepsy. Having placed my hand on the epigastric region, I noticed that her countenance became expressive of pain. I then placed my lips on the pit of her stomach, and asked her several questions; to my astonishment she answered correctly, for although I had read most of the histories of this kind, recorded in different works, I did not believe one of them. During this first examination I made numerous experiments, which led me to conclude that there was a transposition of the five senses to the pit of the stomach. On the evening of this day I made fresh experiments, during three hours, in the presence of numerous witnesses, who were not less surprised than myself. In a word, during two months, I renewed the experiments daily, and often several times a day, making use of every precaution to avoid deception, and having numerous witnesses around me. I shall now relate, the results of these experiments.

During the cataleptic state the muscles presented three different conditions:—Sometimes they were all relaxed, and the limbs could be placed in any position, which they retained, however fatiguing the posture might be; at other times all the muscles were in a state of rigid contraction; at others, again, they were relaxed, and the limbs fell down when raised from the body.

There was no sensibility in any part of the body, except over the pit of the stomach, the palms of the hands, and soles of the feet. Thus we might pinch the skin or pierce it with pins, pull out the hair, tickle the nose, &c., without eliciting any sign of feeling. On the contrary, if the pit of the stomach, soles of the feet, or palms of the hands were touched, even with the point of a feather, the girl immediately withdrew the part touched, and her countenance indicated displeasure. When a Leyden jar was placed in communication with the parts just named, she had a violent commotion, or was suddenly awakened, but the jar might be discharged on any other part of the body without producing the slightest effect.

The ears appeared to be insensible to sound, the loudest noise did not attract her attention; but when a small bell was agitated over the sensitive parts, her countenance showed she heard the noise. If the lips were placed in contact with the sensitive parts,

she heard every thing that was said, although the voice was so low that it could not possibly reach her ears. Her answers were delivered in an exceedingly low tone, and, generally speaking, the person appointed to catch them would repeat them, without having heard the questions asked. It was not necessary to place the lips in contact with the sensitive parts; I often employed a long stick, an iron rod, &c., as a conductor from the mouth of the speaker and the patient's foot, and she heard perfectly well, although the persons placed between her head and the speaker could not distinguish a syllable of the question asked.

The patient never spoke, except when her limbs were in a state of relaxation; during the rapid cataleptic state the tongue and organs of speech were immovable.

The senses of taste and smell were not exercised by their natural organs, but were very acute in the sensitive parts. Thus, we filled the nose with assa-fœtida, or tobacco; placed bottles of ether, concentrated ammonia, &c., under the nose, without producing the least effect; but when a small portion of a sapid body was placed in contact with the sensitive parts, the patient distinguished it at once. Thus she recognised and named, one after another, the syrups of poppies, vinegar, gum, and capillare, wine, water, orange flower water, Seidlitz water, currant jelly, &c., although only one or two drops of each substance was placed on the palm of her hand. When a few grains of snuff were placed on the sole of her foot, she sneezed at once, and thus easily distinguished at once French snuff from English snuff.

Although the results of my first experiments induced me to think the sense of vision was transposed as well as other senses, subsequent trials showed that what I had regarded as vision was nothing more than an exquisite sense of touch. When an object was placed on any of the sensitive points, and she was asked if she saw it, she answered 'Yes' and immediately named the object if she was acquainted with it, or if not gave a correct description of the body. Thus she always detected a watch when placed over the pit of the stomach, and never failed to tell whether it was made of gold or silver, was going or stopping. If asked the hour, she would answer pretty correctly as to the *true* time of day; but if the hands of the watch were designedly changed, she always failed to tell the time they mark. She could distinguish and name every kind of French coin placed in her hand, but not the name of the sovereign under whose reign they were struck; she could distinguish a bit of silk from a bit of cloth, but not their respective colors.

At the second sitting, she succeeded in spelling the word *commerce*, written in large letters, and placed upon the pit of the stomach; this required considerable efforts, and she complained for a long time of fatigue; in subsequent experiments, however, she was never able to distinguish any of the letters of the alphabet, when placed in contact with sensitive parts. Whenever I asked her to point out the seat of her disease, and indicate to us the appropriate remedies, she refused—answering that such was my business, and not hers.

[The remainder of Dr. Duvard's case is occupied with a history of the treatment, which it is unnecessary to describe. He attempted to pathetise the patient; during the first three sittings she fell asleep, and remained so for several hours, but afterwards all attempts failed to produce any effect. The use of electricity seemed to be attended with more beneficial results than any other remedy; after the first day the fits of catalepsy and hysteria became less frequent and violent, and the patient returned, much improved, to her friends in the country.]

ASTONISHING INSTANCE OF MEMORY.

The Buffalo Commercial Advertiser of Monday notices at length some remarkable experiments with Russel's Planetarium, a magnificent machine, which has been placed in the hands of Prof. Gouraud, (who introduced the daguerreotype,) for exhibition in the Atlantic cities. The power of memory in the illustrator is truly wonderful:

Professor G. presented to our examination a sheet of paper 7 feet long by 18 inches wide, containing an area, therefore, of more than one thousand five hundred square inches, entirely covered with columns of small compact figures, symmetrically divided into various compartments, and offered to repeat to us, *absolutely from memory*, that almost innumerable number of numbers; in no matter what order we might please put our questions. We will say nothing of our surprise at hearing such a pledge. On examining the paper, we found it to contain the following topics; Nomenclature of all the elements of the Planetary System, with the columns of 13 ranges of figures, each containing an average of 10 figures or 12,250 in all. 2d. A table of the elements of the Satellites, with six hundred figures. 3d. A table of the decrease of the degrees of longitude in miles, with fractions of miles, from the equator to the poles. 4th. Another table of the increase of the degrees of latitude and the decrease of longitudes, in French metres. 5th. A table of the transits of Venus and Mercury, with the years, months, days, hours, minutes, and seconds, in which they happened and will take place from the year 1631 to the year 2984. A nomenclature of all the Northern and Southern constellations, and those of the Zodiac, with two columns containing the number of stars observed in each of them, by the ancient and modern astronomers. 7th, a table of Latitudes and Longitudes, with degrees and minutes of all the principle cities of the world at large, and of the United States in particular. 8th. The elements of the most celebrated comets which have appeared from the earliest ages to our day. 9th. A table of specific gravities of all the solids and woods hitherto calculated by the most distinguished savans, with four decimals to each. 10th, A table containing dates of improvements, discoveries, remarkable epochs in the history of astronomy. 11th. A table of 200 hyperbolic logarithms with ten decimals to each, which the professor calls his herculean table of experiments, and which is so, indeed, in the full sense of the term. 12th, The chemical analysis of æorilites known. And, to crown this overwhelming table of figures, many other interesting tables connected with literature, history, and other subjects of attraction.—13th. A table of logarithms of numbers, with seven decimals, from 1 to 1000—and the ratio of the diameter to the circumference of the circle with 154 decimals—the aggregate number of figures, in all the tables, amounting to no less than twenty thousand three hundred and thirty nine!

These tables were divided among the company, who immediately proceeded to satisfy their eager curiosity, or to dispel their doubts, by putting questions to the Professor according to his request.—Here we must say in brief, that to our utmost astonishment, Professor G. fulfilled his pledge to the satisfaction of the company. Every fact was answered and put down upon a black board absolutely from memory; and at the end of the *soiree*, this black board 16 feet long by 6 feet wide, had several times been successfully covered over with thousands of figures, each of them representing an interesting fact in the lectures they are intended to illustrate.

We regret that our limits do not allow us to enter into some more details of the truly interesting exper-

iments of Prof. G. The Professor says that he has acquired this wonderful strength of memory by the application or use of an entirely new discovery of his own, and of which he proposes soon to give the benefit to his future fellow citizens, in return as he says for the kind reception he has met with in this country. We will welcome it by anticipation, for it certainly must be of immense value. In the meantime, our contemporaries of the East will soon have an opportunity to judge for themselves of these herculean feats of memory. We will merely state that if Russell's Planetarium is the finest piece of American mechanism we ever beheld, Prof. GOURAUD is undoubtedly the most astonishing specimen of strength of memory we have ever seen.

TRANCE.

This term has long been used to signify a state, in which the soul seems to have passed out of the body into the celestial regions; and we have seen persons who were subject to ecstasies which were thought peculiar, only, to those who had actually left the body, and passed into heaven.

We have often produced this state by pathetism. The persons in whom it is brought about, describe it as one of the most delightful states imaginable. But, frequently they manifest an unwillingness to describe it at all, as they say it so far exceeds all our ordinary conceptions of what is elevated, refined, beautiful, and heavenly.

We shall, hereafter, take occasion to give some further account of some of these cases of our own, and, in the meantime, we present the following from the life of the celebrated Rev. William Tennent. There are persons now living who remember this man, and some who believe that he actually died and went to heaven, in the trance narrated below.

After a regular course of study in theology, Mr. Tennent, then with his brother Gilbert, at New Brunswick, N. J., was preparing for his examination by the Presbytery as a candidate for the gospel ministry. His intense application affected his health so much, that his life was threatened. In this situation his spirits failed him, and he began to entertain doubts of his final happiness. He was conversing one morning with his brother, in Latin, on the state of his soul, when he fainted and died away.—After the usual time, he was laid out on a board, according to the common practice of the country, and the neighborhood were invited to his funeral on the next day. In the evening his physician, who was warmly attached to him, returned from a ride in the country, and was afflicted beyond measure at the news of his death. He could not be persuaded that it was certain; and, on being told that one of the persons who had assisted in laying out the body thought he had observed a little tremor of the flesh under the arm, although the body was cold and stiff, he endeavored to ascertain the fact.—He first put his own hand into the warm water, to make it as sensible as possible, and then felt under the arm, and at the heart, and affirmed that he felt an unusual warmth, though no one else could. He had the body restored to a warm bed, and insisted that the people who had been invited to the funeral should not attend. To this the brother objected, as absurd, the eyes being sunk, the lips discolored, and the whole body cold and stiff. However, the doctor finally prevailed, and all probable means were used to discover symptoms of returning life. But the third day arrived, and no hopes were entertained of suc-

cess by the doctor, who never left him, night nor day.—The people were again invited, and assembled to attend the funeral. The doctor still objected and at last confined his request for delay to one hour, then half an hour, and finally to a quarter of an hour; when his brother came in, and insisted, with earnestness, that the funeral should proceed. At this critical and important moment, the body, to the great alarm and astonishment of all present, opened its eyes, gave a dreadful groan, and sunk again into apparent death. This put an end to all thoughts of burying him, and every effort was again employed, in hopes of bringing about a speedy resuscitation.—In about an hour the eyes again opened, a heavy groan proceeded from the body, and again all appearance of animation vanished. In another hour, life seemed to return with more power, and a complete revival took place, to the great joy of the family and friends, and to the no small astonishment and conviction of the very many who had been ridiculing the idea of restoring life to a dead body.

The writer of these memoirs states that on a favorable occasion he earnestly pressed Mr. Tennent for a minute account of what his views and apprehensions were, while he lay in this extraordinary state of suspended animation. He discovered great reluctance to enter into any explanation of his perceptions and feelings at that time; but being importunately urged to do it, he at length consented, and proceeded with a solemnity not to be described.

"While I was conversing with my brother," said he, "on the state of my soul, and the fears I had entertained for my future welfare, I found myself in an instant in another state of existence, under the direction of a superior Being, who ordered me to follow him. I was accordingly wafted along I know not how, till I beheld at a distance an ineffable glory, the impressions of which on my mind it is impossible to communicate to mortal man. I immediately reflected on my happy change, and thought—Well, blessed be God! I am safe at last, notwithstanding all my fears. I saw an innumerable host of happy beings surrounding the inexpressible glory, in acts of adoration and joyous worship; but I did not see any bodily shape or representation in the glorious appearance. I heard things unutterable. I heard their songs and hallelujahs of thanksgiving and praise, with unspeakable rapture. I felt joy unutterable and full of glory. I then applied to my conductor, and requested leave to join the happy throng; on which he tapped me on the shoulder, and said, 'You must return to earth.' This seemed like a sword through my heart. In an instant I recollect to have seen my brother standing before me, disputing with the doctor. The three days during which I had appeared lifeless, seemed to be not more than ten or twenty minutes. The idea of returning to this world of sorrow and trouble gave me such a shock, that I fainted repeatedly." He added: "Such was the effect on my mind of what I had seen and heard, that if it be possible for a human being, to live entirely above the world and the things of it, for sometime afterwards I was that person. The ravishing sound of the songs and hallelujahs that I heard, and the very words that were uttered were not out of my ears for at least three years. All the kingdoms of the earth were, in my sight, as nothing and vanity; and so great were my ideas of heavenly glory, that nothing which did not in some measure, relate to it, could command my serious attention."

This extraordinary event is abundantly confirmed by the worthy successor of Mr. Tennent in the pastoral charge of his church. He states, that after hearing from Mr. Tennent's own mouth a particular

narration of this surprising trance, he said to him, "Sir, you seem to be one indeed raised from the dead, and may tell us what it is to die, and what you were sensible of while in that state." He replied in the following words: "As to dying—I found my fever increase, and I became weaker and weaker, until all at once, I found myself in heaven, as I thought. I saw no shape as to the Deity, but glory all unutterable." Here he paused, as though unable to find words to express his views, and lifting up his hands, proceeded: "I can say as St. Paul did, I heard and saw things unutterable. I saw a great multitude before this glory, apparently in the height of bliss, singing most melodiously. I was transported with my own situation, viewing all my troubles ended, and my rest and glory begun, and was about to join the happy multitude, when one came to me, looked me full in the face, laid his hands upon my shoulder, and said, 'You must go back.' These words ran through me; nothing could have shocked me more; I cried out, 'Lord, must I go back?' With this shock, I opened my eyes in this world. When I saw I was in this world I fainted, then came to, and fainted for several times, as one would naturally have done in so weak a situation."

"Mr. Tennent further informed me, that he had so entirely lost the recollection of his past life, and the benefit of his former studies, that he could neither understand what was spoken to him, nor write, nor read his own name; he had to begin all anew, and did not recollect that he had ever read before, until he had again learned his letters and was able to pronounce the monosyllables, such as *thee* and *thou*. But that as his strength returned, which was very slowly, his memory returned also. Yet, notwithstanding the extreme feebleness of his situation, his recollection of what he saw and heard while in heaven, as he supposed, and the sense of divine things which he there obtained, continued all the time in their full strength, so that he was continually in something like an ecstasy of mind. And," said he, "for three years, the sense of divine things were so great, and every thing else appeared so completely vain, when compared to heaven, that could I have had the world for stooping down for it, I believe I should not have thought of doing it."

The pious and candid reader is left to his own reflections on this very extraordinary occurrence. The facts have been stated, and they are unquestionable. The writer will only ask, whether it be contrary to the revealed truth, or to reason, to believe that in every age of the world instances like that which is here recorded have occurred, to furnish living testimony of the reality of the invisible world, and of the infinite importance of eternal concerns.

MUSICAL POWERS IN A CHILD.

Extracted from the British Phrenological Association held at Glasgow.

The Hall was crowded with ladies and gentlemen.

Mr. Atkinson read a communication from Mr. R. Cull, of London, detailing a case of precocious musical talent, in the history of the *Infant Sappho*, Louisa Vinning. She was born at Kingsbridge, Devonshire, in 1836, being now three years and ten months old. Her father John Vinning, is a good musician; he sings, and plays well on the piano-forte and violin, and, having also exhibited his musical talent at a very early period, he was educated for a musician, at the expense of Mr. Garrow. Mr. Vinning has two brothers of considerable musical talent, who have left their business to make music their occupa-

tion. One is a violinist, and the other an organist. Mr. Vinning's father possesses a natural talent for music, which he manifested by playing the flute, in band of a volunteer regiment, for several years. He knows nothing of the technical language of music—he played entirely by ear, and he kept tune and time well.

Louisa Vinning, surnamed by Mr. Parry, the *Infant Sappho*, enjoyed music at a very early age. "She was only nine months old," her father states, "when I first observed the intense delight she derived from music; when crying, the sounds of a musical instrument immediately soothed her, her whole frame moving in unison with the measure, and her face beaming with enjoyment. I played to her occasionally on the violin. I took the opinion of several medical men on the propriety of indulging her in this kind of amusement, lest she should be injured by too early excitement. Their advice was, to give her gentle exercise in singing, and to guard against late hours. She sang before she could speak. Her passion for music increased, until she seemed to require an atmosphere of music to exist.

In the early part of 1839, she was discovered to have walked in her sleep, and so as to prevent accidents, she was afterwards put to sleep on a sofa in the sitting room until the family retired to rest; she frequently sang in her sleep, and one evening when only two years and eight months old, she sang, sweetly, and distinctly, a melody perfectly new to her father, and repeated it several times, so that he wrote it down, gave it to Mr. Blockley, who arranged it, wrote the poetry, symphonies, and accompaniments, and called it the *Infant's Dream*. M. Thalberg, the celebrated musician, in a letter dated December 11th, 1839, speaks of her astonishingly correct singing, and her pleasing voice. Sir George Smart, in a letter dated 3d April, says, "I beg leave to state that I consider her a most wonderful child, possessing strong feeling for music, with an extraordinary correct ear both for time and tune; her singing is perfectly natural, without effort, and her infantile manners and childish appearance prove her extreme youth." M. Moschelles says, in a letter dated 29th of March, 1840, "She appears to me, not only to be most liberally gifted with a voice of unusual compass, but also with a sensitiveness of organization whether as concerns the power of correctly retaining melodies, or of re-producing intervals very remarkable, being only three years and a half old."

She sung before the queen and court at Buckingham Palace, on the 3d of August, 1840, and received substantial proofs of the queen's delight at her talent. She is now singing three nights a week at the Lecture Theatre of the Polytechnic Institution. She sings the musical *sounds* of the melodies without words; and repeats any Italian air, after hearing it three or four times. Her style of singing is very remarkable for similarity to our first opera singers. It is appropriately supported by the adoption of the natural language, gesture, &c., to express the sentiment of the air she sings. In her graceful, though infantine action, she is often very expressive; but like most public singers, there is commonly a redundancy of action, and that too, of an exaggerated nature. Her public singing at the Polytechnic Institution commonly comprises the following.—

1. An Italian air.
1. The infant's dream.
3. The proof of her power to sing passages struck on the piano on the instant, which frequently terminates in some Italian air.
4. Her power of changing the style and key of music, without the usual preparation, in which she

passes at once, from some Italian to an English, thence to a Scottish, and finally to an Irish air.

5. An Italian air.

6. Finale, part of a harmony in the National Anthem of God save the Queen.

All her talent is natural, for hitherto she has received no technical instruction in music. Her voice is two octaves in compass; the lower notes are very sweet in quality, and she possesses great power of voice. She can introduce occasional sharps and flats with great precision and elegance. When false notes were purposely played to try her, she invariably ceased and evinced some anger.

THE MAGNET.

NEW YORK, MARCH, 1843.

CEPHOLOGY.

We have already informed our readers, as to the reasons for applying this term to those operations on the human brain, by which we are enabled to control the cerebral organs. A term is needed for the purpose of designating this process, and distinguishing it from others connected with the general subject of pathetology; and this is as suitable as any other, if we choose to use it for this purpose.*

As we have been requested, frequently, to give the history of this discovery, and as various attempts have been *clandestinely* made, to invalidate our account of the origin of this process of pathetising, we may as well take this opportunity of doing, what may seem to be justice to this subject.

In the New-York (or, as it was then called, Zion's) Watchman, for October 23, 1841, of which we were then editor, we published *the first account that ever appeared*, as far as we know, *of this process of operating upon the separate cerebral organs*. That account did not appear till more than two months after we made this discovery, which occurred as it is there stated. We had, for years, been engaged in collecting facts on various "MENTAL PHENOMENA;" and, under this head, we had been publishing a series of articles, showing the "influence of the mind over the nervous system." And, while preparing those articles for the press, we commenced a course of experiments in Pathetism, for the purpose of bringing out, in those articles, an account of the phenomena connected with the state of somniphathy; and hence, that account was not published until it best fell in with the other subjects under examination. The first operation of the kind was made on the 5th of August, 1841, and our published account of its *origin* was made in the paper as above stated, and is as follows:

"If it has occurred to the reader, that there *might* have been some collusion in the matters detailed in our last, in regard to what was done by the sleep-waker (somniphathist), we ask him to weigh, candidly, the following details, in some of which, it will be seen, deception was scarcely, if at all, *possible*."

"As far as we know, the following *phrenological* tests were the first of the kind ever tried, in this or any other country; and as they did not originate with either of the

parties concerned, the reader will not suppose that it should require a very large development of marvellousness in us, to believe that there was something extraordinary in these results. How far they may tend to demonstrate the truth of mesmerism [pathetism] or phrenology, in the mind of the reader, will depend altogether on his belief that there was, really, no deception in either of the persons concerned.

"I had noticed, as before stated, that the limbs of the patient could never be made to obey the will of the operator, when the brain was not mesmerised [pathetised]; and having tested this fact a sufficient number of times to satisfy myself that I was not deceived in this matter, *it occurred to me, that particular portions of the brain might be operated on in the same way*. I therefore, at the sitting last mentioned [Aug. 5, 1841], requested Mr. Peale, the operator, while the patient was asleep, and playing at the piano, to reverse the passes over those portions of the brain appropriated by phrenologists to the organs of *tune*. He did so, *after I had designated the places to which I referred*. The passes were reversed a few times, simply with his thumbs. She was now ordered to play; but she replied, that '*she could not think of the tune*'! She was repeatedly urged to play, but uniformly made the same reply. Satisfied, as I was, that there could not have been *any* collusion in *this* experiment, the reader may easily imagine how deeply I was interested by it,—demonstrating, as it did, the truth of phrenology in my own mind, beyond the shadow of a doubt. The same thing I have since done, and seen repeated, on different patients, and in various ways, and the results have always been the same."

Our discovery of what we called the "sympathetic points" in the face and neck, was made on the 5th of Jan. 1842, and stated in the Watchman of Jan. 29, 1842. On the 8th of the same month, we discovered what we called the "conductors" of the human system, and published our account of them in the Watchman for Feb. 12, 1842. The account is thus stated:

"That every physical and mental organ has its appropriate magnetic [*sympathic*] conductor, corresponding, in some respects, to the nerves, but differing from them, altogether, in their functions. A number of authors have admitted, that a mysterious imponderable fluid might exist, and pervade the human system, under certain circumstances; and the believers in mesmerism (ourselves among the number) had supposed, that the influence called magnetism, was conducted by the nerves of sensation or motion. But we are not aware that any one has ever attempted to prove the existence of a separate class of conductors in the human system, or that any investigations were ever undertaken for the discovery of such conductors, till those of our own, which have resulted in the assumptions above stated."

And we arrived at our conclusions about the same time, in relation to the laws which balance the organs into "*positive and negative*," thus making one directly *opposed* to the function of another; but *no distinct account* was published of this fact, till the Watchman of March 26, 1842.

But the above, we believe, was the *first account* which was ever published of this *method* of controlling the separate cerebral organs by *manipulation*. And though our account of the same discovery has been published, to our knowledge, in more than two hundred different newspapers in this country, including some also in France and England, and though the above account had remained before the world for more than one year, while our process of operating has been practised more or less by every pathetist throughout the country, we say, notwithstanding these well known facts, an anonymous writer in two of our city papers, has recently made an attempt to inva-

* We write it Cephology, instead of Cephalology, merely for the sake of EUPHONY.

validate the above account.*

Of course, we could not be expected to notice all the anonymous assaults of this kind, which might be made upon our integrity; and yet, as they may, and probably will, to some extent, produce a false impression where the facts are not known, we are induced to submit the following, for the simple purpose of *proving the truth of the account above quoted from the New-York Watchman.*

The following is from Mr. G. N. Peale, the son of the operator (now absent from the city,) referred to in the extract above:

"I well remember when the magnetic phrenological experiments were first performed in this museum, in July or August, 1841, by my father, in connexion with Mr. Sunderland. I was present daily, and know that my father often stated to the spectators, that these operations on the separate organs of the brain were first suggested and performed by the request of Mr. Sunderland, as I had never heard of them before from any one.

GEO. R. PEALE."

New-York Museum, Dec. 17, 1841.

The gentleman whose name is attached to the following, is well known as one of the best practical phrenologists, probably, in the country:

"I was present at a meeting of scientific gentlemen, held at the New-York Museum about the first of September, 1841, for the purpose of witnessing some phrenological experiments on the separate organs, by the application of the fingers to the head of the subject. And I am convinced, from what I heard Mr. Peale say at that time, and also from the statements of others then present, that Mr. Sunderland was the first who suggested to Mr. Peale the practicability of exciting, in this way, the different faculties of the mind.

L. N. FOWLER."

New York, Dec. 14, 1842.

The meeting of scientific gentlemen above named, and also in the succeeding testimony from Dr. Lee, formerly Professor of Materia Medica and Medical Jurisprudence in the University of the city of New York, as our readers will remember, is referred to in the first number of the Magnet, page 13:

"The subscriber hereby certifies, that he was present by invitation at the New-York Museum, in the month of September, 1841, to witness what were called magnetical and phrenological experiments on the separate organs of the brain; and there and at that time, he understood Mr. Peale to say, that the mode of performing those experiments was first suggested to him by Mr. La Roy Sunderland, and did not originate with himself.

CHAS. A. LEE, M.D."

New-York, Dec. 12, 1842.

The following is from two intelligent gentlemen, who were in frequent attendance to witness our experiments, and, put with the foregoing, they are sufficient to prove

* Though *anonymous*, he is well known to us; and we hope we may not be hereafter compelled to give a few facts, we have at command, intimately connected with his personal history. Soon after we made the above discovery, he interfered with one of our subjects, and intercepted the course of our experiments—as we believe, from selfish motives; and not long after, he attempted to appropriate certain of our own discoveries to himself. But failing in this, he has not been wanting in efforts to exalt himself at another's expense.

The articles above referred to were a tissue of falsehood, as a friend of ours offered to prove; and a reply was accordingly presented to both of those papers, but we are sorry to say, both refused us a hearing.

that we published a *true account* of the origin of this method of operating on the human brain:

"We were frequently present, at the New-York Museum, during the summer and fall of 1841, to witness certain magnetic experiments performed by suppressing and exciting the separate organs of the brain, by Mr. Peale; and we well remember having heard him state, at different times, that these experiments were first performed by him at the suggestion of Mr. Sunderland.

JOHN PENDLETON,
ELISHA ELY, JUN."

New-York, Dec. 18, 1842.

Observe, we have introduced the above testimonies, simply to confirm the truthfulness of the account which we published a year and a half ago. And now, once for all, to prevent all misapprehension, or necessity for noticing any similar assaults which may be made upon our veracity, we beg all who may desire to know the true state of this case, to notice:—

1. That, though we have never *professed* to attach any very great importance to the discovery above referred to, yet we do care something for our own *integrity*; and think it of some importance to repel any insidious attempts at its impeachment, however *clandestinely* made.

2. The *true account* of a discovery, as to any *method* of operating on the human brain, or any thing else, must be determined by the *published accounts made of it, at the time the discovery was made.* For, when the *method* of doing any thing is once before the world, no man, who may assume to have made a *similar* discovery, could prove that he did not derive his knowledge from that *published* account. And hence, we must see, that ten thousand reports which might be originated about any discovery, a year or more *after* the account of its origin was published to the world, could not amount to anything.

And we now state again, that if any account of this *METHOD* of controlling the cerebral organs, was ever *published* previous to ours, above stated, we have neither seen it, nor ever heard of it. We know, that some account may be found in Muller's Physiology, of *exciting* the cerebral organs by galvanism, many years ago. The account may be found also in Walker's Pathology, page 131, recently published in this country. Muller makes the following statement:

"The stimulus of galvanism *excites, in all the organs of sense, different sensations in each organ*, namely, the sensation proper to it. In the eye, a feeble galvanic current excites the special sensation of the optic nerve, namely, that of *light*. In the auditory nerve, electricity produces the sensation of sound. When a piece of zinc is applied to the point of the tongue, and silver to its back part, an acid taste is produced. It has not, at present, been much observed, whether peculiar smells are produced by the application of galvanism to the organs of smell; Ritter, however, has perceived them; and it is a known fact, that the electricity excited by friction, gives rise to the smell of phosphorous."

This is, probably, the first account of any cerebral excitement of the separate cerebral organs, ever published.

And it will be remembered, that in our second number we reviewed a work by Dr. James Buchanan, in which he describes some cerebral excitements, which he first performed in the spring of 1841, by what he calls a "galvanoid fluid." In that work, published by himself during the summer of 1842, professedly to give an account of his discoveries, he says:

"I determined to excite the different portions of the brain by a galvanic or galvanoid fluid, and calling them separately into action, to watch the resultant phenomena; or, by exciting them in myself, to enjoy at once a perfect consciousness of the nature of each faculty, and its organ. In this attempt, I have met with even a more glorious success than I had ever anticipated."

And then, he adds in a note, page 10—

"I say NOTHING of my mode of operation at present, as that will be displayed, hereafter, publicly."

Here we see, that Dr. B. himself, in presenting all the newspaper reports of his numerous experiments, tells us, that he had not, and would not, for the present, reveal his method of operating, or applying what he calls the "galvanoid fluid." And those who have read his book, know that he does not disclose his method of operating; nor, indeed, has he published any account of it, that we know of, to this day. And we frankly confess, that we never could form a satisfactory idea as to what his peculiar method was, till we heard his lectures in this city recently.* The truth is, we were deceived by his professing to have discovered "a new agency," which he claimed to have "added to our therapeutic list," (page 21); and his disclaiming, so explicitly, all dependence upon what had been called mesmerism, or living magnetism, as will be seen by referring to the second number of the Magnet, page 47.†

3. As far as we know, Dr. Buchanan may have been the first who ever excited the separate cerebral organs by manipulation, in the waking state. We have always stated (see first number of the Magnet), that we never experimented upon a subject in the waking state, till we had heard of its being done by others; but what Dr. B.'s method of operating was, we did not know, nor do we know of one who could, at first, even conjecture what it was. At one time, we were told it was "a galvanoid fluid"—at another, it was by applying alcohol. But all we have to say, now, upon the subject is, that his own work contains no account of his METHOD of operating, nor does it make any disclosures from which it could be inferred, from any thing he published before Aug. 5, 1841, the time when we first operated on the separate organs by manipulation.

4. It is not unreasonable to suppose, that the same process of operating may have suggested itself, about the same time, to different persons, in different places. We sent the papers containing the accounts of our own experiments, to Dr. Elliotson, of London, and he afterwards described them, with others, in a public address to the

London Phrenological Society, where he is represented, by the reporter, to have said:

"That whilst these things were proceeding in America, experiments of precisely the same character and effect were carried on in different parts of England, by gentlemen who knew nothing of the operations of each other, or of those going on in America. He had sent down copies of the American papers to Hampshire to Dr. Engle-due, with a request that he would hand them to Mr. Gardiner, a gentleman of the highest respectability and learning, the son of Sir James Gardiner, an old member of this society. It happened, curiously enough, that when Dr. Engle-due went over to Southampton, to give the packet of papers (which he himself had not opened) to Mr. Gardiner, he found that gentleman, Mr. Mansfield, and others, actually engaged in a series of experiments, which, on afterwards looking into the packet, they found to exactly correspond with those performed in America."

Now, without stopping to query as to how those papers, containing an account of our experiments, (as we suppose they did, for Dr. Elliotson acknowledged the receipt of the papers we sent him, in a private letter to us,) we say, without stopping to query as to how he came to send those papers to Mr. Gardiner, before they had been opened, we might attempt to show, that Mr. Gardiner must have got his idea of those experiments from our account. But we shall do no such thing—we do not believe it; and we should despise ourself, if such a suspicion were allowed to suggest itself to our mind. The origin of the experiments in England, is fully described by Dr. Engle-due, in the report of his address before the London Phrenological Society, published in the Edinburgh Phrenological Journal for October, 1842. It is there stated, that they were first performed by a Mr. Mansfield, December 18, 1841.

5. In conclusion, we beg it may be understood, that we have no rival "claims" to settle with any one. The same thing we did, may or may not have been done years before, or about the same time, by one or a score of others. All we affirm is, that what we described in our account of the origin of this method of controlling the cerebral organs, originated as we have stated, and that whatever accounts of cerebral excitements may have been published previous to our account, we have never, to this day, seen or heard of any, detailing or suggesting that method of operating. And it is a fact worthy of notice, that our method did not, at first, produce what is called excitement, only by exciting the organs back again after their action had been suppressed; and we do not know that any one has ever pretended to such a discovery of any method by which such control could be exercised over the separate cerebral functions, without injury to the patient, except ourself.

We shall, in succeeding numbers, give some account of what we call Cephalogy, and notice the difficulties which have seemed to lie in the way of its being turned to any practical benefit.

WHAT IS IT?

The more we see of what we denominate Pathetism, the more we are inclined to the opinion, that most of the laws which govern this agency are yet to become known.

One theorist prides himself in having formed his system before he commenced his experiments, which have given

* Nor will the reader attribute this to our dullness of apprehension, we think, if he has ever read the Doctor's book. And the editors of the Edinburgh Phrenological Journal, it seems, were equally dull, for in that work for October, 1842, they speak of having received an account of Dr. B.'s discoveries, from himself, (the same, probably, published in his book, page 80,) but which, they say, did not make it appear what his method of operating was, otherwise than his disclaiming mesmerism.

† And yet, the writer before referred to, (who attempts to invalidate our account,) to assist the Dr. from the difficulty in which his disclaimers had, unhappily, involved him, quotes the words of Dr. Charles Caldwell, page 78, (where Dr. Caldwell says Dr. B.'s experiments were "produced by a principle IDENTICAL with mesmerism,") and puts them into the mouth of Dr. Buchanan, thus making the Dr. CONTRADICT HIMSELF!

rise to the use he makes of the term "Neurology." We willingly yield to him all the credit he may be able to realise from the very frank avowal he has made of this fact. *Theories* first, and *facts* afterwards! And this is the way we are to arrive at the truth!

From the account, in our December number, of the above theory, it will be seen that its author assumes, that what he calls the *neuraura* is conveyed by the *nerves*, and from one person to another, the nerves are the channels through which it passes. As, for example, he locates an organ of *rotation*, (which, when excited, causes the subject to whirl round like a top,) in the end of the nose; and placing the finger on the proboscis of any susceptible person, this *neuraura* is conveyed from the hand of the operator, by the nerves, to the organ in the brain. Now we beg to know, what nerves have ever been traced from the tip of the nose to any particular portion of the brain?—That there are points in the face and neck, and, in fact, throughout the entire system, which *sympathise* with particular portions of the brain, is what we discovered long ago; and this fact shows how it is, that when any organ is controlled in any way, it speaks out through the eyes or muscles of the face. But there is nothing to demonstrate the existence of any connexion between the influence conveyed by manipulation through the *nerves*, either of motion or sensation. We do not mean to be understood as conveying the idea, that they are not affected by this influence, whatever it may be; but we know, and have demonstrated by numerous experiments, that this agency is not confined to the nerves, nor exclusively conveyed by them. For, admitting that it is, how shall we account for the well-known fact, that the functions of the nerves of *sensation* and *motion*, are annihilated by pathetising any portion of the system? Most persons in a state of somniphathy, have no *sensations* by the ordinary organs of sense; but what become of the nerves of sensation, when one is in a sound state of somniphathy?

Nor is this all. It is well known, that when the operator applies his hand to any part of the system of a person in this state, neither the nerves of motion nor sensation will be affected, without he *designs* to produce some such result; and often, when they are touched by a third person, the patient is not sensible of it at all! Where are the nerves all this while? And often, you may apply *ammonia* to the nose of a somniphathist, without producing the slightest effect; but on applying it to the olfactories of the operator, you may throw the *patient* into spasms. For these results, the *neuraura* theory affords no satisfactory solution at all.

Again. Every person much familiar with pathetism, knows that the effects often produced on the cerebral organs do not depend, merely, either upon the susceptibility of the subject, or on any influence conveyed from the hand of the operator. Results of this kind vary, and these "variations" may be carried almost to any extent. But for these differences in the cerebral excitements of different persons, whether asleep or *awake*, the *neuraura* theory assigns no satisfactory cause,—as it does not, for numberless other phenomena, which so completely annihilate many other beautiful castles which have been so ingeniously constructed, in the absence of facts.

It will be seen, that one of our correspondents in the present number, thinks he has assigned the true reason for the different results which often come out from different cases. He thinks the difference is to be attributed to the different degrees in which the various subjects may have been *pathetised*. And we might think so too, probably, had we not performed a vast variety of experiments which go far, very far, as we believe, towards demonstrating the contrary. Instance the following. Here is a person, whose cerebral organs we can control, while he is awake, but he cannot be put to sleep. Another may be put to sleep, and his cerebral organs cannot be excited at all. Another is susceptible of the excitement of any portion of the brain, *provided* he understands beforehand what the impression is you wish to produce.—True, we can assign what we believe would be received as the only correct solution of these difficulties; but we could not do it on the ground maintained by our esteemed correspondent.

Our readers will, no doubt, give Dr. Porter a candid hearing. If his theory can be made out, let it be done. We must all admit, that there can be no animal life, where there is no caloric, no electricity, or magnetism, or moisture. There is no life in a substance perfectly *cold* or *dry*; but we do not infer, from this, that *life* is, really, either of these imponderable fluids in their natural state, or in that state in which they appear where there is no life.

In speaking of the sense, peculiar to living bodies, which sees, hears, and *perceives* without the ordinary senses, we have called it magnetic, or magnetism in an organised form; and we have done so, for the want of a better term, to give an idea of some of the laws by which it would seem to be governed. But we have always known, that the laws which govern in the one case, do not apply in the other; and hence we prefer the term *pathetism*, when speaking of the *susceptibilities* of the system, and the *agency* by which we operate on it by manipulation.

The *attraction* produced by pathetising, though real, is not *reciprocal*. The hand of the operator may, and often does, attract the subject, but the hand of the subject does not attract that of the operator; and though we could perhaps assign a plausible reason for this, yet it does not appear to be perfectly satisfactory, and if it did, there are many other objections in the way. Admitting that the human system is a real *galvanic* battery, we do not see why a dead body might not (in many cases, at least,) be restored to life again. Death produces no change of structure; that is, *dying* does not, that we know of, produce any alteration in the nervous system: the muscles, nerves, tissues, and every part, remain as before. And when death takes place without any change of structure, why should we not be able to restore life by the galvanic battery? Will Dr. Porter oblige us with an answer?

THE REASONS, WHY?—It will be seen, by an article in our present number, over the signature of "E." that we have been (quite mildly, to be sure,) reprimanded for our tardiness in giving publicity to some of our discoveries, if we may so term them, connected with pathetology. And other complaints have reached us, that we have

manifested so much unwillingness to give publicity to the numerous facts, which have been accumulating on our hands, in connexion with this subject, especially for the last two years. We frankly acknowledge the truth of this charge, and beg leave to justify, on the following considerations:—

1. The difficulties of making proper selections, suitable for publication. We could not think of publishing an account of any considerable proportion of the facts which come under our own observation. And it requires more time and care to prepare reports for the public eye of these phenomena, than our patronage has, as yet, enabled us to devote to this work.

2. We labour under the apprehension, that almost every other person at all familiar with this subject, has become acquainted with the same phenomena; and why should our pages be filled with details of facts so well known?

3. We have been anxious that this work should not be injured by an apparent *carelessness* in our *manner* of stating facts; and we wish, also, to give others an equal opportunity of stating, for themselves, the results of their own experiments.

It is true, the relations we have sustained to the subjects included in the purview of this work, have greatly multiplied our facilities for the collection of *facts*; and in due time, if we may be sufficiently sustained, the results of our numerous experiments and observations shall be revealed for the public good.

DR. BUCHANAN IN ALBANY.—Various accounts have appeared recently in the different papers, giving the details of a hoax played off upon Dr. Buchanan, by one of his subjects, while lecturing in Albany. The particulars are thus stated by a correspondent of the Albany Evening Journal:—

“I was solicited to be one of fifty gentlemen, to form a select class to hear the lectures of Dr. Buchanan on mesmerism, or what he calls “Neurology.” Thinking that the Doctor would be gratified to place his own theory before his audience, in a clear and intelligent manner, and that he would in some degree be the expositor of the views of the more rational and intelligent mesmerists, I contributed my quota; and on repairing to the place of lecture, was surprised to find a large and miscellaneous assembly of ladies and gentlemen.

“I have attended on two occasions; and two lectures less interesting,—less satisfactory,—more devoid of order, arrangement, system, or sense, I never had the misfortune to listen to. At the close of the lecture yesterday evening, the gentleman who had submitted to be “operated on,” and who had been exhibited to a wondering audience as sound asleep, as having his vision impaired or improved, his arm paralysed or strengthened, his senses affected as by intoxication, at the will of the operator—publicly declared, that neither on those two evenings, nor on other occasions in this city, at the houses of the prominent mesmerists, where he had been “operated on” with apparent magical effect, had he ever been put to sleep, or experienced the least impression from their manipulations or farcical mummeries; and that he was fully convinced the whole “system,” so called, was a gross delusion and humbuggery;—in the expression of which opinion, the audience almost unanimously concurred by general acclamation. A. B.”

Of course, no candid, unprejudiced mind, could sympathise with the severe censures which have been so indis-

criminately heaped upon Dr. B. for suffering himself to be deceived in the way he did. It was his misfortune, to be sure, and one in which he should not have been involved, if all he assumes for his discoveries in “Neurology” be correct. For, it should be remembered, that he has with him a person who is capable, as Dr. B. assumes, of telling not only the precise location of the cerebral organs by the *sense of touch*, but who can, also, by this sense, tell the precise *state of the mind* of the person examined, as well as the exact state of the different physical organs. When he was in this city he assumed all this, and more, for Mr. Inman, on whom the Dr. did certainly seem to depend, as upon an oracle. Now, where was Mr. Inman all this while, that he did not *detect* the deception of that young student?

But the truth of the matter will be found to be, probably, by and by, that Dr. Buchanan was never more deceived by any one, than he has been (innocently, we doubt not,) by Mr. Inman. That Dr. B. was deceived by the dependence he placed on him and *one* other person in this city, we believe to be susceptible of the clearest proof. We have seen an account of some experiments, said to have been performed by Dr. B. on that other person in this city, published in the Morning and Evening Post, and yet, if we are correctly informed, that very “young lady of about 20,” there referred to, has since acknowledged, that in some instances, at least, she did *feign* what she manifested under the operations of Dr. B. And thus, both the Dr. and Mr. Inman, as also the Committee before whom the experiments were made, were deceived.

Now, what we affirm is, that one assuming to have knowledge of a process,* by which he can tell the *state of any person's mind* in a few moments, should not have been deceived, as Dr. B. was in this city, and since in Albany. But his being deceived no more proves him an imposter, than it does the others who were deceived with him.

That Dr. B. has been deceived by the dependence he has placed on what he calls the “Neuraura” of the human system, we are confident; and being deceived himself, of course he must have misled others. But we believe him to be a worthy man, and entitled to the respect and confidence of the public.

A SIMPLE MAGNET.—Davis of Boston, who is probably the greatest magnetician in the United States, lately showed us a simple method of producing a magnetic needle, a knowledge of which may often prove essentially useful in determining directions, where a regular compass cannot be readily obtained. The process consists in simply twisting a piece of wire or iron rod. Mr. Davis took a piece of the smallest kind of nail-rod, about six inches long, and fixed one end in a vice, twisted the iron (cold) two or three times round; and then balancing it on the point of a needle, the iron being slightly bent for that purpose, it readily assumed its true magnetic position of north and south. Such little discoveries tend to bring the most useful sciences within the

* This process the reader will find described, in Dr. Buchanan's own words, in the eighth number of the Magnet, page 179.

reach of every capacity, and contribute largely to the prosperity of free and enlightened communities.—*N. Y. Mechanic.*

ANTHROPOLOGY.

MAN AND HIS DISEASES.

BY P. CUNNINGHAM, ESQ.

DISEASES.

There being only two distinct primary classes of vessels in the human body, viz, the recrementitious vessels secreting the solid parts thereof, and the excrementitious the fluid; so when increased galvanic action exists in either of them, that in the first must tend to increase the solid at the expense of the fluid parts, and that in the second to increase the fluid parts at the expense of the solid.

It is found, indeed, in chemical experiments, that two distinct species of action cannot go on in the same body at the same instant; a law which, as far as present experience extends, applies to the human body, the general theory of the cure of whose diseases has been that of translating the diseased action from one class of vessels or from one part to another, as the galvanic disease, as it may be termed, in copper, is translated to the iron in the Davyan preservers. From what has been said above, therefore, when increased galvanic action exists in one class of vessels, it must naturally decrease the action in the other class; so that by giving remedies to increase the action in the vessels where there is diminished action, you will diminish the action in the vessels where there is increased action; and by thus bringing the actions of the two classes of vessels to an equilibrium, you consequently cure the increased, or, in other words, diseased action, which exists in either.

Diseases being thus either recrementitious or excrementitious, the remedies employed to cure them may be divided into recrementitious and excrementitious, according to the class of vessels whose action they are capable of increasing. The recrementitious or fattening remedies are the black oxide of mercury, sugar, common salt, bitters, charcoal, the various non-purgative salts, and, in fact, the whole of the remedies known by the name of stimulants; all such, indeed, whose chemical analysis shows them to contain comparatively small proportions of oxygen in their composition; while the excrementitious or impoverishing remedies are the acids, and the various substances called narcotics, or sedatives, whose analysis shows them to contain comparatively large proportions of oxygen in their composition. Although there are different classes of solids, yet no remedies having hitherto been noticed, acting upon any one particular class without affecting the whole, therefore recrementitious remedies may be designated as such whose general tendency is to increase every species of solid in the body; while on the contrary, different classes of medicines being found to act almost exclusively upon one particular class of fluid secretors, without affecting the others, consequently we have the appellations of purgatives, diuretics, sudorifics, and pyralists, according as they respectively increase the action of the excrementitious vessels of the bowels, the kidneys, the skin, or the salivary glands. As we are thus ignorant of any capable of curing increased action in one class of recrementitious vessels by exciting increased action in another class thereof, or, in medical language, of translating the disease thereto, we must consequently translate the disease to the excrementitious vessels, in order

to effect a cure. As, however, we have remedies capable of increasing the action in one class of excrementitious vessels without affecting the others, so we are thereby enabled to cure excrementitious disease in one class by translating it to another class thereof, where it would be more under the power of medicine. This latter system of treatment can, however, by no means be depended upon, because the above remedies do not uniformly act upon the class of excrementitious vessels, which their titles designate them to do, but frequently upon other classes of these vessels; reputed purgatives often operating as sudorifics, and sudorifics as diuretics and pyralists. Therefore as a general rule, it will be as advisable to apply recrementitious treatment to excrementitious diseases, as excrementitious treatment to recrementitious diseases.

Recrementitious and excrementitious affections oftener occur as sequences of each other, than as isolated diseases; and hence, by curing or preventing the attack of the primary of the two, the attacks of the secondary are prevented also. Thus in intermittent, we have first excrementitious action indicated by paleness, shivering, and shrinking of the urinary discharge; to this succeeds recrementitious action indicated by great heat, thirst, fulness of pulse; and lastly, excrementitious action winds up the paroxysm, indicated by the profuse perspiration in which the body is drenched. Now, by preventing the attack of the first stage of the paroxysm, that of the others is prevented also, which is effected by the use of recrementitious remedies in the intervals of the paroxysms, such as quinine, brandy, port-wine, &c. Again, in scurvy, which has a recrementitious commencement, by administering excrementitious remedies, such as vegetable acids, &c., we not only cure the primary recrementitious disease, but the various excrementitious ones succeeding to it,—diarrhoeas, ulcers, pyralisms, and the like. I have previously shown that both electric and magnetic, i.e. recrementitious and excrementitious substances, applied in a large amount to decomposable bodies, preserved them from destruction, by counteracting the galvanic action to which they were in insulated states exposed; and that when, on the contrary, applied in small amount to bodies, they tended to produce more rapid decomposition of them if the said bodies had been left in an insulated state.

The same law also holds good with a number of the medicines prescribed, whether these medicines be recrementitious or excrementitious, large doses of them seeming often to allay galvanic action, while small ones tend to increase it. Thus, calomel in large doses soothes and constipates, while in small doses it purges and gripes; the former thereby giving great relief in dysentery, while the latter usually increases the disorder, until the recrementitious action upon the body begins to be evinced by the tenderness and swelling of the gums. Quinine too, in small doses, is generally rather prejudicial than otherwise in intermittent, while in large doses it effects a rapid cure. The same remark applies to opium, which in small doses commonly excites restlessness instead of conducing to sleep; small doses of it in acute dysentery being also useless or hurtful, while large doses tend to the most happy results. Opium too, exhibited in large doses, before the cold stage of intermittent, either gently alleviates, or altogether prevents the same; a very pointed case of an excrementitious substance given in excess checking or altogether preventing excrementitious action. The same cessation of galvanic action in bodies therefore ensuing, whether electric-attracting or magnetic-attracting substances in excess be applied to them, we may consequently presume that either

electricity or magnetism, applied in excess, would produce a similar cessation of galvanic action; which most undoubtedly is the case with respect to magnetism, from the fact of frozen bodies suffering no decomposition, and is in some measure the case with electricity also, from cooked substances keeping longer than uncooked. The latter, however, are not fair criterions of electric and magnetic influence applied to the protection of bodies from decomposition, in consequence of the water, constituting their juices being mainly composed of the magnetic-attractive substance, oxygen, through which this water would assist the magnetism as much in its protective influence, as it furthered the decomposing influence of the electricity; and I doubt not, were the electric or magnetic wire applied singly to the above bodies, their influence would be found as protective against decomposition as the influence of salt acids, or any other electric or magnetic substance previously treated of.

In accordance also with these views, a combination of recrementitious and excrementitious remedies in the same disease must be either uncertain, or absolutely prejudicial; so that in recrementitious disease, excrementitious remedies should be solely employed; and in excrementitious disease, recrementitious remedies solely; the regimen being at the same time made conformable to the medicines, otherwise the one will necessarily counteract the other. In pursuing this course however, care should be taken to suspend the exhibition of the remedies the moment the action aimed at is induced, lest a disease of a different nature to the one under treatment should result, from pushing the above remedies too far. Thus in prescribing mercury as a recrementitious medicine, the moment tenderness and swelling of the gums and salivary glands appear, its further use should be stopped; because if recrementitious action in the above parts be further pushed, an excrementitious salivary disease in them will result, from which no good *can* arise, and much evil *may*, in consequence of the ready translation of diseased action, from one part to another, as evinced particularly in the recrementitious diseases, rheumatism and gout, and in the excrementitious actions consequent on phthisis, where the excretories of the bowels, the skin, the lungs and the urinary organs, are all in turn affected. I have before illustrated the impossibility of both recrementitious and excrementitious diseases subsisting, as general diseases, in the system at the same instant; but this does not hold good as far as local diseases are concerned: a local excrementitious disease being often found accompanying a general recrementitious one, and *vice versa*; so that in some cases a difficulty may arise as to the nature of the general action subsisting, in order that the treatment may be adapted thereto. I have found the relish or disrelish of vegetable acids, to be the best test of the species of general disease; a relish of them showing it to be recrementitious, and a disrelish excrementitious; a relish or disrelish of sweet, salted, high-seasoned articles, or of spirits, similarly also exemplifying the species of disease. While one species of treatment therefore is applied to the general disease, another, or opposite species, is demanded by the local one. Thus the recrementitious disease, scrofula, often causes the tumours consequent on its action, to terminate in excrementitious suppuration and ulceration, to which we find it best to apply stimulant or recrementitious remedies; while sedative or excrementitious suit best the general disease: a long course of saline purgatives, with solutions of sulphate of zinc, lime-water, &c. to the sores, seldom failing of greatly relieving, if not curing the complaint.

All general diseases, indeed, commonly commence in local galvanic action, that action only becoming general, when important or extensive parts of the body are affected; the local pain necessarily pointing out the part where the electro-magnetism feeding the disease enters, being the part where the nerves conducting that electro-magnetism to the seat of disease terminate upon the skin; and here, therefore, the local remedies must be applied. In disease of the liver, therefore, I would blister or cauterise the part of the shoulder where pain most usually occurs in this complaint, and the same with the knee in disease of the hip-joint. Atomo-electricity, or heat, when locally applied, never fails of giving relief in local pains, its action being upon the principle already expounded of electricity in excess or magnetism in excess, putting a stop to galvanic action. The relief it affords is, in fact, similar to that produced by large doses of calomel in dysentery, expanding the parts in states of spasm, by the electricity which it directly infuses into them; while the calomel indirectly accomplishes this, by attracting the electricity from the atmosphere, through the medium of those pained parts. Heat, however, is but of little comparative service, and indeed is frequently prejudicial, unless the temperature at which it is first applied be kept unremittingly up, until the disease is subdued; so as to insure electricity being always in sufficient amount in the part to counteract the diseased action under which it labors. This point may be insured by the use of the stomach pan enveloped in flannel, the water of which can be readily changed on becoming too cold, and a constant uniformity of high temperature thereby kept up in the part. In all painful bowel complaints it acts like a charm, and I have found it equally successful in lumbago, and indeed in every local pain; while applied in several cases over poultices, its action has been similarly beneficial, obviating at the same time the trouble of their frequent renewal.

Cold applications have been also found highly useful in local diseases, as well as in fever, peritonitis, and other diseases of a more general nature; but I have always observed, unless their temperature was kept as uniformly low as that of hot applications was kept uniformly high, that the cure of the above was little advanced, if not absolutely retarded by them.

In considering salt and charcoal as powerful recrementitious remedies, I am amply borne out as to the former, not only by the universal experience of those engaged in the grazing of animals, where it is employed as a means of retaining them in health, but of the fatteners of them for slaughter, who so well understand the utility of it in that respect, as to have originated a proverb among them, that for every pound of salt you give an animal, you have a pound of fat in return. This applies well to its use on shore, where excrementitious remedies are always at command to check its pushing of recrementitious action so far, as to induce excrementitious disease; but on board ship it must necessarily be used more sparingly on the above account. Charcoal, although not hitherto given to animals with the above view, will, I doubt not, be found equally beneficial, from the natural predilection that many animals show for it, when they have an opportunity of indulging therein. Pigs are particularly fond of it, and in New South Wales seldom fail in paying daily visits to the places where timber has been burnt off, for the purpose of satisfying their longings. I was indeed assured, by a friend of mine, an old and highly respected merchant captain, that he knew an instance of a pig being stowed away, by accident, for a considerable period in a coal hole, which was

brought on deck, plump and fat, after discovery, although it had nothing but coals to subsist upon.

Charcoal and coal being both inflammable bodies, and both, I believe, good electric conductors besides, hence they must be recrementitious when judiciously administered to animals that relish them; because the liking or disliking of the palate are, generally speaking, the surest guides to go by, as to the beneficial or hurtful effects of articles of food. Similar views, indeed, apply to vegetable growth, the burning of soil in moderation increasing its fertility by imbuing it with a sufficiency of electricity to promote vegetable health, without proceeding so far in the burning as to injure vegetable life by the too great electric amount infused into the soil. Salt, lime, and ashes, in moderate quantities, are as salutary also in the above respect, as they are pernicious when an over dose is applied. The forcing beds of gardeners are made of a dark color, with a view only of attracting heat, but whatever attracts heat must be an electric remedy; and hence may, like salt and charcoal given to animals, exert an independent effect of its own upon plants, either from its absorption by them in an undecomposed state, or from decomposition by their digestive organs. Hence, I conceive, charcoal dust, and the dust of coal, would be highly fertilising applications to what are called poor soils, particularly those of white tenacious clay, on account of their not only imbuing them with a highly electric or recrementitious substance, but enabling them to absorb heat as well as to admit of a freer entrance of air and moisture, by the darkening of their color and the diminution of their cohesive qualities. Seeing the immense variety in the nature of the diet of different nations we are naturally impressed with the belief that human sustenance is almost illimitable, *habit* making that species of food delectable and wholesome to one, which is disgusting or even pernicious to another. In Peru, the natives make an agreeable meal by chewing the cocoa leaves and wood-ashes; in others, cakes of saw-dust mixed with meal are equally relished; while, in our own country, what numerous articles do we not use, disagreeable at the outset, but for which habit at last gives us a taste. In this word taste, indeed, lies the whole of the mystery, because the palate seldom relishes that which proves pernicious to the body; the complaint of articles much relished so often disagreeing, being readily traced, in most instances, to the person's too great indulgence in them, on account of the very relish above spoken of inciting to their immoderate use. Saw-dust has been converted, by a very simple process, into the highly nutritious article of sugar, and hence may not the stomachic juices be equally able to extract nutrition from saw dust, when accustomed thereto? Nay, may we not presume that as the advance of population drives the wit to its shifts for the sustaining thereof, that the science of chemistry may be able to covert many articles now thrown aside as refuse, into wholesome food; if the advance of the chemical science of cookery be not able to effect this, by means of the ingredients combined with it previous to submission to the electro-magnetic influence of the fire?

EPIDEMIA AND CONTAGION.

Seeing that oxygen and its active compounds, the acids, destroy epidemic miasma and contagion, we may consequently infer that their active properties depend upon magnetism. This is further corroborated by excess of epidemic miasma equally preserving the body from galvanic disease that excess of magnetism has been shown to do with dead matter, a fact all who have been in sickly countries must have no-

ticed; ships being generally more unhealthy immediately after leaving a sickly port than when in it; the disease, indeed, frequently not breaking out until the vessel has been some days at sea. When detained on board a ship at Batavia, during the sickly season there, the shipping was not only more unhealthy than the town, but almost every person hired to work on board ship from the shore was seized with the prevalent fever, a few days after he had joined. Although we had only two men on the sick list when weighing anchor, before we were four days at sea a quarter of the ship's company, and myself amongst the number, were added to it.

Acid vapours destroy all kinds of bad odors; and hence also, these must I conceive, derive their active principle from magnetism, thereby accounting for their power of neutralising contagious influence by the intense magnetic medium with which they surround the body. It has also been remarked, that tallow-chandlers, oilmen, and all such as work much among strong odoriferous matter, are but little subject to contagious or epidemic diseases, while experience has instilled into mankind the belief that camphor and other strong-scented substances worn about the body preserve it from contagious influence, some of them probably deriving this power from containing electricity in excess, and others from containing magnetism in excess; either of which in sufficient amount, would tend, as before shown, to moderate galvanic action. Fumes of tar, camphor, and tobacco, have all been successfully used as anti-contagious fumigations, and indeed I mainly attribute my freedom from fever at Batavia to cigar-smoking, and my attack of it at sea to leaving the smoking suddenly off. A strong exemplification of the above view is afforded by garlic and similar strong odoriferous substances rubbed about the mouth and nose, not only preserving both men and animals from the attacks of the paralyzing complaint denominated *sorochi*, to which they are exposed in travelling over the South American mountains, but also checking its further advances, when timeously made use of.

When we contemplate, however the different coloured and constituted parts of the human body, we may infer, that as each different part contains different proportions of oxygen and combustible matter, so each part will consequently attract different atomic proportions of electricity and magnetism for the furthering of its growth, the retaining of it in health or the feeding of the disease which brings on its decay; so the above magnetic or electric odours, by changing the atomic proportions of the pestiferous miasma, would destroy the power of exciting disease in the parts of the body to which their former constituency adapted them. We have an illustration of the above view, of various proportioned electro-magnetic atoms being required in the human body, by what we see exemplified in vegetable substances, each different vegetable requiring a different colored earth to thrive in, showing that each required differently constituted sun's rays to keep it in health. Some of the ingenious New England men have indeed gone so far, as in some measure to obviate this necessity of particular coloured soils, by painting the stems of their different fruit trees of a tint which experience has taught them to be most conducive to the perfection of the various fruits. That contagion and epidemic miasma have magnetism in excess in their constitution, is evidenced by the attacks of epidemic & contagious diseases invariably commencing with depression of strength, sleepiness, and chilliness, as well as in unhealthy vapours exciting these very sensations. A medical gentleman of Arequipa informed me that while riding early in the

morning through a dense vapour through the unhealthy valley of Vitor (Peru), the sense of cold and drowsiness was such as almost to incapacitate him from retaining his seat, it being only through constant quaffing of port wine that he was enabled to do so, finishing a bottle easily without being intoxicated thereby, on other occasions a few glasses were more than his constitution could stand. The constant westerly tendency of the various malignant diseases that have desolated the world, is a further collateral proof of the electro-magnetic composition of the malaria which cause them, being obviously moved westerly by the same sol-lunar influence moving the waters of the ocean in a westerly direction, thereby giving rise to the tides. The rapid descent of rivers through the attraction of the current, and their rapid passage along highways and other places where the winds attracting them have least obstruction, similarly tend to confirm the deduction above drawn.

After an epidemic disease, however, has once commenced, an accumulation of the particularly constituted electro-magnetic particles, to which it owes its existence, will naturally take place round the patient, not only by attraction of them from the atmosphere, but by emission of them from the body after having performed their baneful functions there, so that by an accumulation also of patients, the electro-magnetic particles will become, at last, so intense, as to be capable of exciting the same disease in persons exposed to their influence, or, in other words, the disease will become contagious. Hence, many epidemic and endemic diseases at last assume a contagious form when the patients are crowded, or proper ventilation and cleanliness not attended to. As these electro-magnetic particles may be attracted by bodies which have not the power to decompose them, they may in this way be transported in merchandise from place to place, and thereby spread the disease. Hence, therefore, the quarantine regulations seem founded in reason; but as the sooner this contagion is destroyed, and the merchandise distributed, the less is the chance of its spreading, and the greater is the benefit conferred upon commerce, consequently the vessels cannot be unloaded, and their cargoes purified and disposed of, too quickly. For this purpose two large floating hulks should be anchored in places to which the winds have free access; their middle decks, set apart for the cargoes, being constructed of open grated work, to admit readily the vapours and wind currents by which the cargoes were to be purified, and with jutting frame works projecting out in a fan-shape from the stern and bows, and numerous ports all around, their construction would be complete.

When the cargo was arranged in the middle decks, the ports should now be shut close and the fumigating vapours made to ascend upwards through it from the deck below, after a few hours exposure the ship might be hauled head or stern to wind, the ports opened, and the breeze allowed to blow freely through, until a thorough purification was effected. As the detention in quarantine of such cargoes as are incapable of decomposing the contagious miasma can do no good, therefore the exposure of all such to the purifying process is the only way of avoiding contagious introduction; but as all strongly odoriferous substances, such as spices, oils, &c. will accomplish their own purification, hence they require no quarantine restrictions to effect this point, and by indeed mingling camphor, spirits of turpentine, or other odoriferous matters with merchandise, such as cotton, incapable of self-purification, the whole of the vexatious quarantine regulations might, I conceive, be safely dispensed with.

Persons employed, however, in quarantine hulks, should guard against contagion by cleanliness, rubbing of their bodies daily with camphorated oil, and wearing of wire masks over their face when exposed to its influence. The lungs being more susceptible than the skin, as well as being more central as respects the body, and more near the vital parts; hence it is probable that infection generally enters the body through this channel, and therefore the avenues to the lungs cannot be too strictly guarded. The wire mask would, I conceive, effect this purpose, on the same principle that it prevents offensive odours from suffocating the person exposed to them, and flame from setting inflammable vapours in combustion when an insulating wire frame surrounds it. The whole superficies of the wire being surrounded with a covering of mass-electro-magnetism, hence when the openings were sufficiently *small*, no particles of matter, possessing a large proportion of either magnetism or electricity, could pass through the crevices, from being attracted or repelled either by the magnetic or the electric mass enveloping the wires.

The Davy lamp will, I conceive, answer the purpose for which it was intended no longer than the wires remain free from incandescence, because the moment this is attained they will naturally ignite the combustible gases in their vicinity. As an incandescent wire is found to ignite every highly inflammable substance exposed to it, the incandescent wires of the lamp must be capable of doing the same, the fallacy in the lamp being a preservative against explosions, probably arising from the greater portion of the combustible gases in the trial jars being decomposed *before* the lamp wire became red hot.

HEMISPHERIC INFLUENCE ON DISEASE.

The northern hemisphere attracting magnetism toward the earth, and the southern repelling it therefrom, will consequently cause it to be more intense near the earth in the north, and less intense near the earth, and therefore more equally diffused through the atmosphere, in the south; which diversity of magnetic attraction will consequently tend to make excrementitious diseases less common, though more virulent, in the northern hemisphere than in the southern. Electricity again being repelled, from the earth in the northern hemisphere, and attracted thereto in the southern, will tend to make recrementitious diseases, on the contrary, less common though more virulent in the southern hemisphere than the northern.

The above hemispheric attractions and repulsions will also tend to make the upper parts of the body more liable to recrementitious diseases than the lower parts thereof in the northern hemisphere, and consequently *vice versa* in the southern; while the reverse will necessarily apply to excrementitious diseases, the upper parts of the body being most liable to their attacks in the south, and the lower parts thereof most liable in the north. Besides the respective electric and magnetic tendencies toward the upper and the lower parts of the body, through the medium of the nerves and the blood vessels, the opposite polarities of the human body in the two hemispheres, must also have great influence upon diseases affecting respectively the upper or lower parts thereof. Thus in the northern hemisphere, mass-electricity occupies the superficies of the upper part of the body and mass-magnetism the lower; while in the southern hemisphere mass-magnetism occupies the former, and mass electricity the latter; a reverse of polarity which must doubtless influence greatly the diseases of the above parts. In the

southern hemisphere excrementitious diseases, such as dysentery, diarrhœa, bronchical consumption, and dropsical affections, are more common, though less virulent than in the northern hemisphere; while on the contrary, the recrementitious diseases, scrofula, and tuberculous consumption, so common in England, are there scarcely known. Throughout the whole continent of New Holland, yet settled by Europeans, intermittants and remittants are so rare as never to excite alarm even in the most marshy places, and also so mild as to yield readily to medicine.

Though more common throughout the Brazils, yet there also they are mild and tractable, being common however in the irrigated valleys of Peru on account of the greater vegetable decomposition, and bad ventilation, from the south-easterly winds, so constantly prevailing in Peru, blowing across instead of along them. Mania, evidently a recrementitious or electric disease, is equally rare, I might almost say nearly unknown, among the natives of the southern hemisphere, where I have made inquiries; the recrementitious diseases having a greater tendency here towards the lower extremities, and hence the prevalence of elephantiasis in southern climates; while, in the cases of scurvy there, I have observed that while the feet and legs were intensely tumefied and bloated, the gums were comparatively but little affected. In every part of the northern hemisphere, intermittants and remittants are severe in their attacks, while it is only in certain parts of the southern hemisphere, near the equator, that the above diseases show a virulent type, which I conceive may arise from the annual shifting of the equatorial neutral line by the sun's influence, through which the northern electric zone is made to approximate annually upon the southern hemisphere, and the southern magnetic zone upon the northern hemisphere. To this also may be owing the frequency of elephantiasis at Barbadoes, and other places in the northern hemisphere near to the equator. From the above views, therefore, a change of hemispheres in various untractable diseases might be attended with the most salutary effects, transposing for instance scrofulous, maniacal, and tuberculous consumptive cases to the south, and bronchial, consumptive and other excrementitious diseases to the north. In fact I never heard of a case of scrofulous consumption removed to New South Wales, sufficiently early, where a cure was not effected. In scrofulous families indeed, a removal of children to the south for education would, I am confident, be attended with the most beneficial effects upon their future health, by freeing their constitution from a disease as untractable as loathsome, and which when attacking the lungs consigns thousands yearly to an early grave.

Nor would the similar removal of the southern children to the north be unproductive of useful results, conferring, as it would, upon them more animation and intellectual vigour, though at the risk of impairing their prudence and judgment, and of imbuing their constitutions with the seeds of some of the fatal diseases to which the northern hemisphere is exposed.

From the necessarily more equable diffusion through the southern hemisphere of all magnetic bodies capable of diffusion by the hemispheric repulsion, I conceive therefore that should the plague, cholera, and other excrementitious diseases ever be introduced into the southern hemisphere, they will be infinitely milder than in the northern, though attacking probably a larger portion of the population.

As electricity and magnetism have been shown to be attracted by particular substances, and repelled

by others, hence on this account the varied composition, as well as colour, of the earth's strata may vary the density, and consequently the attraction and repulsion of the electric or magnetic mass enveloping their superficies, and thereby vary the nature of the hemispheric locality as to the effects produced by it upon the human constitution. Such a local increase or decrease in the depth of the zone, would, according to the increase or decrease effected by it in the amount of electricity or magnetism in the atmosphere, affect the human constitution, independent of differences of atmospheric density, or atmospheric vapour, which have been the only causes hitherto assigned for the beneficial or baneful effects which change of locality are observed to produce in diseases. The changes, in the nature of the daily food, which the human appetite craves for, show that such changes are requisite for the healthy fulfilment of the bodily functions; and may we not similarly conclude with respect to the lungs, that occasional changes in their food are also highly conducive toward the attainment of the above point.

MOON'S INFLUENCE ON DISEASE.

That the magnetic rays radiated from the sun to the moon, are more intensely reflected or radiated by the latter to the earth, than the electric rays, is evidenced by the moon's rays being not only destitute of heat, but by their producing similar effects in the bodies upon which they impinge to the magnetic or deoxidising rays of the sun. Thus the moon's rays, by their oxygenous attraction ripen fruit and grain, promote animal and vegetable decomposition, tarnish colours, and extinguish combustion equally with the sun's deoxydising rays: these effects, however, being more strongly manifested in the more tropical latitudes, where their rays are necessarily more powerfully showered down by the moon, and in the lesser clouded countries, where there is less impediment to their descent. Ship's stewards are so well aware of this that they will sooner expose meat and vegetables to the sun's rays in these countries than to the moon's; the former, by their electric action, drying up and hardening the exterior of the meat, and thus forming a protecting crust around it, similar to the protecting tin cases in which meats are now preserved; while the latter being incapable of forming such a crust, the meat is consequently left exposed in its moist state to the deoxidising influence of the rays,—moisture being in a great measure, indispensable to both animal and vegetable decomposition.

It is to the formation of this protecting crust that we may partly ascribe the preservative influence of the pyroligneous acid, when applied to the exterior of meat; and it is to the reabsorption in the dark, of that oxygen extricated by the light, upon which the colors of bodies depend, that we may ascribe the curious fact of our tarnished coats appearing nearly "as good as new" after being deposited some weeks in the lumber chest. Seeing, therefore, the powerful influence of the moon's rays in the decomposing of bodies, we may readily account for the greater prevalence of particular diseases during full moon (as remarked by the olden physicians), from the sun and moon's magnetic rays acting then *simultaneously* together, and consequently causing a greater vegetable putrefaction. The curious fact vouched for by Ulloa, of the hollow stem of a species of reed at Guayaquil, always filling with water at new moon, and ebbing therefrom as she waned, might tend to the belief that she would exert a similar attraction upon the blood, and hence excite diseases of the cerebral functions. Many lunatics are certainly worse at particular periods of the moon; but this is

more likely owing to the influence of her rays than of her attractions. Nearly all the patients who applied to me for relief in Peru, more particularly the rheumatic ones, complained of an aggravation of symptoms during full moon.

The cause of the sun's electric rays not being radiated to the earth by the moon equally with his magnetic rays, may be owing to the lesser velocity of the latter enabling them to be the more easily attracted by the earth, as, in a similar way, the lesser velocity of cometary bodies, when distant from the sun, seems the only apparent cause why the distant planets attract more moons round them than the near. The lesser velocity of the magnetic rays than of the electric seems probable from their easier atmospheric refraction; while the sun, which thus contains the power of more strongly repelling these electric rays, by which their greater velocity is acquired, may be also presumed to contain a power equally strong of attracting them back again, after performing their various important functions in the universe; so that the electric rays radiating from the moon, by being more strongly attracted back by the sun than by the magnetic rays, would be less liable to be attracted by other planetary bodies than the latter, and consequently have their influence less felt throughout them.

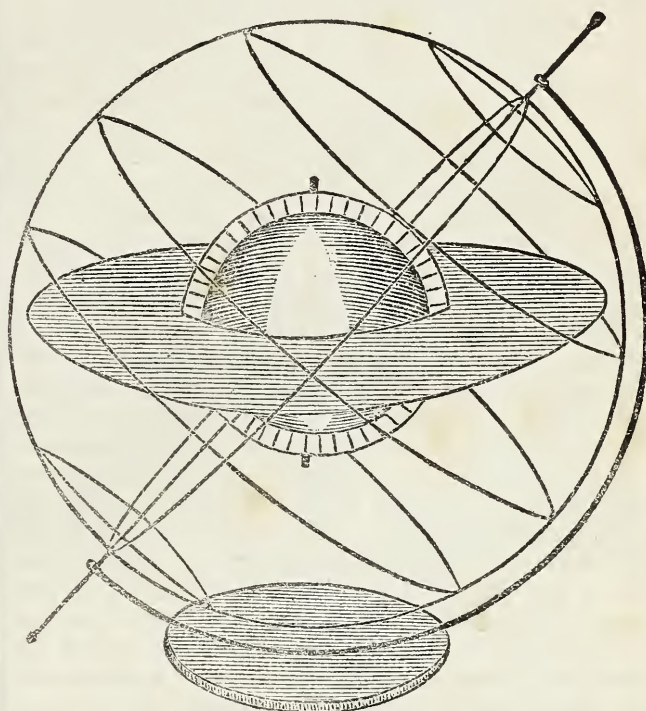
The manner in which I conceive the electric and magnetic atoms are repelled from and attracted back by the sun, I have endeavoured to explain in the chapter in the preceding essay relative to the latter. But if such a power be possessed by the sun of attracting back the electric atoms more strongly than the magnetic, this power must necessarily centre in his magnetic zone, and therefore it may be presumed that his electric zone will possess an equally strong power of attracting back the magnetic atoms; so that both being thus attracted back with equal power to the sun, it might be inferred that no increase of cold would take place in consequence of the sun's setting, seeing that magnetism, the principle of cold, was attracted back to him equally with electricity, the principle of heat. If however the greater refrangibility of the magnetic rays than of the electric be ascribable to their slower motion, this latter must be owing to their less powerful expulsion from the sun's magnetic hemisphere, thereby evincing that the repulsion of magnetic atoms for each other is less powerful than that of electric atoms for each other; so that while the majority of the latter will be propelled thereby into the higher regions of the atmosphere, and thus brought within the sphere of the sun's horizontal attraction even after his setting, the majority of the former will, by reason of their lesser repulsion for each other, be retained nearer the earth, and consequently out of the sun's horizontal attraction, until he rises again in the east. The weaker repulsion of the magnetic than of the electric atoms for each other, seems borne out therefore by their easier atmospheric refrangibility, as well as by their remaining near the earth's surface, after the majority of the electric atoms have vanished therefrom; for as heat and light always move in straight lines, except when a resisting medium interposes, so the sun would naturally have more power in attracting the electric than the magnetic atoms, when he was below the horizon, in consequence of their higher ascension in the atmosphere bringing them within the sphere of his horizontal attraction and thereby enabling them to radiate in *straight* lines toward him. To the above may be ascribed the sudden fall of temperature so often experienced towards day dawn: while the increase of brittleness and diminution in volume of bodies exposed to extreme cold, serve as further collateral proofs of the weaker at-

tractions as well as repulsions of the magnetic atoms in comparison to the electric; because if their repulsive powers be weak, their attractive powers will naturally correspond thereto.

MAGNETISM.

For the Magnet.

VALE'S GLOBE AND CELESTIAL SPHERE.



DESCRIPTION AND USE.

The instrument has a small globe in the centre, the rest is worked brass, except a mahogany foot. It is, in fact, an armillary sphere, with a moveable horizon, (the broad flat surface, also of brass, within,) never before applied to the sphere; and by which the problems are performed, and the whole instrument rendered useful; a substitute for globes, or an elegant companion to them.

The lower external wire, now of thick brass, engraved, slides in the foot, and this gives to the instrument any position; the external wires, exclusive of the one just named, represent the principal circles in the heaven, which correspond to similar circles on the earth, as the equinoxial, tropics, arctic, and antarctic circles, with the meridian; these are all of brass, and they are cut and engraved for use which are needed. The instrument, as now manufactured, has also the ecliptic, cut, and engraved, a large circle not represented in the above cut.

To the globe within is suspended a moveable horizon, the broad surface represented in this figure; this, now of thin sheet brass painted and engraved, with the compass and degrees; it is attached to a double brass circle or meridian, which moves on and about the globe in any direction, carrying with it the horizon; thus the little black figures on this moveable meridian represent persons, antipodes of each other; and these, by moving to any part of the globe, and carrying with them their horizon, as in nature, always represent the relative position of the earth and heaven in *any* situation on the globe. Thus: move the upper little black figure in the cut, to the equinoxial, or middle circle, on the sphere, then the horizon will coincide with the poles, as in fact to an inhabitant at the equator; the sun, the stars and all heavenly bodies will describe semi-cir-

cles above the horizon, and consequently below, as in nature to an inhabitant so situated; and the instrument will show that to such an inhabitant the days are always twelve hours long; and consequently the nights the same, (at the equator) and the poles of both earth and heaven are in the horizon; and the instrument shows that the polar star has *no altitude*, except its little distance from the pole. Now move back the little black figure to its situation in the cut, supposed to be New-York. Then the N. pole of the heaven is elevated above the horizon, and the South depressed just as much as the spectator is removed from the equator, and that the elevation or depression shows the latitude of such spectator, or of New-York. Now if the sphere be revolved round the globe in such situation it will show what part of the sphere never goes below the horizon, and what part never rises above; and this will explain why some stars are always visible every starlight night; and as the sun is on the equinoctial (represented by the next circle to the middle, above,) at midsummer, and as the sun is in the tropic of Capricorn, represented by the next lower circle to the middle or equinoctial at mid-winter, then the position of these circles in the figure above represents the phenomena of the sun and earth, at those seasons; thus: where these circles cut the horizon, the position of the sun at rising is seen, at mid-summer, spring, and mid-winter; thus: at mid-summer the sun is seen to rise and set away from the east and west, towards the north, or upper side; and in the winter the sun rises and sets near the south pole; and in the Spring it rises due east and sets due west. The meridian or mid day altitude of the sun is seen at each of these seasons where they touch the outer circle above the horizon; showing a small mid-day altitude in Winter, a large one in Spring, and the largest at mid-summer; and these altitudes mark when such seasons begin astronomically, and afford the means of correcting almanacs.  The parts of these circles above and below the horizon, show the proportion of day and night, at each season; thus the larger portion of the upper of the three middle circles or tropic of Cancer is above the horizon, and a smaller part below; the upper represents the proportion of day and the lower that of night; the lower of the three middle circles represents the reverse position of the other, for on this there is a small portion of the circle above the horizon, and a large portion below; showing short days and long nights at that season to the inhabitants of New-York, but the reverse to the antipodes.—By marking the situation of the moon, or planets, as taken from a scientific or nautical almanac, their relative position for any hour of the night can be shown; and by placing the instrument due north and south, and by marking the horizon with the figures, 1, 2, 3, &c., wherever the upper axis of the sphere throws its shadow at those hours, you make a *perfect* sun dial to the place the globe then represents, which you can alter or arrange to any part of the world.

We have used this instrument several years; its principle was the same, but it was not well made; it is now beautifully manufactured; elegant in its motions, and appearance, and durable in its structure. We think it ought to be introduced into all our schools and genteel families, for its use, its simplicity, and cheapness.

By this beautiful instrument, all the problems on both Terrestrial and Celestial Globes are performed in a simple manner, conformable to the real motions of the Earth and heavenly bodies.

This instrument will illustrate also the most difficult problems of Spherical Trigonometry, and show the reasons for the rules by which they are resolved;

thus aiding essentially the mathematical scholar of the most elevated class. It is also a Universal Sundial, and from its simplicity and elegance adapted to the youngest scholar, male or female. It is at once a Companion to the Globes and a parlor ornament. PRICE \$12,00.

The above price includes a neat packing box, cover, and book of instructions, containing a clear illustration of the elements of astronomy, and all the problems on both globes, (celestial and terrestrial) with the manner of working them on the above instrument.

This instrument has been patented, and is manufactured at his *Nautical and Mathematical Academy*, 94 Roosevelt Street, New-York.

By G. VALE.

Jan. 29. 1843.

MANUAL OF MAGNETISM,

Including, also, Electro-Magnetism, Magneto-Electricity, and Thermo-Electricity, with a Description of the Electrotrope Process. For the use of Students and Institutions. With One Hundred original Illustrations. By Daniel Davis, Jun., Magnetical Instrument Maker, No. 11 Cornhill, Boston.

The above is the title of one of the best works of the kind ever published. It makes a 12mo. volume of some two hundred pages, and is admirably adapted to give a just conception of the elementary principles of the subjects on which it treats, and should be used as a textbook in every school throughout the country. We are indebted to the kindness of the author for the use of some of his cuts, which we shall find a place for in succeeding numbers of the Magnet; and hope the following extracts will induce the reader to extend to this Manual, that patronage which its intrinsic importance so richly deserves.

ATTRACTIONS AND REPULSIONS.

The effects produced by the opposite poles of a magnet, though in some respects similar, are in others contrary to each other; the one attracting what the other repels. Poles of different magnets, of the same name, that is, both north or both south, are found to repel, while those of an opposite name attract each other.

The intensity of the attraction or repulsion exerted between two magnetic poles, varies in the inverse ratio of the square of their distance; that is, if the distance of the poles is doubled, the force with which they attract or repel each other is reduced to one quarter of its previous amount; if their distance is trebled, to one ninth; and so on.

These attractions and repulsions are not affected by the interposition of glass or metal, or any substance whatever between the two magnets; unless the interposed body is itself susceptible of magnetism.

Whenever a piece of iron, is brought near to one of the poles of a magnet, the iron becomes magnetised by introduction, as will be explained hereafter, chapter II, sect. I; and the extremity nearest the pole acquires an opposite polarity to that of the pole while the end farthest off acquires the same polarity. Thus the point of the arrow indicates the north pole of the magnet; and the extremity of the iron bar will acquire a south polarity. It follows from this that it is only that part of a fragment of iron nearest to the pole of a magnet, which can be attracted by that pole, while the part most distant must be repelled. If the fragment of iron has any considerable length in proportion to its breadth, the end which

is repelled will be at such a distance from the influence of the magnet that its repulsion will be overpowered by the attraction of the extremity which is near it. If, however, the fragment is very short, so that the repelled pole is brought very near to the magnet the repulsion will be proportionably stronger and the attraction will be neutralized to a considerable extent; and, finally, if the fragment of iron is made of such a form as to bring the two opposite poles as near to each other as possible, so as to expose them both nearly equally to the influence of the pole of the magnet, the attraction will become scarcely perceptible.

MAGNETIC TOYS.

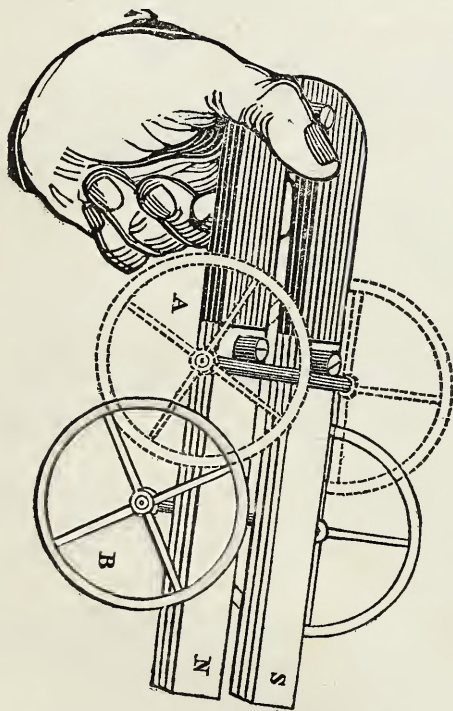
Various magnetical toys are constructed to exhibit the effects of the attractions and repulsions, described in § 62, such as swans, ships, fishes, and other figures with magnets concealed within them, and intended to float upon the water. When thus floating, they may be thus attracted or repelled over the surface of the water at pleasure by means of another magnet held in the hand.

FLOATING NEEDLE.

A very fine and perfectly dry sewing needle, being previously magnetized and then laid carefully upon the surface of water, will float, and being thus at liberty to move freely in any direction, may be conveniently used to show the above-described attractions and repulsions. A larger needle will answer equally well, if passed through a small piece of cork, that it may float.

ROLLING ARMATURE.

This apparatus consists of a compound horse-shoe magnet and an armature, consisting of an iron wire whose length is a little greater than the breadth of



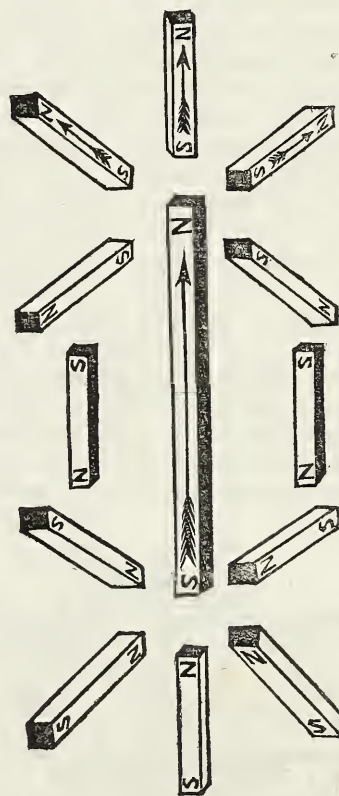
the magnet, so that when applied to it the extremities may project a little beyond its sides. To each of these extremities a small fly-wheel is attached. This armature is then placed across the magnet, at some distance from the poles, as seen at A, and the magnet is held in such a position, with the poles downward, that the armature may roll towards them. When it reaches the poles, the magnetic attraction for the iron axis will prevent its falling off, while the momentum acquired by the fly-wheels will carry it forward and roll it some distance up the

under side of the magnet to B in the figure; and by varying the inclination of the magnet N S, the armature may be made to roll from A to B, and from B to A, at pleasure.

It results from what was said in § 65, that the action of a magnet upon a mass of iron is not simply an attraction or repulsion of it as a mass, causing it merely to approach or to recede; but that there is a complicated reciprocal action between the poles of the magnet and those which the mass of iron assumed.

The directions thus assumed by an iron rod brought near a magnet depend upon the much greater facility with which the bar receives polarity in the direction of its length than transversely. Thus if the bar is placed on one side of the magnet, at right angles to it, and opposite its middle, it would remain in this position instead of turning itself parallel to the magnet, were it not for the difficulty of developing the two polarities on its opposite sides.

A steel magnet does not experience that change in the distribution of its polarity, by altering its position with regard to the fixed magnet, which the iron bar does. Hence, the experiments above described are better performed with a *magnetic needle*, which may be suspended by a thread, or, which is better, supported by a pivot, and thus held in various positions near to a bar magnet. The needle being a permanent magnet, and having been powerfully magnetised by the process to which it has been subjected in the manufacture, the action of its poles will be more decided than that of the poles of a bar of iron magnetized only by temporary induction.

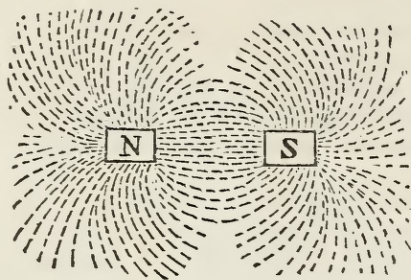


By passing such a needle carefully around a bar magnet, it will be found that it will assume positions in relation to it, as represented in the above cut.

These effects, produced by the combined attractions and repulsions of the magnetical poles, may be also rendered sensible in a very satisfactory manner by the following experiment.

Spread a thin covering of iron filings or ferruginous sand over a sheet of paper, and place a powerful horse-shoe magnet vertically beneath it, with the poles very near to the paper. The dotted lines in the cut show the arrangement which the particles of iron will assume. Each one becomes a magnet with

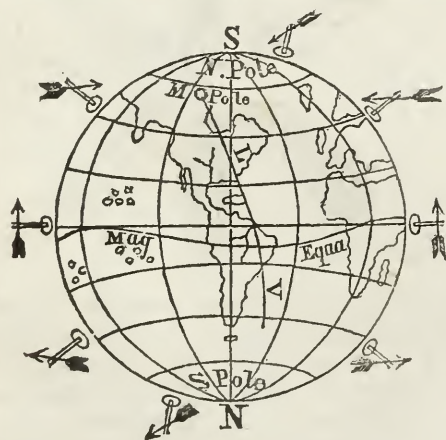
its two poles, and connects itself with those adjoining it, so as to form curved lines of a peculiar character. This experiment may be performed in a still more satisfactory manner, by supporting the paper



with the magnet in contact with its under surface, and then showering down iron sand or iron filings from a sand box held some inches above. The particles of iron, as they strike the paper can thus more readily assume the positions to which they lead under the magnetic influence.

The lines formed by the filings afford a good experimental illustration of what are called *magnetic curves*, that is, the curves into which an infinite number of very minute magnetic needles suspended freely would arrange themselves, if placed in all possible positions about a magnet. When the particles are very small, the attractive force exerted upon them by the magnet, being the difference of its action upon the two poles of each particle, is exceedingly slight; while the *directive force* is very considerable. The direction assumed by each particle, and consequently the form of the magnetic curve connecting any point on one half of the magnet, with the corresponding point of the other half, is deducible on strict mathematical principles from the laws of magnetic attraction and repulsion. The curvature of the lines is due to the combined action of the two poles of the magnet. If only one pole acted on the minute particles, they would arrange themselves in straight lines, diverging in all directions from the pole, like radii from the centre of a sphere. This may be partially shown by placing a bar magnet perpendicularly under the paper which is strewed with filings, with its upper pole close to the sheet.

The dipping needle will assume, also, in various latitudes the directions exhibited in the annexed diagram, fig. 34, where the point of the arrow indicates the north pole and the feather the south pole of the needles placed around the globe. The angle which



the needle makes with the horizon at any place, is called the *dip*, at that place. The tendency of the needle to dip is counteracted in the mariner's and surveyor's compasses, by making the south ends of needles intended to be used in northern latitudes, somewhat heavier than the north ends.

In fig. 34, M represents the North American mag-

netic pole near S the north pole of the earth. The line L V is nearly the present *line of no variation*, (see § 98) and the curved line at the centre is the magnetic equator, or where the dip is at zero, and the direction of the dipping needle is the same as that of the horizontal needle.

By comparing the directions assumed by the needle in its various positions in respect to the earth, as represented in fig. 34, with those assumed by a magnet in reference to another magnet, as illustrated in sect. 72, it will be found that there is a great analogy between them. This analogy led to the opinion which was for a long time entertained, that the earth was itself a magnet, or that it contained within it large magnetic bodies under the influence of which the magnetic needle assumed these various directions; just as a small needle assumes such directions when brought in various positions near to a bar magnet.

But there is another mode of accounting for the directive tendency of the magnet in respect to the earth; and that is by supposing, instead of magnetised bodies within the earth, lying parallel to the direction of the needle, currents of electricity passing around the earth, within it, but near the surface, at right angles with that direction. This would identify the directive power of the needle in respect to the earth, with its directive tendency in regard to a current of electricity, as described under the last head, instead of with respect to another magnet. And this is, in fact, the view which philosophers are inclined to take of the subject. The theory, however, is yet unsettled; and in fact all these three forms of directive tendency may hereafter be shown to be identical. In the meantime the phenomena being distinct, they may properly be arranged in different classes.

Lay a fine sewing needle, unmagnetised, upon the surface of water, where if it is perfectly dry, it will float, and it will be found that it will lie nearly indifferently, in any position. Then magnetise it, by touching it with any magnet, and replace it upon the water, in a direction east and west. It will immediately turn and assume a position in the magnetic meridian, that is, nearly north and south.

Place a magnetic needle upon its pivot so that its north pole turns towards the north. Then take it off its pivot and draw the north pole across the north pole of a strong magnet, and the south pole of the needle across the south pole of the magnet. On replacing it upon its pivot it will be found that the pole which was previously north will now turn towards the south, and the south pole towards the north. In this way the poles of the needle may be reversed at pleasure.

To prove that the inclination of the dipping needle is not occasioned by the greater weight of the north extremity of the needle used, reverse its poles, as described under the last experiment, and then what was before the south pole will be depressed, the pole which was previously north being elevated.

The direction of the needle in respect to the earth is not fixed. Its *variation*, that is, its deviation from the true geographical meridian, is subject to several changes, more or less regular. So also is the intensity of the action exerted on it by the earth as shown by the number of oscillations made by it in a given time. When examined also by means of apparatus constructed with great delicacy, the needle is found to be seldom at rest, but to be actuated with incessant fluctuations and tremulous motion, a phenomena supposed to comport more easily with the idea that electric currents constitute the influence by which is controlled, than that its position is governed by the power of fixed permanent magnets in the earth.

SECOND VOLUME OF THE MAGNET.

It is, now, time for us to think of the propriety of continuing this work through another Volume.—Within the last two months, our prospects have brightened so much, that we begin to entertain hopes of sufficient patronage, to authorise the commencement of a second volume; and certain we are, that the disappointment of many will be great, if we should not find it possible to do so.

In the publication of twelve numbers of the *Magnet*, we shall have merely made a beginning, without having had any adequate means for giving that amount of information upon the interesting topics included within the range of Human Physiology, which their vast importance demands. Indeed, we just begin to see and feel the claims which these subjects have upon all classes of the community. For, where shall we find one, who is not anxious to know all that can be known of that WONDERFUL AGENCY, by which such surprising results have been produced, in illustration of the true SCIENCE OF MIND, and the relief of human suffering? Some of the first intellects in the world, are now engaged in the investigation of this much abused, long neglected subject; and light enough has already been shed upon it to convince the most sceptical, that its claims to an honest, candid examination, cannot be consistently neglected or set aside. The field which it opens before us is rich and inviting.

Among the most intelligent philosophers of the age, how little is known of those laws which produce and govern the states of the mind called *Sleep, Dreaming, Monomania, Insanity, Madness*, and the various difficulties which interrupt the healthy functions of the nervous system? What is the real nature of *Somniphathy*, or sleep induced by sympathy? What is *Clairvoyance*? By what laws is it produced? And, what are the disturbing causes which prevent us from producing the same phenomena in almost every two cases ever known? What is that law, by which we find that we can cause persons of a certain temperament to obey our *will*, awake or asleep? Nay, we have known some, in whom we can produce what is called the *clairvoyant* state, while they are perfectly awake! How does it come to pass, that we can, by a mere touch of the hand, cause any imaginable state of feeling to arise, in the mind of our subject? What is the influence by which these results are produced, and what is it that directs it, in any given case, to one part of the system, rather than to another.

It seems to be generally conceded, that if much more is to be learned of the *laws of mind*, the *Magnet* has struck upon the best method for finding it out. The *FACTS* we have laid before the public, have been read with the greatest avidity, we know; and we have the facilities for collecting, still, a vast amount in addition, with which to enrich the pages of the *Magnet*, should our patronage be sufficient to warrant the undertaking.

Shall we continue the *Magnet* beyond the present volume? What say our present subscribers? Will each of you forward the pay, in advance, for another volume? What say those editors, who so readily published the prospectus of the present volume, and who have so kindly cheered us on from month to month, while struggling with the want of an adequate support, in the prosecution of our labours? We shall wait your responses; and in the course of next, or the succeeding number, we hope to be able to announce the result.

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THE MAGNET.

SECOND VOLUME

OF

THE MAGNET:

DEVOTED TO THE INVESTIGATION OF

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EMBRACING

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PHRENOLOGY,
PATHETOLOGY,
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