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FOURTH PROPOSITION.

[*Continued.*]

We shall continue our fourth proposition, by showing that the goodness of BOUNTIFUL NATURE, in Her true wisdom, has not left poor *human* nature in that hopeless condition, which would compel man to receive all the punishment attached to a violated law, without any possible chance of a mitigation of the punishment.

A *mediator* has been provided, *without having been promised;* and all those, who will receive this mediator in time, and in a proper manner, "Shall be blest in as much as their faith hath made them whole."

The idea which we particularly intend to convey by this figure of speech is, that man was not only created in harmony with laws which govern him, but that he also was made the wealthy possessor of a *Moral Agency*, which empowers him to use the talents with which he is endowed; Perception, Reflection, Constructiveness, &c., in discovering, inventing and using such mediators, or *agents*, as will have the greatest tendency to mitigate and finally remove the punishments attached to the violations of the laws of his nature.

It is even true that man can only *sin* by violating the laws of his nature. And all the aches, pains and miseries of which he complains, either physically or mentally, are the effect of *sin*—the punishment attached to the violations of law by which we are governed.

Hence, we perceive that *Nature* in her wisdom and justice, has not only endowed man with a moral agency, and *will*, to receive a mediator, or *agents* which shall act as a mediator between him and the punishment, or aches and pains; but that, she has also, provided those agents in bountiful profusion, which opens an extensive field for experimental philosophy.

Hence, too, we perceive, the necessity of the various departments of science, which pertain to the practice of medicine; all of which may be

included under the head of Androphysics, which embraces the study of the structure and functions of the human body—the diseases and accidents to which it is liable; and the remedies for those, so far as they have been discovered. The name is derived from two Greek words, *aner*, a man, and *phusis*, nature; which may be regarded as synonymous with the term *Medicine*, or the medical sciences, which are derived from the Latin *Medico*, I cure. In order to be more clear on this point, we may divide Androphysics into four branches, which embraces Andronomy, Pharmacology, Thereology, and Chirurgery.

And first Andronomy, which comprehends the study of the human frame, in a healthy state; or the structure and functions of its various organs, and the means by which they have been made known. This nomenclature is also derived from two Greek words, *aner*, a man, and *nomos*, a law; hence, signifying the laws of the human body. The study of *Anatomy* is one of the principle features of this department of medical science, a knowledge of which is indispensable to the physician.

Anatomy, derived from the Greek *Anatemni*, I dissect, or cut in pieces; and relates especially to the art of dissecting, or artificially separating the different parts of animal bodies, to discover their *situation*, structure and economy.

Physiology teaches the science of the *functions* of the different organs, or the purposes which they subserve in the economy of life.

Comparative Anatomy and Physiology, are generally embraced in Zoonomy, which signifies the study of the various animal races.

General Anatomy, is that division of Andronomy, which treats of the different kinds of structure, found in the human body, as regards the mode of organization. These *structures*, or systems, are according to Bichat, the *osseous*, which constitute the bones; the *cartilaginous*, composing the cartilage, or gristle of the joints; the *fibrous*, forming the ligaments of the joints, and the coverings of the kidneys and other organs; the *muscular*, composing the muscles; the *vascular*, composing the heart, arteries and veins; the *nervous*, composing the nerves; the *mucus*, forming the internal lining of the system; the *serous*, enveloping the internal organs; the *glandular*, constituting small secreting organs; the *adipose*, or fatty, forming the inner covering; and the *cellular*, forming the outer covering of the kidneys, and other organs; and the *dermoid*, or skin, constituting the whole external covering of the system.

The study of the particular parts, and organs of the human body, is termed *Special Anatomy*, and may be divided into Osteology, Myology, Neurology, Angiology and Splanchnology.

1. *Osteology*, is that division of Anatomy, which treats of the *bones*, their structure, shape, number, and position in the body.

2. *Myology* treats of that division of Anatomy, which embraces the *muscles*.

3. *Neurology* constitutes the third grand division of Anatomy; and treats of the *nerves*, and the nervous system in general, including all the organs of sensation.

4. *Angiology* is that division of Anatomy, which treats of all the *vessels* of the human body: blood vessels, lacteals and absorbents.

5. *Splanchnology* treats of that division of Anatomy, which considers the *viscera*, or entrails, occupying the interior parts of the body.

This concludes that part of Androphysics, which considers the physical system. These explanations in medical science, however short they may be, must not only prove interesting to the general reader, but highly instructive, for the classification, if nothing else.

Correct classification is the high road to correct thinking.

[*Continued.*]

CRITICISM—W. M. McPHEETERS, M. D.

Through the kindness of Dr. H——, we are placed in possession of the St. Louis Medical and Surgical Journal; and our attention called to an article, in which the St. Louis Magnet is reviewed by one of its *distinguished* editors, W. M. McPheeters, M. D. It has been our object expressly to attend to our own business; and by this means we have, fortunately, as much as we can well attend to. We have never condescended to catch at straws for the purpose of paralizing the efforts of our contemporaries in the great work of promulgating general or special intelligence. We do not feel as if our existence, and popularity as a man, an editor or a moral and intellectual, or philosophical reformer, depends upon the traducing, misrepresenting, or extinguishing of every other man who may feel disposed to wield his pen, or raise his voice in behalf of those principles and facts, which he believes to be true; and consequently sacred to himself, and interesting to the public, if not instructive and beneficial.

Our sole object has been to build up, what we believe to be true, leaving error to fall by its own ponderous weight. We have entire confidence in the public. That they will support the truth, and reject error, as fast as they are satisfied, which is true and which false, the rapid progress of the age, in improvement sufficiently demonstrates.

It is not consistent with our dignity, nor with the course which we have marked out for our movements in the medical, scientific, or literary world, to condescend to notice so *weak and insignificant* an attempt to detract from the universal and highly acknowledged merits of the St. Louis Magnet, as an advocate of moral, and medical reform; and a cheap and wholesome medium of all the correct popular principles connected with either. But for the satisfaction of many of our friends, we yield a compromise, and stoop to notice the review, and expose not only the weakness, but maliciousness of the reviewer.

We quote the editor's introduction to the review:

"ST. LOUIS MAGNET."

"Through the kindness of a friend, we are in possession of the December number of this *pricious periodical.* For the benefit of our readers, we will give a few literal extracts, that they may see what rapid strides the mesmeric art is making in grammar, spelling, and rhetoric as well as medical philosophy! In the quotations given, we have taken the liberty of underscoring a few words and sentences, which we think deserve to be in *italics.*"

It would be well for our friend McPheeters to renew his acquaintance with the grammar rules, especially in Authography and Rhetoric, before *he* renders *himself* ridiculous by attempting to correct others. In the very first sentence of *his* review, *he* makes a most egregious blunder in Authography—observe *pricious!!!* We glanced over the *few little* editorial remarks of this self-devoted editor, and satisfied ourself that we might accumulate half a score of words, which would fully demonstrate *his* wonderful authographical powers.

The next sentence to which we call the attention of our readers is, "What rapid strides the mesmeric art is making in grammar, spelling, and rhetoric." * * * * *

Nothing will demonstrate a man's ignorance more clearly, than to attempt to write against that which *he* does not understand. We really believed that the variest boy in christendom knew that Mesmerism did not teach the art of Grammar, Spelling, nor Rhetoric; but that, of putting "*Folks to Sleep.*" If the reviewer will call at our office, we

will correct the error into which *he* has fallen, by a demonstration of the peculiar powers, to which Mesmerism makes pretensions.

The Reviewer then quotes two paragraphs from the article headed Medical Cases, and upon which *he* makes the following comment: "Under this treatment, the patient, as a matter of course, improved rapidly, and speedily recovered."

The Reviewer then quotes the second case, under the same caption, in which *he* exposes two or three typographical errors, in authography —the invertion of a letter, and *soar* for sore, &c.; and then makes the following judicious comment: "Next is given the Clairvoyant treatment, which it is unnecessary for us to detail. This patient also recovered, and in a marvellously short time. The whole case closes with the following significant remarks." These remarks, the Reviewer quotes, and upon which *he* makes the following lengthy comment:

"And so say we."

The *magnitude* and force of this comment, we have no doubt, accords strictly with the caliber of the Reviewer. Effects are proportionate to their causes. (?)

We wish our readers to distinctly understand, that we are not *serious* in criticising our friend McPheeters' review; though it is even true, that *his* Authography and style are neither grammatically, nor rhetorically, that of mediocrity. We measure a man's caliber, morally and intellectually, by the number and correctness of the principles which he develops, and not by the nice, critical, far-fetched, artificial rules, which he observes; and which, in many instances, have no foundation in nature.

The Reviewer next garbles, two or three sentences from the article De Obfuscationibus, to show that it is "Sublime and non-intelligible."

We assure our Reviewer, that we can take the following sentence from *his* own *beautiful* composition, and it will not only appear unintelligible, but at the same time expose its false syntax: "It contains a large amount of valuable and useful information, and every *physicians* would do well to keep it on his table for purposes of constant reference."

We are inclined to think, that the difficulty with our Reviewer in respect to this article is its caption. Least, *he* may have not, had the Dictionary in one hand while scribbling with the other, we will give *him* its definition, which is *glimmering light*, and particularly refers to the obscure developments of Mesmerism in the dark ages, as connected

with the most probable and reasonable explanation of *Sorcery, Witchcraft, Necromancy, &c.*

The Reviewer next quotes the notice which we gave the Medical Reformer, and then passes on to the article headed, "Magnetism among the Hebrews;" and upon which *he* makes the following introductory comment:

"The following should be regarded with very different feelings, than the passages we have before quoted—so far from being amusing, it is at once immoral and blasphemous."

For the purpose of exposing thoroughly the ignorance of the Reviewer, and the absurd and ridiculousness of *his* philosophy, we will quote this article in full, and the *arguments* which *he* makes to support the old and completely exploded doctrine of an *effect* being produced without a *cause—ends* accomplished without *means—something* growing out of *nothing*!!!

"*Magnetism among the Hebrews.*—The prophets of Israel designated by the name of *seers*, were as well consulted for the ordinary events of life as for sacred things. We read, for example, in the ninth chapter of of the Books of Kings, that Saul went to consult Samuel, to learn from him what had become of his father's asses, which had been astray for several days.

Ahab, king of Israel, wishing to know if he should make war to take Romoth in Gilead, assembled his prophets to the number of four hundred. God speaking *during dreams* in the *visions* of the night to warn man of the evil which he doth; and to instruct him in that which he should know—Job, xxxiii.

"The son of the widow of Sarepta became sick, and his disease became so severe, that he no longer retained a breath of life. Elijah took the child in his arms, and carried him into the apartment where he resided, and laid him on his bed. He then extended himself thrice over the child, measuring himself by his little body, and cried out—'Lord my God, grant, I pray thee, that the soul of this child may re-enter his body;' and the child was restored to life.—Kings, Book iii, chapter xvi.

"In nearly the same manner Elisha cured the child of the Shunammite."

Now comes the profound *argument* of our *philosophical* Reviewer, against the science of Mesmerism. Pardon us for saying argument, we mean an attempt to arouse the religious prejudices, of the *low, phanatical* and *bigoted* classes of the community!! Hear him:

The doctrine here inculcated is that the phrophets of Israel, and of course Christ and his Apostles were nothing more than *mere Magnetizers*. And yet this is put forth in a christian country, and believed, we doubt not, by men professing to be Christians! Verily, quackery must be rife in a community where such bold and disjointed nonsense, such miserable ribaldry as this can receive countenance and support. McP.

This closes our friend McPheeter's review of the St. Louis Magnet; and the most incontestible proof of the entire weakness and inability of the man to review anything, is *his* indiscretion in placing *his* signature to the loose closing remarks of the review! A superficial glance over the review, will satisfy all candid readers of the *object* of the Reviewer; and it is not really necessary for us to say anything more. But it may be interesting to our readers to simply inquire what kind of doctrine *this* ignorant, unphilosophical, priest-ridden Reviewer would wish to have inculcated? A doctrine which teaches that an *immutable* God, occasionally becomes *mutable*, abrogates the laws of nature, and accomplishes His purposes disregardless of his *immutable* laws, and independent of *means!!!* Ignorant block-head, priest ridden novice, do you not perceive that *you* are one of the innumerable means by which God accomplishes his purposes? Do *you* not observe, that by developing *your* erroneous views—principles—malicious disposition, that *you* excite truth and probity into action; placing these opposite principles in beautiful contradistinction, which excellerates moral reform and scientific research—progressive improvement, tending to raise the scale of humanity *ad infinitum*?

God does not work without *means*—He does not produce *effects* without *causes*!

How did Elijah restore the son of the widow of Sarepta? Did he use no *means*? Was it an *effect* and was there no *cause* adequate to its production? Christ used clay, spittle, water, &c., in performing His cures. Was there no virtue in these *means*? Or did the son of God condescend to practice a *hoax* upon His Children? This *pious* Reviewer talks about *blasphemy!!*: We are much disposed to believe that if our readers would not regard the doctrine which the Reviewer would inculcate as blasphemous, they would at least recognize it as emanating from a mind very incompetent to reason upon the sublime truths manifested through the works of the grand FIRST CAUSE of all things.

Will our Reviewer inform *himself* in respect to the sublime truths taught in Mathematical science? Will *he* read the Bible with *his* eyes

open, and be instructed in its beautiful moral tendency when oompared with the great truths developed through the natural sciences, which are built up and based upon observation and experience; and susceptible of demonstration by every one who has sufficient perception and reflection, uncombined with a preponderance of *selfishness*, superstition, and bigotry? or will *he* continue to drop on one knee, dip *his* finger into a little *Holy* water, cross *himself*, count *his* beads and pray to the Blessed Virgin?

It is a very easy matter for a man to turn Parrot and say "*pretty Paul*;" but for him to turn philosopher, and launch out in the Ocean of Science, and investigate principles for himself—demonstrate truth, and expose error, is a task only accomplished by the few.

Communicated for the Missouri Medical and Surgical Journal.

EXTIRPATION OF THE CHIN.

BY GEO. T. ALLEN, M. D., MARINE, MADISON COUNTY, ILLS.

"William Wright, *ætat* 7 years, had been salivated, while under treatment, for relief of a violent attack of remittent fever. Mortification attacked the Inferior Maxillary bone, and threatened its entire destruction. With a scalpel and pair of strong forceps I effected a complete division of the bone, on each side of the chin, and separated the soft parts from the diseased portion, without making an external wound. Knowing that the immediate removal of the separated portion of bone would cause the anterior extremities of the body of the jaw to be drawn together by muscular action; the face to be horribly disfigured; the child prevented from masticating food, and, probably, from articulating, I determined to push it as far into the mouth as possible, and have its ends merely catch the anterior extremities of the sound portions of bone sufficiently to hold them in their natural position a few days; trusting that new osseous or cartilaginous matter would be deposited, and a succedaneum formed. I watched the little patient attentively—no unpleasant consequences resulted from the new position in which I had placed the detached portion of bone, and, in about ten days, a firm substance had partially replaced the osseous portion of the chin, extending from the sound bone on one side to that on the other. I then removed the bone before separated. The remaining bone and soft parts continued

in situ, and retained their natural appearance. A few weeks after the operation was performed, a substance nearly as firm as the original bone, and of its size and shape, occupied its place. Sixteen months have passed since I operated, and the boy masticates his food as well as any person can, enjoys good health, and may be seen, at this place, any day."

We quote the above article from the Missouri Medical and Surgical Journal, to show the wretched effects of a practice which renders surgeons of the ninteenth century so admirably popular. "Practice makes perfect;" and there is no system of operations, (war not excepted,) better calculated to create surgical practice, than the constant use of mercury in the treatment of disease.

An Aelopathic physician, is called on to treat a patient for *fever*, "remittent," if you please; he prescribes *calomel*, which very commonly salivates the patient, and converts the *fever* into a mercurial disease. The patient unfortunately, however, is not cured; but comparatively a harmless fever exchanged, for a dangerous, and almost uncontrolable mercurial disease, which loosens and ruins the teeth, destroys the gums, and not unfrequently produces mortification, which disfigures the face; and should the unfortunate sufferer recover from its deathly grasp, it is only for a more continued suffering: for we are perfectly satisfied, that this disease is never entirely eradicated from the system. It may be checked; but its effects to a greater or less extent, still exist in the system. Mercurial rheumatism, periodical fevers, fetid breath, general physical debility, and nervous eritability, which converts the human system into a highly sensitive barometer, detecting the slightest changes in the climate; and hence, admirably calculated to make meteorological observations! There is scarcely a person living within the influence of the *mineral* practice, who does not feel keenly every change of climate. This is an *effect*—will our readers *stoop* to inquire into the *cause*? or will they still continue to travel in the broad and downward road, which leads to pain, misery, and premature death?

We do not mean to throw any disparagement on the science of surgery—far from it; we recognize it as one of the most useful and benevolent departments connected with the healing art. A science, which requires the finest mechanical talent, combined with the strongest nerve; to constitute a successful operator. The spirit of our comments is aimed at the *unnatural* means—the abuse in the practice of medicine, which *creates* surgical cases!

SWEDENBORG'S ANIMAL KINGDOM.

(Continued.)

The last subject on which it will be necessary to say a few words in this department of our remarks, is the distinction between the life before birth, and the life after birth. In the fœtus, nature, that is to say, the soul, as an end and formative power, alone rules, and all things proceed in natural order, from the highest or innermost sphere to the lowest or outermost, by the synthetic way, or a priori ad posteriora. But after birth, the will rules over nature, and drives her from her throne, and all operations proceed in inverse order, by the analytic way, or a posteriori ad priora. These opposite states require a medium to reconcile between them, which medium is supplied by the opening of the lungs; the animations of the brains being synchronous with the respiration after birth, but with the pulsations of the heart during uterine life. In the fœtus the higher spheres act, and the lower react; whereas after birth the lower act and the higher only react. In the former case all operations are universal and most individual, conspiring by intrinsic harmony, and in perfect freedom, and proceed outwards from the brains; in the latter hey are in the first place general, and proceed inwards to the sphere of particulars through the coverings, membranes, or bonds, of the body and its organs. But the reader will not acquire a satisfactory understanding of this wonderful doctrine by any thing short of an attentive study of Swedenborg himself.

There are certain organs in the body which have always been looked upon as the opprobria of physiologists, who indeed appear to fail whereever nature does not speak by an ultimate fact; that is to say, wherever there is a clear field for the understanding as apart from and above the senses. The absence of an excretory duct is sufficient to consign an organ in perpetuity to the limbo of doubt. Surmise indeed respecting its functions is still allowed, but proof is considered impossible. We might as well pretend to know the nature of the world of spirits as to know the functions of the spleen. We should be as rank visionaries in one case as in the other; since we should be placing an implicit dependence upon reason, in a matter where the bodily senses give no direct information. Swedenborg did pretend to know both, and ill he fared in consequence with the scientific world, and with the first reviewer of his "Animal Kingdom" in the "Acta Eruditorum Lipsiensia." They said he was a "happy fellow," and laughed outright. Without stopping to do more than

direct the reader's particular attention to his doctrine of the spleen, the suprarenal capsules, and the thymus gland, as being satisfactory and irrefragable, it may be wondered why the physiologists should single out those organs as especial subjects whereon to make confession of ignorance. There is modesty in their confession, but it ought in justice to have embraced more. These organs are closely connected to others, and ignorance respecting them involves ignorance respecting the others also. Connexion of structures in the body is also connexion of functions, forces, modes, and accidents. If the function of the spleen be unknown, so precisely to the same extent are the functions of the pancreas, the stomach, the omentum, and the liver; if the functions of the succenturate kidneys be unknown, so are the functions of the diaphragm, the kidneys, the peritonæum, and indeed of the whole body; for the body is a continuous tissue, woven without a break in nature's loom. To be ignorant of a part, is to be ignorant of something which pervades the whole. The disease that affects the spleen, affects the whole, for the spleen is in all things, and all things are in the spleen. To recur to the liver; what is the amount of knowledge respecting its functions? Precisely this, that the hepatic duct proceeds from it, and carries bile into the duodenum. The bile and the duct are the sum and substance of the modern physiology of the liver; it is prorsus in occulto, why either bile or duct should exist. The truth then is, that there is as much known about the liver as about the spleen, and no more; in the one case it is known that there is an excretory duct, in the other there is none. Alas! the scientific mind is steeped in the senses, and is the drudge of their limited sphere.

Swedenborg's analysis is professedly supported upon the foundation of the old anatomists, who flourished in the Augustan age of the science. At his time nearly all the great and certain facts of anatomy were already known; such for example as the circulation of the blood, and the existence of the lymphatics and the lacteals. Anatomy, too, had long been cultivated distinctly in the human subject, and was to a great extent purified of the errors that crept into it at first from the habit of dissecting the lower animals. Many of the old anatomists were men of a philosophic spirit, who proposed to themselves the problem of the universe, and solved it in their own way or tried to solve it. They were the first observers of nature's speaking marvels in the organic sphere, and described them with feelings of delight, which showed that they were receptive of instruction from the great fountain of truth. They worked at once with the mind and the senses in the field of observation. There was a

certain superior manner and artistic form in their treatises. They believed instinctively in the doctrine of use. They expected nature to be wonderful, and supposed therefore that the human body involved much which it required the distinct exercise of the mind to discover. Hence their belief in the existence of the animal spirits; a belief which they based on common sense, or what amounts to the same thing, upon the general experience of effects; at the same time that they recognized its object as beyond sensual experience and not to be confirmed directly by sight.* They used the microscope to assist and fortify the eye, and not to substitute it, or dissipate its objective sphere. Even the greatest among them, who addicted himself to the bare study of structure and the making of illustrative preparations, expressed a noble hope that others would complete his labors, by making as distinct a study of uses.†

But the picture is not without its darker side. Although they had strong instincts and vivid glimpses of truth, yet when they attempted to carry their perceptions out, they degenerated into mere hypotheses, and systems of hypotheses. They did not ascend high enough before they again descended, nor did they explore nature by an integral method; and hence they had no means of pursuing analogies without destroying the everlasting distinctions of things. They stopped in that midway where scepticism easily overtook them, and where, when that enemy of the human intellect had once penetrated, there was no possibility of mantaining themselves, but the fall to the sensual sphere was inevitable. The reason of this was, that they had not conceived the laws of order, and therefore could not claim the support which nature gives to all her truths. Nay, it was so impossible that they should proceed further without the tincture of a universal method, that their minds came to a stand still; the truths already elicited were rendered unsatisfactory, and mere progress demanded their fall. They fell therefore, and a race which knows them not is dwelling now in tent and hut among their mighty ruins.

At the very crisis of their fate, Swedenborg took the field for the end that has been already mentioned, and at once declared, that unless matters were carried higher, experimental knowledge itself would perish, and the arts and sciences be carried to the tomb, adding that he was much mistaken if the world's destinies were not tending thitherwards. The task that he undertook was, to build the heaps of experience into a palace in which the human mind might dwell and enjoy security from without and spiritual prosperity from within. He brought to that task requisites,

* See Hesther. † Ruysch.

both external and internal, of an extraordinary kind. He was a naturalized subject in all the kingdom of human thought, and yet was born at the same time to another order and a better country. To the various classes of schoolmen he appeared never to have attached himself, excepting for different purposes from theirs. He pursued mathematics for a distinctly extraneous end. As a student of physiology he belonged to no clique or school, and had no class prejudices to encounter. In theology he was almost as free mentally, as though not a single commentator had written, or system been formed, but as though his hands were the first in which the Word of God was placed in its virgin purity. Add to this that he by no means disregarded the works of others, but was learned in all useful learning. He had a sound practical education, and was employed daily in the actual business of life for a series of years. He was thoroughly acquainted with mechanics, chemistry, mathematics, astronomy, and the other sciences known in his time, and had elicited universal truths in the sphere of each. From the beginning he perceived that there was an order in nature. This enabled him to pursue his own studies with a view to order. He ascended from the theory of earthy substances to the theory of the atmospheres and from both to the theory of cosmogony, and came gradually to man as the crowning object of nature. He brought the order of macrocosm to illustrate the order of microcosm. His dominant end, which he never lost sight of for a moment, was spiritual and moral, which preserved his mind alive in a long course of physical studies, and empowered him to see life and substance in the otherwise dead machinery of the creation. He was a man of uncommon humbleness, and never once looked back, to gratify self complacency, upon past achievments, but traveled onwards and still onwards, "without fatigue and without repose," to a home in the fruition of the infinite and eternal. Such was the competitor who now entered the arena of what had, until this time, been exclusively medical science; truly a man of whom it is not too much to say, that he possessed the kindliest, broadest, highest, most theoretical and most practical genius that it has yet pleased God to bestow on the weary ages of civilization.

Swedenborg perceived that the permanence of nature depends upon the excellence of its order; that all creation exists and subsists as one thing from God; that divine love is its end: divine wisdom, its cause; and divine order, in the theatre of use, the simultaneous, or ultimate form of that wisdom and love. He also perceived that the permanence of any human system, whether a philosophy or a society, depends upon

the coincidence between its order and the order of creation; and that when this coincidence exists, the perceptions of reason have a fixed place and habitation on the earth, from which it will be impossible to dislodge them by any thing short of a crumbling down of all the faculties, both rational and sensual; a result which, if the human heart be improving, the belief in a God forbids us to anticipate. But Swedenborg did not rest, as the philosophers do, in a mere algebraical perception of the truth, or in recognizing a want without supplying it, but like a good and faithful servant he actually expounded a system of principles at once with nature herself, and which will attest their order and their real Author by standing for ages of ages.

But his still small voice commanded no attention, and what he predicted took place: the sciences were carried to the tomb, where they are now buried, with the mind their subject, in the small dust of modern experience. This brings us to say a few words of the physiology of the day.

Facts are the grand quest of the present time, and these, particular facts: general facts are less recognized now than they were in the beginning of the last century; for short-sightedness has so increased upon us that we must look close in order to see distinctly, and hence extended surfaces do not fall under our vision. The physiologist defers reasoning until the accumulation of facts is sufficiently great, to suggest reasons out of its own bosom. This is a step beyond ordinary materialism. The individual materialist considers that matter must be organized into the form of a brain before it can think and will; but that compound materialist, the scientific world, expects dead matter to open its mouth and utter wisdom, without any such previous process. It thinks that at present there is not matter enough, or this result would ensue; little dreaming that there is a fault in itself, and that the larger the stores it possesses, the more impossible it will be to evolve their principles, or to marshal them under a theory. The common facts of the body having been pretty well explored, the physiologists go inwards, and gather further facts. Without waiting to ascertain the import of these, they submit them to the microscope and again decompose them; and so on, to the limits prescribed by nature to the optician, and by the optician to the scientific enquirer. But this is the field of leasts more easy to discern than that of compounds; or if we cannot read nature's secret in her countenance, can we expect to divine it from her very brains? The truth is, that the modern state of physiology is a universal dispersion of even sensual

knowledge: its pretended respect for facts is not real; otherwise it would enquire into their general significance before resolving them into further elements. It perpetually illustrates the principle that facts cannot be duly respected unless they are seen as agents of uses, and results of ends and causes; and that if they are not so regarded, they become mere playthings, to which novelty itself can lend scarcely a momentary charm.

But as every end progresses through more means than one, so science is undergoing dispersion in another direction also. Not only are the generals of Anatomy forgotten for its particulars, but the human frame itself is in a great measure deserted for comparative anatomy. The so-called human physiologist pursues his diffuse circle from animal to animal, from insect to insect, and from plant to plant. Man is confounded with the lower and lowest things, as if all the spheres of creation were in one plane of order. The consummation of this tendency is already more than indicated above the horizon, when the lowest range of existence will be the standard of all, and then the chaos of organic nature will become the legitimate property of the chemists, to be by them resolved into gases and dead materials of the earth.

Another characteristic of the times is the almost total breach of continuity between the present and the past. The terminology of science is so much altered that it is impossible to read the older works with benefit, unless after a course of study something like that requisite for learning a dead language. In consequence, the mere anatomical value of the fathers of anatomy is not at all understood; their rich mines of observation are no longer worked, and their forgotten discoveries are now and then again discovered, with all the pains of a first attempt, by their ill-informed successors. Can anything be less human than this,—that the parents should transmit so little to the children, or rather that the children should be willing to receive so little from the parents? It exchanges the high destiny of man for the fate that attends the races of animals, in which each generation lives for itself alone, and again and again repeats the same limited series, without improvement or the possibility of evolution.

In the midst of this humiliating condition, what loud sounds do we not hear of "march of intellect" and "progress of the species,"—so many discharges from the impotent artillery of self-conceit. This indeed is the last and worst sign of a decadent science. The poor sick

sufferer is delirious, and possesses for a moment superhuman strength in his own exhaustion.

The present cultivators of science boast themselves followers of Bacon in the inductive method, apparently grounding their claim on the fact, that they dwell in effects or in proximate causes to the exclusion of final causes. It is a remarkable circumstance, that each age since Bacon's time has considered itself especially as his follower, and that the present age, besides laying this unction to its soul, denies the genuineness of the Baconianism of all preceding ages. Meanwhile there can be no doubt, that if Bacon himself were to publish his works now for the first time, he would be ranked among the mesmerists, the phrenologists, and the other poor gentiles who are banished by common consent to the far islands of the scientific world, and would be exterminated from it altogether if they were not preserved in some mysterious way —perhaps by having the truth on their side. Bacon himself would belong to these gentiles; but would their antagonists then lay an exclusive claim to his philosophy? We apprehend not. The inductive method would be far from fashionable if its larger tendencies were seen, or if the scientific beliefs to which Bacon himself was led by it, could be currently reported. Would it not freeze a Royal Society to the very marrow, to be identified in any way with a man who believed, as the great Lord Bacon did, in witchcraft, and the medicinal virtues of precious stones?

Nothwithstanding the unpromising state of things in science, the natural theologians have adventured to deduce from it "the power, wisdom, and goodness of God as manifested in the creation." Truly the creation is an effluence and argument of divine wisdom. But in the present range of scientific insight, it is not seen to do more than approximate to the works of human skill. The mechanics of the watch are more wonderful to man than the mechanics of the ear or eye; the arch is the antetype of which the convex skull is but the type. Natural theology based on such science, can attribute nothing to God which does not belong in a superior degree to man. Its discoveries are not worth making, because they are not so infinitely transcended by the perceptions of common sense in all nations and ages. Now Swedenborg, in his scientific works, was a a natural theologian, but he began where human skill terminates, and by the application of guiding doctrines, followed the ever-expanding order of creation inwards to the point where mechanics and geometry are realized in more universal

laws of wisdom and providence; and where at last the human mind itself recognizes the very source of life in its humiliation before the throne of God.

But it would be far from the present line of argument, to maintain that the moderns are performing no useful function in the "progress of the species." Such a proposition would be incompatible with what we know of the divine economy, in which human degeneracy itself is converted into a new point in the circle of uses. Nay, the moderns have their direct value; in the first place, they have enlarged the catena of observations in many departments. In the second they have corrected innumerable minute errors in their predecessors, who were more intent upon general than particular accuracy. And thirdly and chiefly, although in this respect no credit attaches to them, they have gone so low in their enquiries, that as it is even physically impossible to go lower, so by the law of the contact of extremes a revolution may now take place, and the ascending passage be commenced, as it were from the skin to the brain, or from the lowest sphere to the highest.

It would be interesting to trace the successive stages by which the physiology of the ancients declined into that of the moderns, to review the grounds on which great doctrines were given up, and to test the sufficiency of the reasons which were adduced for the change. The state delineated in the well-known lines—

> "I do not like thee, Doctor Fell,
> The reason why, I cannot tell;
> But this alone I know full well,
> I do not like thee, Dr. Fell,"

—this state was the moving cause of it. In short, it was a change in the human will, and not primarily in the understanding, which faculty appears to have been called upon subsequently, to confirm the new turn of the inclinations. Such at any rate we know to be the case with the doctrine of the animal spirits, which, as Glisson said, was in his time believed in "by nearly all physicians, and by all philosophers." It might have been supposed that the animal spirits were demonstrated out of existence by some beneficial genius who substituted something better in their place; at least that they fell honorably in a well fought field of argument. No such thing; they fell by the treachery of the human heart loving the sensual sphere more than the intellectual. Is such mere waywardness as this a part of the "progress of the species?" The ancients believed in the existence of the animal spirits without pretending that they could become objects of sight. "Tam subtile sit concipiendum [fluidum hoc subtilissimum]," says Heister, ". . . ut

instar lucis velocissime se diffudat; quod profecto non oculis, sed ex effectibus et phænomenis, . . . ope judicii sive mentis oculis cognoscendum . . . . Ita aerem, animam, et multa non videmus, quæ tamen ex effectibus, quemadmodum spiritus animales, esse et existere intelligimus."* But the moderns reject whatever they do not see, and will credit the existence of nothing that absolutely outlies, and must in its conditions for ever outlie, the senses. It is needless to say that a state like this is based upon neither reasons nor sensations, but is purely negative or sceptical, and must be referred to sheer will without any admixture of wisdom.

* Comp. Anat., II, 301, not. a.

REVIEWS.

Animal Chemistry, or Organic Chemistry in its application to Physiolgy and Pathology. By JUSTUS LIEBIG, M. D., &c. London: Taylor and Watson, 1842, pp. 354.

The position which Liebig now holds as a European chemist may certainly be said be to the highest; even Sir Humphrey Davy, lauded and caressed as he was on all sides, did not enjoy a greater share of popularity with scientific men in general, and more particularly with the public in this country, than does the present Professor of Chemistry in a hitherto obscure German university. Nor will this be wondered at, if we look back upon the history of this extraordinary man. Whilst yet a youth of nineteen years of age, he published his paper on the Cyanic and Fulminic Acids, a work which bore upon it the stamp of genius, and proved incontestably that the author was then not only a good practical chemist, but also endowed with great acumen and uncommon powers of analysis. From that time until the present, he has never ceased to pursue his researches with most praiseworthy zeal, and year after year, nay, month after month, has borne testimony to the successful research and patient industry of our author. His papers, several of them written in conjunction with Wohler, merit the highest praise. We need only mention his celebrated one on the radical of the oil of bitter almonds, to remind our chemical readers of the impulse given to the investigation of the compound radicals by its publication, which indeed now bears its fruit by the hands of previously eminent

chemists, and of others formerly unknown to science, but who now, reared in the school of Giessen, enjoy a reputation more than respectable, amongst the cultivators of the science of chemistry. The work now before us has been in the hands of our readers for a considerable time, and none, we may safely say, of modern authorship has produced a more vivid excitement in the scientific world. Its publication has effected immense good, by directing the attention of medical men, previously too little devoted to chemistry, to a careful study of that science. Medical journals, which ten years ago teemed with papers the most puerile, and which often indicated the grossest ignorance of chemistry, are now, following the general rule of running into extremes, filled with papers so *recherche*, that we have chemical explanations not only of the processes through which the aliment we swallow passes, but even of the action of the condiments and medicinal substances consumed along with it—the whole confirmed by a chemical analysis, of course not to be disputed, of *tenths of grains*, and of the ratio that the constituents of these bear to some important secretion weighing *ounces!*

These are circumstances that give us infinite pleasure; and we sincerely trust that the authors of these multifarious papers will hold us in no disesteem, if, in the course of the following remarks, which our duty, as journalists, compel us to make on the work of their master, we should appear to hold a doubtful opinion as to the merits, importance, and even scientific truth of what he and they have asserted. The consideration of the organic chemistry is, however, to be approached in no light spirit, but merits our attentive perusal and careful examination. Some of the doctrines enumerated by Liebig and his disciples are so startling and are apparently supported by facts so incontrovertible, that the whole work wears an air of plausibility, and engages the attention by a pleasing simplicity of arrangement, which must prove exceedingly captivating to all who are desirous of information on the chemistry of physiology. It is not our intention to attempt a minute critique on the whole work of the author, as, to do justice, in all its details, to a subject of this nature, would require a space which our limits cannot allow. We would, however, as much as possible, direct the attention of our readers to those parts of it most intimately connected with medicine; and as these, if not entirely new, are at least for the first time brought forward in a formal manner, they are well deserving of it.

The organic chemistry is divided into three parts,—the *first*, is devoted to the examination of the chemistry of nutrition;—the *second*, to the

subject of the metamorphosis of the tissues;—and the *third*, to the phenomena of motion, &c. The first part commences with some very judicious remarks on the subject of vitality; but at the second page we find a statement which we cannot conceive to express well what the author means. It runs thus: "The animal organism requires, for its support and development, highly organized atoms." This is a very loose and inaccurate manner of saying that animals require for nutrition a more complex class of chemical compounds than those formed by the ordinary inorganic reactions. We may infer from this, and many similar oversights, that Liebig has not very clear notions of the terms of vitality and life; for a few pages farther on, we find expressions which plainly show that these are, in his opinion, identical. P. 11: "Certain phenomena of motion and activity," says he, "are perceived; and these we call life or vitality." This, we confess, appears to us to sound rather contradictory when placed in juxtaposition with the first sentence in the book, where vitality is distinctly stated to be the force which, acted on by external stimuli, produces the above described phenomena of motion. We find, in the succeeding pages, some interesting general remarks on the proportion of oxygen consumed at different temperatures, and on the necessity of an increased amount of carbonaceous aliments at low degrees of heat; with illustrations from the fact, that natives of northern districts can consume with impunity much larger quantities of flesh and stimulating drinks, than inhabitants of the tropics. Without denying, *in toto*, what Liebig has said on this subject, we would merely throw out a hint as to how far these so-called carbonaceous articles of diet of northern people do act in the manner he describes; and would ask, whether the desire for such food is not to be ascribed as much to its stimulating nature, as to its merely chemical constitution? Can there be any doubt that the natives of India, thrive well on a most carbonaceous diet whilst European residents die from various causes, and amongst them, from the abuse of highly azotized and stimulating articles of aliment? It requires that a person should have seen but once the enormous quantity of rice and *ghee* consumed by a Hindoo at a single meal, to satisfy himself, that the conclusions of our author, however plausible they may appear, are still to be received with caution. The experiments of Pepys, made many years ago, were conclusive to the point, that the same person under the influence of intoxicating liquors, exhaled less carbonic acid than when not subjected to it,—a result directly the reverse of what we should, according to

our author's views, have expected to take place. In stating this, however, we quite agree with the general conclusion to which he has come, that there is no support to the opinion that there exists in the animal body any other unknown source of heat, besides the mutual chemical action between the element of the food and the oxygen of the air.

Glancing hurriedly at the many topics which engage the attention of our author in this the first part of his work, we have only space to call attention to some statements more marked than others; and we cannot pass over the one at p. 39, without expressing our doubt of its correctness. "Exercise and labor," says he, "cause a diminution in the quantity of the menstrual discharge; and when it is suppressed in consequence of disease, the vegetative life is manifested in a morbid deposition of fat." Now, as far as our experience goes, and we should say that of most practical medical men, it will be found that the suppression of this important secretion, symptomatic as it for the most part is of a derangement of the very functions which constitute the so-called vegetative life, is inimical to the deposition of fat. That increased bulk frequently results from it we do not deny; but that this depends on serous deposits in the cellular tissue, &c., is too obvious to require more than a mere comment on the circumstance. The chapter which has given rise to these remarks, is exceedingly interesting, and concludes with a classification of the articles of diet in a twofold division; i. e. plastic elements of nutrition, and the elements of respiration. For further information on these points, we must, however, refer our readers to the work itself.

The Second Chapter is headed, "On the Metamorphosis of the Tissues;" and here the extensive practical knowledge of our author is exhibited. But here facts are so mixed up with hypothesis, that we are frequently at a loss to know what statements are true, and what merely assumptions. At page 114, in speaking of the quantities of air which reach the stomach with the saliva, he states: "The fact, that nitrogen is given out by the skin and lungs, is explained by the property which animal membranes possess, of allowing all gases to permeate them, a property which can be shewn to exist by the most simple experiments." Then follows an account of the well-known fact of the permeability of dead animal membrane to gases: "and that it is a mechanical property common to all animal tissues, and is formed in the same degree in the living as in the dead tissue." Now, we are all perfectly aware, that such permeability, as a memanoal property, exists in the dead tissues;

but, as physiologists, we are compelled to hesitate before we can designate it as merely such in the living membrane. A fact militating strongly against this doctrine is, that different gases when introduced into a tissue are not absorbed with the same rapidity; for, in cases of emphysema, the oxygen disappears long before the nitrogen, and this fact of itself is sufficient, were others wanting, to show that this is something more than a merely mechanical cause in operation, being, indeed, but a result in conformity with the general law, that, within certain limits, the more stimulating the substance the more rapidly is it absorbed.

The paragraph immediately succeeding gives an explanation of the mode of the production of traumatic emphysema, which confirms our impression of the vagueness of Liebig's ideas on subjects apart from chemistry. It runs thus: "It is known that in cases of wounds of the lungs a peculiar condition is produced, in which, by the act of inspiration, not only oxygen, but atmospherical air, with its whole amount, four-fifths of nitrogen penetrates into the cells of the lungs. The air is carried by the circulation to every part of the body, so that every part is inflated or puffed up with the air, as with water in dropsy." To assume that the air is absorbed by the blood, and again deposited in the tissues, is most illogical, besides being quite opposed to all fact. The air, as all surgeons know, is forced into the cellular tissue surrounding the wounded costal pleura, and is in the ratio of the size of the wound of the pleura and of the force of the inspirations. Were the explanation given by Liebig correct, we should find emphysema as one of the results of the poisoning of the feather white wine, the noxious qualities of which he explains on the supposition that the carbonic acid, so abundantly generated in the stomach after drinking it, permeates the stomach, the diaphragm, and both the layers of the pleura, although it seems to make no stay between these, but proceeds at once to the air-cells, to suffocate the unfortunate drunkard; and the proof that this is the fact, is found in the circumstance, that the inhalation of ammonia is recognized as the best antidote against this kind of poisoning. This hasty conclusion is not, however, at all justifiable. Such a mode of procedure on the part of the carbonic acid is open to numerous objections: and although it is not easy to say what is the cause of death in the poisoning by this wine, it is much more rational to suppose that it may be produced by such a rapid accumulation of gas as to produce asphyxia, by suspension of the action of the diaphragm, knowing, as we do, the effects that result from spasm of this muscle in angina pectoris; or

again, supposing the gas is eructated with great force and rapidity, it may cause, what carbonic acid when pure immediately does, spasm of the glottis, which must be rapidly fatal. The relief afforded by the ammonia may be explained on grounds other than chemical, and is much more likely to arise from its stimulant effects on the nervous system, than from its forming a salt in the air tubes and cells, as poisonous in that situation as the original carbonic acid would have proved.

The whole of this part of the chapter is in the same style, consisting, for the most part, of assumptions without proof, and contortions of phenomena to suit particular hypothesis of the author.

In the opinion of Liebig, theine, caffeine, theobromine, may be considered as the food of the liver, for, by the addition of oxygen and water to the two former, a constituent of the bile—taurine—may be formed; and, by the same addition to the elements of theobromine, taurine and urea, or taurine and uric acids may be produced. Two and eight-tenths of a grain of caffeine can give to an ounce of bile the nitrogen it contains in the form of taurine. And he infers from this, that the reason of these substances having become in their use so universal, as articles of diet, is, that those who chiefly live on vegetables take them instinctively, as it were, for the purpose of supplying azote to the bile, which must otherwise have come from the waste of the tissues. The quantity of theine and caffeine, contained in the infusions we drink, is, however, so extremely small, that although we may admit their action to be as he describes, yet, practically speaking, it is as *nil*, compared to the amount of biliary secretion. We must look for an explanation of the desire for these articles, other than any dietetic purpose they can serve, in the properties they possess of acting as stimulants on the nervous system. In no other way can we understand how green tea acts with such energy, compared with coffee, when the quantity of caffeine in the latter far exceeds that in the former, than by assuming that the action is dynamic, and not, as Liebig would infer, chemical.

The attempt to explain the mode of action of organic medical agents, on the hypothesis that these, being azotized bodies, produce a peculiar change in the chemical constitution of the nervous tissue, is exceedingly unsatisfactory; for, were it so, the objection which Liebig himself states is fatal, seeing that the poisonous properties of these bodies is not in the ratio of the quantity of nitrogen they contain; picrotoxine, which, if it contains any, at all events very little, of that element, being exceedingly poisonous, whilst caffeine, quinine, &c., are not so.

"The action," he says, "of these bodies is commonly said to be dynamic, that is, it accellerates, or retards, or alters, in some manner, the phenomena of motion in animal life. If we reflect that this action is exerted by substances which are material, tangible, and ponderable;—that they disappear in the organism;—that a double dose acts more powerfully than a single one;—that, after a time, a fresh dose must be given if we wish to produce the action a second time; all these considerations, viewed chemically, permit only one form of explanation,—the supposition, namely, that these compounds, by means of their elements, take a share in the formation of new, or the transformation of existing, brain and nervous matter."

The common view, that the action is dynamic, is in want of other proof, quite as probable as the chemical view taken of the matter by Liebig, and explains, equally satisfactorily, the necessity of increased dose to produce the previous effect; and, in the present state of chemical analysis, is likely to hold its ground against the doctrines here inculcated. The dynamic theory renders quite clear to our mind the effect of immaterial agencies in disturbing, exciting, or exhausting, the susceptibilities of the nervous tissue, which the chemical one of adding to, or abstracting from, the inorganic components of the tissue cannot do.

Dr. Forbes on Mesmerism.—The October number of the British and Medical Review published in London, quarterly, by Dr. Forbes, (author of Young Physic,) "Physician in Ordinary to Her Majesty's Household, Physician Extraordinary to His Royal Highness Prince Albert," contains a long review of Dr. Esdaile's "Mesmerism in India, and its practical Application in Surgery and Medicine." Dr. F. is a man far advanced in life, and is placed by common consent at the very head of the Medical Profession.—Up to the commencement of this year, he has been considered ultra-sceptical in reference to all new things. In the January number 1846, he made a clean breast of his views upon Medicine, and publicly repudiated the system (Allopathy) he had all his life pursued. In the number before us, he intimates to his professional brethren that the evidences in favor of Mesmerism can no longer be philosophically disregarded."

The article, "If Magnetism be true, who can be against it?" published in our preceding number, should have been credited to the "Gem of Science."