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LECTURE VI.

Present State of Medical Practice in England.

Dyspepsia—Hysteria and Hypochondria—Insanity—effect of Ligatures—Faint—Congestion, its nature—Infantile Convulsions.

GENTLEMEN:

After a long intercourse with the world, and a *rigid* examination of what, in his day, was called its wisdom, the great Lord Bacon, musing doubtless over his own philosophical discoveries, thus writes:—"It is a view of delight to stand or walk upon the shore-side, and to see a ship tossed with tempest upon the sea, or to be in a fortified town, and to see two battles join upon a plain; but it is a pleasure incomparable, for the mind of man to be settled, landed, and fortified in the certainty of truth; and from thence to descry and behold the errors, perturbations, labours, and wanderings up and down of other men." But, Gentlemen, however exciting this kind of pleasure be to him, who should be content with merely making a discovery to himself—the making of it public has its drawbacks; for "whoever," in the words of Johnson, "considers the revolutions and the various questions of greater or less importance, upon which wit and reason have exercised their power, must lament the unsuccessfulness of inquiry, and the slow advances of truth, when he reflects that great part of the labor of every writer, is only the destruction of those that went before him. The first care of the builder of a NEW SYSTEM, is to demolish the fabrics that are standing." But how can you brush away the cobwebs of ages from the windows of truth, without rousing the reptiles and insects that so long rejoiced in the darkness and secrecy these cobwebs afforded—the bats and spiders, to whom the daylight is death! Truth, like a torch, does two things; for not only does it open up to mankind a path to escape from the thorns and briars which surround them; but breaking upon a long night of ignorance, it betrays to the eyes of the newly awakened sleeper, the bandits and brigands who have been taking advantage of its darkness to rob and plunder him. What has Truth to expect from these?—What, but to be whispered away by the breath of calumny, to be scouted and lied down by the knaves and fools, whom interest or intercourse has leagued with the public robber as his partizans. Who will talk to me of conciliation? Who will tell me that mild and moderate measures ever brought over such implacable enemies to the ranks of their destroyer; or that robbers rioting in the spoils of their victim, will listen to the voice of the charmer, charm he never so wisely? Surely people must be out of their senses, who imagine that any exposition of Truth will be acceptable to men whose emoluments are chiefly derived from a course of studied and systematic mystification—Professors, who lure the student by every possible promise to their schools, and, when once in their net, keep him there by every possible artifice and pretext which collusion and corruption can devise! one day entangling him in a web of unmeaning sophistry—another, stimulating him to waste his time and labor in splitting straws, or in magnifying hairs—now encouraging him in a butterfly chase after shadows—now engaging him in a wordy and worthless disputation with his fellows! Gentlemen, I appeal to you, if this is not the mode in which, in most cases, from four to six years of the best part of a young man's existence are passed in our medical schools—passed in the fruitless endeavor to know a profession, upon the exercise of which he is too often compelled to enter with no other pretensions to a knowledge of its principles than the trumpery certificates and diplomas *for* which he has been duped and deluded.

How is that student to be repaid the capital of time and money he has expended upon what he calls his education? How, but by deluding and mystifying in his turn the suffering sick who apply to him for relief. For relief?—Vain hope! Look at the numbers of persons who live, or try to live by physic,—doctors, surgeons, apothecaries, druggists, cuppers, nurses—and ask yourselves how even one tithe of these can do so, but by alternately playing upon the passions and prejudices,—the hopes, fears, and ignorance of the public? in one case inflicting visits too numerous to be necessary; in another, employing draughts, mixtures, or measures, too expensive, too frequently and too fruitlessly repeated, to be all for the benefit of the patient! Think you, that the members of the medical profession are different in their feelings from every other human being—that their minds are so constituted, that, under the most terrible temptations, they can so far set at defiance the stern law of necessity, as in their present crowded and starving state, receive with open arms a system that threatens so many of their order with ruin? Is it in the nature of things that they will welcome a practical improvement, by which the practitioner may, in a few hours, cut short cases and chances, which, by daily visitations, or by three draughts a-day, might be profitably protracted to a month, if the system on which it is based were only advocated in calm, mellifluous, and complimentary language! As soon may you expect a needy attorney to be prevailed upon by his client's tears to cut short a chancery suit; or the master of a sailing-smack to listen patiently to the praises of steam; or a coach-proprietor to admit the safety and superiority of railroad over coach conveyance, when estimating each the losses they shall respectively sustain by the too general use of the superior motive power. What, though the present condition of medical practice be less the crime of the profession, than the fault of the legislature, that permits men clothed with collegiate authority,—professors enjoying the sanction of its protection,—annually to lure, by misrepresentation and lying promises, thousands of credulous and unsuspecting youths into a path strewed, even in the very best of times, with thorns and briars innumerable? Better far that one half of these should at once abandon a walk of life, where the competition is so keen and close, that comparatively few in the present day can live honestly by means of it,—than, that they should hereafter have to eat their precarious bread, at the daily and hourly sacrifice of their own honor, and their patients' interests. Who will tell me half-measures can be of any avail, under circumstances like these? Gentlemen, in corrupt and difficult times, half-measures, so far from succeeding, have either been taken as a sign of weakness in the cause, or as a symptom of timidity on the part of the advocate. Away then, with half-measures!—away with the idea of conciliating men, the already rotten tree of whose sustenance you sap—the long-cemented system, whose existence depends, not on a virtuous adherence to nature and truth, but upon a collusive and fraudulent perversion of both! When persons little versant with the present state of medical affairs, see men of established name supporting a system of dishonesty and error, they too often doubt the light of their own reason. "Would Dr. So-and-So," they ask, "and Mr. Such-a-One, hold this language, if they did not themselves believe it—men so respectable, and so amiable in private life?" But tell these simpletons, that Dr. So-and-So's Bread depends upon his Belief—that Mr. Such-a-one's family would wither with his fading fortunes, if the father, in the language of Hazlitt, "ceased to support that which he had so long supported, and which supported him"—and you bring an argument which, though not quite convincing in itself, will at least compel a closer investigation of the system it is your wish to expose and crush. Gentlemen, I have been blamed for the tone and spirit in which I have spoken of my adversaries—I have been asked why assail their motives—why not keep yourself to their errors? But in this particular instance I have been only the humble imitator of a great master—a man whose name will at once call up every sentiment of veneration—the indomitable Luther. *Magnis componere parva*, I have followed in his wake—I hope soon to add *passibus æquis*. Think you, the Reformation of the Church could have progressed with the same rapidity, had its most forward champion been honey-mouthed—had his lip been all smiles, and his language all politeness—or had he been content, in pointless and unimpassioned periods, to direct attention solely to the doctrinal errors of Rome? No—he thundered, he denounced, he heaped invective upon invective, and dealt in every form of language which could tell best against his enemies, whether in exposure or attack. Too wise to leave them the moral influence of a presumed integrity, which they were far from meriting, he courageously tore away the cloak of sanctity and sincerity with which, in the eyes of the vulgar, they had been too long invested. Had he done otherwise, he might have obtained the *posthumous* praise of moderation, at the price of defeat and the stake.

Gentlemen, let it not for a moment be supposed that in thus sweepingly arraigning the present system of medical polity, I can have the remotest wish to degrade the profession of the physician. On the contrary, it has been my endeavor throughout to improve his *morale*, and to elevate his condition,—to render him a useful, honorable, and honored person,—to make him what neither the mere lawyer, nor the mere churchman can possibly be—a student of nature, and an intellectual expounder of his Maker's works; one from whose ranks kings may still, as they once did, choose their counsellors. And how can this be done but by rescuing the art of medicine from the hands of the miserable creatures who at this moment principally usurp its practice? Nor do I for an instant wish to insinuate that among the individual members of the profession, there are not numerous exceptions to the line of conduct pursued by these creatures. In every one of its grades and conditions,—apothecary, surgeon, and physician,—I have had the pleasure to meet practitioners who not only heartily join me in deploring the present shameful state of practice, but who aid me with their best efforts to expose and correct it. One and all of these honorable persons acknowledge that unless some great and speedy change in the mode of educating and remunerating medical men be introduced by the legislature, Medicine must shortly cease to be regarded in the light of a liberal profession; for as things now stand, the only sure path to lucrative popularity in physic is a complete sacrifice of conscience and principle on the part of the physician. How often have I been told, in my own case, that by courting the apothecary, and offering up incense at the false shrine of the professors, I might easily and cheaply obtain the bubble reputation, to be blown me by their breath: while by exposing the intrigues of the schools, and the collusions and corruptions of the professional world, not only do I stand as one man to a host, but I lay myself open to the secret stabs of a thousand unseen assassins. To tempters of that sort this has been my answer;—let it be yours also—

> Slave! I have put my life upon a cast,
> And I will stand the hazard of the die.

That hazard now, thank Heaven is small—for the daily increasing number of upright and honorable practitioners who espouse my views, place me already sufficiently far above the reach of my enemies, to enable me to despise them thoroughly; and at this moment I feel as secure of victory, as at one period of my life, I feared defeat! As yet, I have only assailed the System—carefully avoiding individual attack. True, I have repelled the attacks of others, somewhat strongly too; but that was all in self-defence. If, in tearing away the veil of iniquity, I have not altogether remained unscathed, I have, at least, the satisfaction to know, that my enemies have done every thing but laugh at the blows I dealt them. If it be said I have used language too strong for the occasion, I answer in the words of Burke: "When ignorance and corruption have usurped the Professor's chair, and placed themselves in the seats of science and virtue, it is high time to speak out. We know that the doctrines of folly are of great use to the professors of vice.—We know that it is one of the signs of a corrupt and degenerate age, and one of the means of insuring its further corruption and degeneracy, to give lenient epithets to corruptions and crimes." What reformer has not been called a "violent person!"—none that I ever heard of. Now, Gentlemen, to the more orthodox matter of this lecture.

We have hitherto spoken of the Brain as a unity—yet this organ is divided into two hemispheres. Like the features of the face it is two-fold. We have two eyebrows, two eyes, two nostrils, two ears, and in the early fœtal state, the mouth and chin are separated in the middle—you have the marks of this original separation in the infant,—I may almost say in the adult: Now though a man may lose one eye, he is not therefore blind; or, though he lose the hearing of one ear, he is not necessarily deaf. It is just possible that a small part of one of the hemispheres of the Brain may in like manner become diseased, and the subject of it shall appear to reason very fairly to the last. But that must be a shallow observer indeed, who from such a possible fact should draw the fictitious inference that even one hemisphere of the Brain may be disorganized throughout its entire substance, without the intellectual powers being at all disturbed! If you read of such facts, set them down as false facts. The Brain then, like the body, in some of its parts is double, yet like the body in its integrity, the Brain is a unity, and like the same body it also has a diversity of parts. That the scalpel has hitherto failed to trace any well-marked divisions betwixt the various cerebral portions to which phrenologists have ascribed variety of function, is no argument against this doctrine. Do not all the different parts of the frame merge into each other—the elbow into the arm, the arm into the hand, &c.? What is more clearly a unity than the Hand?—Yet do we not frequently find from the weakness of one or more of its joints or muscles, inability

on the part of its possessor to do a particular work, though he may still accomplish many others by means of it.—It is the same thing with the head. Partial disease of the Brain produces partial intellectual injury, and you see the effects of such injury in these persons who reason rightly upon every subject but one,—monomaniacs as they are called. Oh! I want no better proof of diversity of parts in the Brain than this. Like every other organ, the Brain of man commences its fœtal existence in the lowest type of the same organ of those animals that possess a brain—gradually assuming by additions and superadditions, the form of the infant Brain. In some instances, as in the case of other organs of the body, one or more of the superadditions are never properly developed. The result you can anticipate. Idiocy, according to the degree of the defect; and yet there are medical twaddlers who say the Brain is not the organ of intellect! This much I have thought it right to premise before entering upon the subject of

DYSPEPSIA, OR INDIGESTION;

for to the state of the Brain and nervous system we shall have to ascribe the disease. When treating of Pulmonary Consumption, at a former meeting, I explained to you, that no individual could possibly suffer from any complaint whatever, without his digestion being more or less implicated. The patient who labors under any severe form of disease, such as Gout, Consumption, or Erysipelas, has all the symptoms or shades of symptom, that medical men group together under the head of Indigestion; but the gravity, prominence, or locality of the superadded symptoms, which may dispose the physician to term the disease Consumption, Erysipelas, or Gout, may also dispose him to overlook, or esteem as insignificant, the coincident errors and disorders of the digestive apparatus. In the lower and more subdued forms of Fever, the patient very often has no particular tendency to decomposition in any organ or locality, but from every function being more or less wrong, he very naturally turns his attention to his stomach or bowels, the errors of which come more particularly under the immediate cognizance of his feelings. Such a patient will complain to you of flatulence and acidity, or of that distressing symptom termed "water brash." If you ask him about his appetite, he will tell you it is "so-so," or "he cares nothing about eating," or it is positively "excellent"—which last, I need scarcely tell you, means that it is morbidly craving. Ten to one, it is capricious,—the patient now wishing for this, and now for the other, and rejecting what he desired most, the moment it comes before him. Perhaps he has thirst. He is wearied upon the least exertion; has little inclination to get up in the morning, and when he does get up, he is indolent, and dawdles his time away. He is apathetic in mind as he is indolent in body; and he has often a great disposition to sleep, especially after meals. Others again will just be quite the reverse of all this; these perpetually harp upon some particular topic—fidget themselves and every body else about trifles, and look always at the dark side of life. Some fly in a passion for nothing, or upon the least contradiction, and in a few minutes after the gust of passion has passed away, they lament their mental weakness. Their nights are either sleepless or broken and disturbed by unpleasant dreams. One moment they dream of robbers, from whom they cannot escape; or they are on the eve of tumbling down a precipice; dreaming sometimes within a dream—asking themselves, even in the very act of dreaming, whether they dream or not—and they will satisfy themselves by a process of unreason, that they are actually awake and walk the air. Even during the day many of these patients have their dreams or reveries—pleasurable sometimes, but more often the reverse;—they see things either as if "through a glass darkly"—or their perceptions are all exaggerated and unnatural. Phantoms may even pass before them at mid-day, phantoms such as they see in their dreams of the night. The very colors of things may be altered to their eyes—red appearing to them green, and vice versa. Even the shapes and dimensions of bodies may be quite changed to their sight—though the greater number have sufficient judgment remaining, to know this to be an optical delusion merely. John Hunter had the sensation that his own body was reduced to the size of a pigmy!—I have met with some patients who have even at times doubted their own existence.—Light and shade have wonderful effects upon most invalids of this class. One is perfectly miserable, except when he is in the sunshine—another cannot bear the light at all. Ringing in the ears, or partial deafness, is a common complaint of dyspeptic persons. Some can only hear distinctly during the noise of passing carriages, or in the hum of a city, or of falling waters; while others hear so acutely, that they complain of the ticking of the clock. The sense of touch is very often similarly vitiated; one patient having partial or general numbness,—another, his feelings so sensitive, that he shrinks with pain if you merely touch him. Occasional-

ly, though more rarely, you have examples of a reverse kind; the patient in that case will say—"Oh, do not take your hand away the pressure does me good—it acts like magnetism.

All kinds of aches are complained of by dyspeptic patients—headache perhaps most frequently,— headache, for which, on the hypothetical assumption of fulness of blood in the brain, the leech, lancet, and cupping-glass are so frequently in requisition. But to what end? In the words of Abernethy, supposing such assumption to be correct—"Does blood-letting cure diseases in which there is a fulness of blood in the head? It must be granted, that in many instances, it temporarily alleviates them, but in others, it fails to relieve, and even aggravates them."—What are those headaches, those night and day dreams, all those various signs and sensations, but the effects of a great instability of Brain, now brought on by one thing, now by another? I have known the most severe and distressing headaches arise from loss of blood, and I have known them originate in a long fast. Surely for such diseases, the leech and the lancet are not the proper remedies. But, Gentlemen, there are many other ways by which the brain may be weakened. You may as certainly exhaust it by prolonged literary or other mental labor, as by starvation or loss of blood; for there are times to think, and times to cease thinking: and if the brain be eternally harassed by an over anxiety in any of the pursuits of life; if it be always at work on one subject, not only will there be headache or confusion of head, but the constitution must be injured. How can this organ painfully revolve again and again the occurrences of the external world, and give the proper attention to the internal economy, over which it presides? When you listen to an orator or a preacher whose discourse powerfully affects you, the brain becomes so engaged, that it cannot at the same time attend to the breathing—and you are, therefore, compelled ever and anon to draw a long breath—you must take a deep sigh, to make up for the ordinary succession of short inspirations and expirations, which constitute the natural art of breathing. Now, Gentlemen, if the function of the lungs be so easily disturbed in this way, can you doubt that the heart, stomach, bowels, and other parts, may be similarly influenced? What are the complaints of men who have much on their minds, of bankers, merchants, and great lawyers?—what the diseases of aged persons—persons whose brains become weaker and weaker by the slow but certain operation of time? Do not these patients constantly complain of their stomachs and bowels? Do not many of them suffer from palpitations of the heart,—from giddiness and sensations like fainting, with a fear of falling? Now, Gentlemen, this giddy sensation, this disposition to fall, is most commonly felt upon suddenly raising the head, or in rising from a chair. What surer sign of cerebral weakness? Yet, not long since, two gentlemen each upwards of seventy, informed me, they had been bled and leeched by their respective apothecaries for this disease of pure cerebral exhaustion. Bless my life, you may bleed or purge a healthy man into this state any day!

In these diseases, one patient will tell you he is troubled by a feeling of sinking and pain of stomach, which is only relieved by eating. Another suffers from spasm, and pain of the heart or stomach, with acidity or flatulence, the moment he begins to eat; and in either of these cases the pain may sometimes become so violent, that if it did not soon go off, the patient must die. Now, this kind of spasm, whether affecting the stomach or heart, is a disease, for which you are expected to give immediate relief, and nothing will do so more readily than a glass of hot water—water as hot as the patient can possibly drink it. This point of practice we owe to John Hunter, who having frequently suffered from spasm of the stomach, tried every thing he could think of, and among others hot water. The ease which this gave him, led him to extend its use to his dyspeptic patients; and my own experience of its virtues, enables me to bear him out in the encomiums he has passed upon it. To this simple means, palpitations, spasms, head-aches, wind and acidity, will all sometimes yield as to a charm. Is not this another instance in proof, how mere change of temperature acts on the body under disease? Now, as hydrocyanic acid very frequently gives the same immediate relief in every one of these affections, we at once see that its medicinal power must depend upon the change of temperature which it electrically produces. Of the various cordials to which you may have recourse for spasmodic pain of the heart or stomach, there is none so good as noyeau, and the virtue of this "strong water" depends very much upon the prussic acid it contains. Of all the remedies with which I am acquainted there is none equal to this acid, in convulsions and spasms of every kind. But spasms of the stomach and heart are not the only ones of which dyspeptic patients complain. Some are troubled with a sense of tension of the brain—others with a tightness of the throat or chest, and some, partic-

ularly females, suffer from a spasmodic affection of the gullet, which gives them a feeling as if they had a ball there. Others are subject to stitch or pain of the side, produced by cramp of the muscles of the ribs. How correctly Shakespeare described the nature of these pains, when he made Prospero say to Caliban in the Tempest,

> For this be sure, to-night thou shalt have Cramps,
> Side-stitches, that shall pen thy breath up!

The common practice in these cases is to say, "draw your breath," and if you cannot do so for the pain, "inflammation" is the imaginary goblin of the doctor, and bloodletting in some of its forms the too ready remedy (?) to which he flies:—how vainly for the patient—how profitably for himself, truth must one day tell! To small doses of nitrate of silver, prussic acid, or quinine, such pains will often yield, after having resisted every form of depletion, with all the usual routine of blisters, black draught and blue pill to the bargain. The great error of both patient and practitioner, in dyspeptic cases, is to seize upon some of the most prominent features as the Cause of all the others. In one instance they will blame wind—in another acid. But as it happens, these, instead of being causes, are only the common and the coincident effects of a great cerebral weakness, and not the product, as many imagine, of fermentation of the food—they are morbid secretions from the lining membrane of the alimentary canal. And of this you may be assured, not only by the mode of their production, but by the manner of their cure, when that happens to be accomplished. Just watch a dyspeptic patient when he receives a sudden or unexpected visit; his "heart burn," as he calls his acidity, comes on in a moment, and his bowels commence tumbling and tossing about, and will often guggle so audibly as to make even the bystanders feel sorry for him—showing you clearly that this acidity, as well as the gases so suddenly extricated, are the effects of a weakened nervous system,—that they are, in a word, the common effects of wrong secretion. Now the term Secretion is so constantly associated in the mind of the student with the notion of a Liquid, that some of you may not all at once comprehend how gas can be secreted; but, Gentlemen, is not every tissue of the body the result of secretion?—are not the hair and the nails as certainly secreted as the saliva or the bile? Only place your naked arm for a few minutes under water, and you will find bubbles of air constantly forming upon it—such air being in that case actually secreted before your eyes by the glandular apparatus of the skin! Can you be at any difficulty now, to conceive how flatus is a secretion from the alimentary canal? If a doubt remain, you have only to debilitate the brain of an animal by bleeding him slowly, and his bowels will become full of flatus even to bursting. Then again, as regards the cure of dyspeptic patients, a drop or two of prussic acid, twice or thrice a-day for a week, or a short course or treatment by quinine, nitrate of silver, or alternations and combinations of these medicines, will often do away for months, and even years, with every symptom of wind and acidity—while cordials, alkalis and mild laxatives, seldom do more than give a temporary relief. Oh! I never saw much good done by that placebo mode of practice—nor is this at all to be wondered at, if you reflect, that every part of the constitution of a dyspeptic patient is more or less disordered. In every case of this kind there is an unnatural temperature of body; some patients complaining to you of chills or heats, or alternations of both in the back, stomach, hands, and feet, &c. In these cases the skin, partially or generally, is either more moist than in health, or it is harsh and dry—perspiring, if at all, with difficulty. In the latter case, some other secretion may be morbidly active. The urine or the bile may be in excess; or the natural fatty or watery deposit of the great cavities of the chest and abdomen, may be in superabundance. The looker-on may even have a false impression of the patient's case and condition from the increase of either in the minute cells of the investing membrane of all the cellular substance. Should such a patient complain of being ill, he is sure to be laughed at for his pains—for nobody has any sympathy with him—and this is one of the many cases in the world, where "appearances are deceitful."

The dyspeptic patient is either torpid, and with difficulty roused to exertion, whether corporeal or mental, or he is acted upon by every thing he hears. The last person that speaks to him is the man for him. His spirits are depressed by the merest trifle, and raised again by a straw or a feather. Then, as regards his actions or his promises, you can scarcely depend upon any thing he tells you. What he is dying to do to-day, he is miserable till he can again undo to-morrow; he spends his life betwixt acting and regretting;—hesitating, hoping and fearing by turns—one moment all confidence, the next all suspicion. Now, is not this one of the strongest of many striking proofs how much our mental workings are the effects of our material state—the result of our brain's con-

dition, and its atomic relations and revolutions? It is in perfect accordance with what we observe in all our corporeal motions. If the muscles be tremulous, can you wonder that the mind should be vacillating and capricious?—or when these are cramped and spasmodic, why should you be astonished to find a corresponding wrong-headedness, and pertinacious and perverse adherence to a wrong opinion?—*mens sana in corpore sano.* You may argue for hours to no purpose whatever with some patients;—for how can you expect the wrong brains of wrong bodies to reason rightly? These persons are like the inebriated, who see two candles when there is only one—their perceptions being false, so also must be their mode of reasoning. The plunge bath, or a short course of chrono-thermal treatment will make them alter their minds sooner than the most powerful and pursuasive arguments of a Cicero or Demosthenes.

Lady Mary Montague held the notion that the whole world hate more or less to be told the truth. She formed her opinion, doubtless, from observing how badly the Public had for the most part treated its best benefactors. From what I have seen of mankind myself I cannot help thinking of the ass that kicked the good-natured man, when trying to relieve it from the weight of its panniers! Never yet did I attempt to open the eyes of a person imposed upon, but he was sure to abuse me. The poet was therefore right when he said,

> The pleasure surely is as great,
> Of being cheated, as to cheat.

In all my experience, the more unscrupulous and unprincipled the imposter has been, the more certainly he appeared to fascinate his dupes All he had to do was to hold out an impossibility to them, and they were sure to dance attendance at his door for months. Taking advantage of a popular but puerile prejudice against Mineral medicine, the medical charlatan is very careful to prefix the word Vegetable to his nostrum; and this, he tells the public, is SAFE in every form, dose, and degree—which being in utter repugnance to every thing in nature, is greedily swallowed by the multitude as an undisputable truth! Can weight, measure, heat, cold, motion, rest, be so applied to the human body with impunity? Can you without injury cover yourselves with any weight of clothes, or swallow any measure of food? Or can you retain any part of the body in perpetual motion or repose without that part suffering? No, truly! responds the same dyspeptic, who believes that such and such a medicine is safe in every form, dose and degree! When treating patients of this class, it is better not to tell them what they are taking; but should they chance to find out that you have been giving them arsenic, prussic acid, or nitrate of silver, you will be sure to be worried to death by questions, dictated sometimes by their own timidity, and sometimes by the kind feeling of some "damned good natured friend" secretly set on by some equally damned good natured apothecary. Now, as these patients are for the most part great sticklers for authority, your only course is to tell the truth—which after all, in nine cases out of ten, will make no impression—and that is the reason why the quack and the subordinate practitioner who can keep their medicines secret, have an advantage over the honorable physician—an advantage so great, that in a few years, if matters do not take a turn, I doubt if one such will be found practising medicine at all. You may say then what, if it have no effect with patients themselves, will at least appear reasonable to their friends—that the medicines you ordered are all contained in the pharmacopeiæ of the three Colleges of Edinburgh, London and Dublin, and that they are therefore recognized as medicines of value by all physicians who have a character to make or a name to lose—that the dose in which you give them is perfectly safe, inasmuch as, if it disagree with their particular constitutions, it will only cause a short temporary inconvenience; and to sum up all, you may quote Shakspeare, who says, and says truly "In POISON there is PHYSIC."

And again:

> "Oh mickle is the powerful grace that lies,
> In herbs, plants, stones and their true qualities,
> Nor nought so vile that on the earth doth live,
> But to the earth some special good doth give;
> For aught so good but strained from that fair use,
> Revolts from true birth, stumbling on abuse.
> Virtue itself turns vice, being misapplied,
> And vice sometime's by action dignified,
> Within the infant rind of this small flower,
> POISON hath residence, and MEDICINE power!"

So that Poison and Physic—whether vegetable or mineral, are either Poison or Physic according as they are wrongly or rightly applied.

But to return to Dyspepsia, or that low Fever so termed In cases of this kind, my practice is to combine the chrono-thermal remedies with what you may call, if you please symptomatic medicines. For example, where flatulence is the most prominent symptom, I prescribe quinine, hydrocyanic acid, or nitrate of silver, with aniseed or cardemoms. In acidity, either of the two first remedies will often answer very well with soda or potash. Where the bowels are slow and torpid, rhubarb, aloes, or both are very good medicines with which to combine any of the

chrono-thermal medicines. In such cases purgative effervescing draughts are also useful. Should the patient complain of muscular or other pains, you may add colchicum or guiac, and so proceed in a similar manner with other symptomatic remedies for other local indications; keeping in mind, however that these symptomatic medicines are merely a means of secondary importance in the treatment of a great constitutional totality of derangement. In addition to these measures plasters to the back or stomach may be very beneficially resorted to in many cases of dyspepsia, and you may also run the changes upon various kinds of baths. The cold plunge and the shower bath are my favorites, though I need not tell you that the feelings of the patient, after he comes out of it, are a better guide to you in your choice and continuance of any bath than all the theories of all the doctors that ever wrote or reasoned upon disease and its treatment.—"How do you think me now, doctor?" is a question I am asked every day, and every day I give the same answer: "How do you feel?" If the patient is better, he says so; if worse, he will be sure to tell me he is not so well: and according to his answer do I change or continue his physic. Now, whether this be common sense or not, I leave you to judge. Heaven only knows it is not science, or what very learned people call science; for when the patient says he gets worse and worse every day, science generally tells him to continue his medicine, for that he has not taken enough of it, and that he will be worse before he be better, which I need not tell you is a lie, or more politely to speak, a piece of imposture.—Should the patient die, why, then, he dies a natural death, and he has had the first advice, for not only did Mr. So-and-so, the fashionable apothecary, attend him, but Dr. Such-a-one, the great physician, was also called in and he said all was right, and that nothing better could be done. Had the doctor said all was wrong, he might perhaps have been nearer the mark—but, in that case, what apothecary would either call him in again himself, or let him in again when requested, where he could by a little gentlemanly trickery keep him out! In my own particular case, the custom of the apothecary has been *secretly* to play upon the fears of the patient or his friend against "strong medicine," to shrug his shoulders and smile contemptuously. "Oh I can tell you something of Dr. Dickson," he has said "but you must not give up me as the author: whereupon he has proceeded to lie Dr. Dickson's life away; and when he had thus, to his own thinking, sufficiently poisoned the ear of his patient, he has turned round in this manner to him—"But if you still want a second opinion, why do you not call in Dr. This, or Sir Thingumy Tother, they are leading men, you know!" Now that only means, that the physicians in question are the fashionable puppets whom he and all people like him, call in to conceal their bad work—men, who would as soon think of differing with the opinion of their supposed subordinates but real patrons, as of quarrelling with their breakfast, because it was purchased with the shilling of a dead man's guinea!

What a just observation was that of the author of Lacon. "The rich patient cures the poor physician much more often than the poor physician the rich patient: and it is rather paradoxical, that the rapid recovery of the one usually depends upon the procrastinated disorder of the other. Some persons will tell you with an air of the miraculous, that they recovered although they were given over, when they might with more reason have said, they recovered because they were given over." But in very truth "the great success of quacks in England has been altogether owing to the real quackery of the regular physicians." What does that mean? Just this, that the morality of many legalized practitioners even of the highest grade, is not one remove above that of the Morisons and St. John Longs, whose dishonest practices they are so constantly decrying! Now, this you will say, is a startling statement, and much will doubtless depend upon the character of the person making it, whether you treat it with a laugh of contempt or listen to it with something like respectful attention. Gentlemen, the man who deliberately put that on paper, (and I quote him to the letter) was no less a person than Adam Smith, the author of the Wealth of Nations! If such, then, was the certain and settled conviction of that very keen-sighted observer of mankind, will any assertion, any asseveration on the part of individuals interested in declaring the contrary, weigh with you one straw against the evidence of your own senses, when you choose to examine this matter fairly and fully for yourselves? So far as my own experience goes—that is, from what I have seen of the profession in London and the English country towns, eminence in medicine is less a test of talent and integrity than a just reason of suspecting the person who has attained to it, of a complete contempt for both! I say suspecting, for I have met with exceptions, but not many, to the rule. Could you only see as I have seen, the farce of a medical consultation, I think you would agree

with me, that the impersonation of Physic, like the picture of Garrick, might be best painted with comedy on one side and tragedy on the other. In saying this much, not only have I acted against everything like medical etiquette—but I shall be sure to be roundly abused by the medical profession for it. The truth, however, I maintain it to be—but not the whole truth; for the world must have its eyes a little more open before it can believe all I happen to know upon the subject. By and bye I shall tell the English people something will make their ears tingle!

To return to the consideration of Disease. You now see that in all the cases of which we have been speaking, the constitution is for the most part primarily at fault, and that the names of disorders depend very much upon the greater or less prominence of some particular symptoms—which symptoms, or their shades, may be readily detected in all diseases. With every case of Dyspepsia, depression of spirits, and more or less mental caprice, with hasty or erroneous notions upon one or more points, will be found to be associated. When such depression amounts to despondency, medical men, according to the sex of the patient, change the word DYSPEPSIA into

HYPOCHONDRIA, OR HYSTERIA:

and some professors are very particular in their directions how to distinguish the one from the other! Gentlemen, what is the meaning of Hysteria? It is a corruption of the Greek word (*Hystera*) the *womb;* and it was a name given by the ancients to the particular symptom we are now considering, from a hypothetical idea that in such cases the womb was the principal organ at fault. From the same language we also derive Hypochondria, a compound word formed of (Hypo) under, and (Chondros) cartilage, from the supposed seat of the disease, being the liver or stomach; for both of these organs, as you know, are situated under the cartilaginous portions of the lower ribs. So that when a female suffers from low spirits and despondency, with occasional involuntary fits of laughing, crying sobbing, or shrieking, you must call her state hysteria; and when a male is similarly affected, you must say he has hypochondria. Now it so happens, that medical men sometimes pronounce even their male patients to be hysterical! And this brings me in mind of an honest Quaker of the profession, who being very ill, had three doctors to attend him—Mr. Abernethy, Dr Blundell, and a physician whose name I now forget. Each of these had his own notion of the disease; Mr. Abernethy of course said, it was all owing to the state of the "digestive organs." Dr.——, being a stethoscope man, maintained that the "heart" was affected, and Dr. Blundell, in the true spirit of a man midwife, declared that their patient was only "hysterical." Now the patient, though a Quaker, was a humourist; so he ordered in his will, that when his body should be opened after his death, his digestive organs should be presented to Mr. Abernethy, his heart to Dr.———, and to Dr. Blundell his womb, if he could find one! Gentlemen, that the brain is the principal organ implicated in all disorders, which come within the physician's province, more especially in such as are termed hysteria or hypochondria, the smallest reflection will convince you. Suppose a person of either sex had been accidently debilitated by loss of blood—a person who previously was strong in nerve as in muscular fibre; suppose a letter comes with a piece of bad news—the patient in that case bursts into tears, laughs and cries time about, and then sinks into a state of dismal and gloomy despondency.—And all this, forsooth, you must put down to the state of the womb or digestive apparatus, according to the sex of the patient, instead of placing it to the account of the brain and nerves, without which the ill-timed letter, the cause of all, could not, by any possibility, have affected the mind in the least! Another class of practitioners, scarcely less unreasonable than those to whom we have just alluded, will have it, that patients coming under the head of hysteria and hypochondria, are not ill at all.—"Oh! there is nothing the matter with this man:" they will say, "he is only hipped!" and if the female, "she is only hysterical." Dr Radcliffe, when he refused to come to Queen Anne, declared he would not stir a foot "for there was nothing the matter with her but the Vapours!" Such was the term by which the doctors of that day characterized the shifting shades of symptom now called Hysteria. Gentlemen, do I require to tell you that no man or woman suffers from melancholy, or indulges in whims and fantasies, without being positively ill. Whoever labors under mental delusion or despondency, has alternate chills and heats; and remissions and exacerbations of all the more prominent symptoms characterize the disorder in every form. The late Lord Dudley, in a letter to the Bishop of Landaff, relates his own case, and it is so like what you will daily meet in practice, that I shall give it to you in his own words:—"It is in vain," he says, "that my reason tells me that the view I take of any unpleasant circumstances in my situation is exaggerated. Anxiety, regret for the past, apprehensive uneasiness

as to my future life, have seized upon me as their prey. I dread solitude; for society I am unfit; and every error of which I have been guilty in life stands constantly before my eyes. I am ashamed of what I feel when I recollect how much prosperity I still enjoy, but it seems as if I had been suddenly transplanted into some horrible region beyond the bounds of reason or of comfort; now and then I enjoy a few hours respite, (the remission?) but this is my general condition. It is a dismal contrast: for you will remember that I was naturally gay and cheerful." Now, although Lord Dudley recovered perfectly from this particular attack, his disease, at a later period of his life, returned; but this time he was less fortunate, for the symptoms of his disorder gradually deepened in their hue, until they amounted to the most complete

INSANITY,—

a proof to you that the hypochondriac whim, and the hysteric fancy, differ from hallucination and mania, in shade merely, and the chills and heats which precede or accompany them, from the cold and hot stages of the most intense fever, in nothing but degree. Has not the maniac, in every form of his delusion, lucid intervals—remissions? Your schoolmen, your "pathologists," your profound medical reasoners, speak of madness and other diseases, as if they were the effects of some fixed cerebral malformation, instead of being the consequences of external influences acting on an atomic instability of brain. They tell you they are curable or not, according to the CAUSE;—they look in the dead body, for the causes of an intermittent living action, for the origin of hypochondria and mania,—diseases which they have even themselves, perhaps, traced to hard study or a passion! External agencies, then, were the real causes, not the structural deviations detected within after death by the scalpel. Students of medicine! young men honorably ardent in the pursuit of knowledge, for the sake of your profession and your future patients, learn to think for yourselves. Pause, examine, weigh, before you give a slavish assent to the dicta of your teachers. When these tell you that madness with a lucid interval is an inflammatory essence, or that it depends upon some cerebral malformation or tumour, ask them how they reconcile days or even hours of sanity and sense with a cerebral structure thus partially, but permanently malformed or disorganized! That medical men, mystified from boyhood by their teachers, should fall into such errors, is not so astonishing as that the leaders in our periodical literature should be equally unfortunate. What, for example, can be more egregiously absurd than an observation the reviewer of Lord Dudley's letters in the Quarterly Review has allowed to escape from his pen! "The gifts of fortune and intellect," says this writer, "were counterbalanced by an organic malformation of the brain" How can intellectual power even for one moment be compatible with a defective cerebral organization? How can the cause of an intermittent disease be a corporeal entity, or something permanently fixed? Let no sounding words, no senseless sophistry, cheat you of a reply to this question. The maniac who has lucid intervals is curable in the greater number of instances—the hypochondriac who at any time of the night or day enjoys the very briefest immunity from his miserable feelings, may be equally susceptible of improvement from well-devised remedial means. The modern medical treatment of both being essentially aggravant, can you wonder that these diseases should so often remain unrelieved, or that a sceptic smile should be the reward of the individual who tells you that in his hands at least they have ceased to be the opprobria of medicine! What has been the result of the Antiphlogistic treatment of insanity? Let the physicians who attended Lord Dudley in his last illness answer that question, for they spared neither lancet nor leech in his case. In the case of Lord Byron, delirium, which is only another word for mania, was actually produced by the lancet. But the better to open your eyes to the effect of such cruel treatment in this disease, I will read a short extract from a letter I received from Dr. Hume, the same staff-surgeon whose successful practice I have already had occasion to detail to you. "I lately," he thus writes, "paid a visit with our Depot Pay-master to the Armagh lunatic asylum. Being the receptacle for the insane poor of four counties, namely, Monaghan, Fermanagh, Cavan and Armagh, it generally contains about 150 inmates. Having visited the different apartments, I enquired of the manager, Mr. Jackson, the treatment pursued. His answer was: 'Although I am not a professional man, I have paid great attention to the treatment of the insane for the last five and twenty years, and the result of my observation is, that the usual practice of bleeding, leeching, cupping, &c., only aggravates the condition of the patients. Of those who were BLED on admission I *never* saw one recover.' Now this is a curious fact elicited from a plain practical man of great experience, who, had he known I belonged to the medical profession, might not perhaps have been so candid in his remarks." Dr. Conolly, in his

Report of the Hanwell Lunatic Asylum, is obliged to admit that great numbers die shortly after their admission into that establishment. The large abstraction of blood which he so lauds in his work on Insanity, will easily account for the unsuccessful termination of his cases.

Well then, Gentlemen, Hysteria, Hypochondria, Mania, are merely modifications, or developments of chronic or habitual low Fever. And since I commenced to treat them as such, I have had a practical success and a mental satisfaction, that contrast somewhat strongly with the poor opinion I entertained of the resources of our art, and the vexation I experienced when first entering upon my professional career. This much you should know, however, that in all such disorders you will be obliged to change your remedies frequently—for in chronic disease what will often succeed to admiration one day, may as often have an opposite effect the next; and this is strictly in accordance with what you find in every thing in life. The toy that will stop the cry of the weeping child to-day, may make it cry more loudly to-morrow. You must, in that case, change its rattle for some other gew-gaw; and so it *is* in the diseases we have been now considering—diseases where the temperament of the body, like the temper of the mind, is constantly varying. The great secret of managing chronic diseases properly then, consists in the frequent change and right adjustment of the chrono-thermal and other remedies, to particular cases;—and this also explains the good effect of Travelling upon many of these patients, for to the constantly shifting scenes and to the frequent repetition of novel cerebral excitement produced by these scenes, we must ascribe the chief advantages of such a course; clearly proving that the Brain in this instance, as in every other, is the true key to all good medical treatment. Whatever then, be the name by which you choose to designate your patient's complaint, you will be sure to meet with nothing but disappointment, if you pin your faith exclusively to any one medicine. To-day a mild emetic will give relief—temporary only if you do not follow it up to-morrow, with iron, opium, musk, quinine, or the bath. One week arsenic will be a divine remedy; the next, having lost its power, you may dismiss it for prussic acid, valerian, creosote, strychnine, or silver. In regard to silver, the nitrate is the preparation which I am in the habit of using, and an admirable medicine it is, when properly managed. Boerhaave, the greatest physician that ever lived, speaks in raptures of its remedial powers in "nervous complaints." Cullen, Pitcairn, every medical man but the most ill-educated apothecary or the equally ill-educated puppet who enjoys, at the mercy of his breath, the reputation of being *par excellence* a physician, will readily bear testimony to its safety and value as a medicine. Like every good thing, however, the nitrate of silver has been abused in practice, and in some half-dozen instances it has been pushed to so great an extent as to give the patient a permanent blueness of skin for life; but, Gentlemen, in these cases, the practitioners who employed it committed the double error of giving it too long and in too great quantities, and that people should entertain a prejudice against it on that score, is just as reasonable as that a man should be afraid to warm himself when cold, because his next-door neighbor had burnt his fingers. For myself, I can truly say, that though I have prescribed the nitrate of silver in some THOUSAND cases, I never had the misfortune to give the slightest tinge to the skin of a single individual. But should objections to the use of this medicine still continue to be urged, after a proper explanation on your part, you may be pretty sure that some ignorant or interested rival has been secretly playing upon the timidity of your patient or his friends. In that case you are less to be pitied than the patient; for if you have no remedy for rascality, he may have no relief for his suffering. So much then for one of many annoyances every practitioner must experience when his patient happens to be

——— "the tool
That KNAVES do work with, called a FOOL."

But, Gentlemen, we must not suppose that medicine is the only profession where able and honorable men experience such annoyances. Doctors of divinity, and doctors of law, are equally obnoxious to intrigue and prejudice,—aye, and State doctors too, as Dr. Peel and Dr. Melbourne, could tell you if you would ask them. To return. The shifting shades of mental distress, and the various vagaries and wrong thoughts— to say nothing of wrong actions—of persons whose diseases come under the head we have just been considering, are so many and so multifarious, that to attempt to describe them all would be a mere waste of time and labor—inasmuch as however greatly they may appear to differ from each other in shape and hue, they all depend upon a similar totality of corporeal infirmity, and yield, when they yield at all, to one and the same system of corporeal treatment. A few instances in proof, may suffice to show you this:—

Case 1.—A married lady consulted me under the following circumstances:—Every se-

cond day, about the same hour, she had an unconquerable wish to kill her children, and when she happened to look at a knife, her terror, lest she should do so, was extreme. Now, as every function of this lady's frame was more or less wrong, I prescribed for her quinine with sulphuric acid. From that day she had no return of the homicidal feeling.

Case 2.—A gentleman, every second day, took a fit of suspicion and jealousy of his wife, without the slightest cause whatever, as he confessed to me, on the day of remission, when he called to consult me; and however absurd and unreasonable the idea which haunted him, he found it impossible to drive it from his mind. Prussic acid and the plunge bath cured him completely.

Case 3.—Another gentleman, after a hard contest at the university for prize honours, suddenly became moody and sullen; lost his flesh and appetite, and fancied himself Judas Iscariot. Such was his belief one day—to be laughed at even by himself the next! I saw him six times, at the end of which he was perfectly cured by chrono-thermal treatment. Two years afterwards his sister consulted me for "nervousness," when I learnt that her brother had not had the slightest symptom of return.

Whoever, in his progress through life, takes the trouble to study individual character, must be struck by the perversities, inconsistencies, and other *bizarreries* of the human mind. Many people, for example, commit follies, faults, and crimes even involuntarily and without any apparent object. Some of you may possibly remember the case of Moscati, a person singularly gifted with talent, but who, at the same time, had such an invincible disposition to *lie*, that nobody would believe him, even when by accident he spoke the truth. A lady, who was once a patient of mine, told me that every time she became pregnant she caught herself frequently telling lies, for no end or purpose whatever. I knew a gentleman, with high feelings of honor, who was occasionally in the habit, when under the influence of wine, of pocketing the silver forks and spoons within his reach; you can easily imagine his distress of mind the next day, when he packed up the articles to return them to their owners. From these cases you now see how much the *morale* of every one must depend upon his *physique;* for if I know any thing in the world, I know that attention to corporeal temperature will be found of more avail in mending the morals of some individuals than a well-written homily.

How many pretty things have been said for and against the morality of Suicide! I wish it were always in a person's power to abstain from it But that the disposition to commit it may, like many other bad dispositions, be cured by medicine, I could give you a great many proofs. However, as our time will not now permit me to enter into these subjects so fully as I could wish, I shall content myself with reading to you part of a letter I some time ago received from Dr. Selwyn, formerly of Ledbury, now of Cheltenham. Speaking of Mr. Samuel Averill, of the Plough Inn, Dynock, Gloucestershire, Dr. Selwyn says: "Before he came to me, he had consulted Mr. ———, of Ledbury, and other medical men, to no good purpose, as you can easily understand when I tell you they principally went over the old routine of cupping, purging, &c. Mr Averill's symptoms were depression of spirits to crying—thoughts of suicide, fears of becoming a lunatic, sleepless nights, and, generally speaking, the greatest possible state of mental wretchedness. He passed immense quantities of urine, as pale and pellucid as the water from the pump. Finding no particular organ in a worse state than another, I thought this a good case for your doctrines; and accordingly I rang the changes on the nitrate of silver, strychnine, musk, prussic acid, creosote, iron, quinine, and opium—varying and combining these according to circumstances with valerian, hartshorn, blue pill, &c. In a fortnight you would have been astonished at the improvement effected upon him. In about six weeks more he had no complaint, and he was with me about a month ago, when I considered his cure complete. I have treated a great many cases of Dyspepsia successfully, by attending to the intermittent principle, and I had lately a case of Tic Douloureux, which, after having been under the successive treatment of several eminent practitioners with no perceptible improvement, yielded to the chrono-thermal remedies. The subject of it, Miss T———, was formerly a patient of your own for some other complaint. I still hold that, in chronic diseases, by keeping your principles in view, we have a great help in many of these anomalous cases, which I would defy a nosologist or pathologist to name or classify; and as I am still consulted in such cases, I do not, I assure you, lose sight of them. Often, indeed, when I should, under the scholastic system, have been completely puzzled what to do, I now proceed at once to act upon the intermittent principle, and I have every reason to be satisfied with my success. Believe me, yours faithfully,

CONGREVE SELWYN."

Gentlemen, that the numerous diseases which medical men group together under the head of Dyspepsia, Hysteria, and Hypo-

chondria, are caused by circumstances from without, acting upon an atomic instability of brain within, might be proved by an affinity of facts. But this instability may be produced or rather put in action by different influences in different individuals—one patient being only susceptible to one agent, while another may be acted upon literally by every wind that blows.

General O'Hara, when he commanded the troops on the Mediterranean, was so sensible of the Levant wind, that before he rose in the morning, he knew if it had set in, by the effect it had on his temper; and during its continuance he suffered from a moroseness and irritability no effort on his part could conquer; by his own desire his servants kept out of his way on these occasions. The different effects of the winds on the human system, Shakespeare well knew when he made Hamlet say,

——"I am only mad *north, north-west*,
When the wind is southerly I know a hawk from a handsaw."

And in confirmation of Shakespeare's truthfulness to nature in this as in most of his other observations, Sir Woodbine Parish, in his publication upon Buenos Ayres, tells us that "not many years back, a man named Garcia was executed for murder. He was a person of some education, esteemed by those who knew him, and, in general, rather remarkable than otherwise for the civility and amenity of his manners. His countenance was open and handsome, and his disposition frank and generous; but when the *north wind* set in, he appeared to lose all command of himself, and such was his extreme irritability, that during its continuance, he could hardly speak to any one in the street without quarrelling. In a conversation with my informant, a few hours before his execution, he admitted that it was the third murder he had been guilty of, besides having been engaged in more than twenty fights with knives, in which he had both given and received many serious wounds, but he observed that it was the *north wind*, not *he* that shed all this blood. When he rose from his bed in the morning, he said, he was at once aware of its accursed influence upon him:—a dull headache first, and then a feeling of impatience at every thing about him, would cause him to take umbrage, even at the members of his own family, on the most trivial occurrence. If he went abroad, his headache generally became worse, a heavy weight seemed to hang over his temples—he saw objects, as it were, through a cloud, and was hardly conecious where he went. Such was the account the wretched man gave of himself, and it was corroborated afterwards by his relations, who added, that no sooner had the cause of his excitement passed away, than he would deplore his weakness, and he never rested till he had sought out, and made his peace with those whom he had hurt or offended." The same difference of effect upon individuals may take place from any of the common articles of diet. Dr. Millengen in his Curiosities of Medical Experience, tells us he knew a person who could never indulge in tea without experiencing a disposition to commit suicide, and nothing could arouse him from this state of morbid excitement but the pleasure of destroying something—books, papers, or any thing within his reach. Under no other circumstance than this influence of tea were these fearful alterations observed." Coffee effects many people with fever. But if coffee, tea and other things so apparently trifling sometimes set up severe disorder—things equally trifling will sometimes cure it, indeed there is nothing, perhaps, in the whole history of disease more curious than the readiness with which the paroxysm of many complaints will occasionally yield to measures so simple and so apparently powerless in themselves, that it might almost seem puerile to suggest their application. Who, for example, could, *a priori* suppose it possible to stop a fit of mania with a thread? or who would be believed, were they to tell a person that had never heard the like before, that aches and agues had been cured with a song?—Yet in sober truth, such things have been actually done!

Effect of Ligatures.

Of the power of mere words over the morbid motions of the body, we shall afterwards have occasion to speak. Of the efficacy of a thread or ribbon in arresting the maniacal paroxysm, I shall now give you a striking example. "Mr. R., a chemist, naturally of a gentle disposition, voluntarily claimed admission to a madhouse in the Faubourg St. Antoine, on account of a desire to commit homicide, with which he was tormented. He threw himself at the foot of the altar, and supplicated the Almighty to deliver him from the horrible propensity. Of the origin of his disease he could say nothing; but when he felt the *accession* of the fatal desire, he was in the habit of running to the Chief of the Establishment, and requesting to have his thumbs tied together with a ribbon. However slight the ligature, it sufficed to calm the unhappy R——; though in the end, he made a desperate attempt upon one of his keepers, and perished, at last, in a paroxysm of fury."—[*Annales d' Hygiene*

Publique, et de Medecine Legale.] Now, every man of any information in the profession, knows that the application of a ligature to the arm or leg will frequently stop the commencing ague-fit. Dr. Davis, in his account of the Walcheren ague, tells us that he very often arrested it merely by grasping the leg or arm strongly with his hand. Putting aside, then, all consideration of the remittent nature of the case of homicidal mania I have just read, all consideration of the thermal and other changes which usher in the fit of every maniacal case, you could not fail to find, in the very simple measure which may equally succeed in preventing or arresting the fit of mania and ague, a new bond of connection with which to associate ague and mania together in the same category. But, Gentlemen, these are not the only complaints in which the ligature may be thus advantageously employed. In epilepsy, asthma, and other convulsive affections, I have often obtained the same salutary result by its application. Not very long ago, I happened to be in the room of a medical man, when he was unexpectedly seized with severe cramp in his back and loins. Observing him to become pale and shiver all over, I caught him suddenly by the arm and opposite leg. "My God!" he exclaimed, "I am relieved." And his astonishment was extreme; for immediately afterwards he became warm and comfortable, though for several days previously he had been suffering from cold feet and general malaise. Mania, epilepsy, asthma, cramp, ague, then, completely establish their fraternal relationship by means of the ligature; for had we no other facts, no other bond of association than that which the ligature furnishes us, we should still be led to the irresistible conclusion, that those particular diseases, at least, amid all their apparent diversity, have yet some principle in common which determines their unity. When I come to explain to you the manner in which the ligature acts, you will find that the connecting link of the whole is the Brain. They are all the result of a weak and exhausted state of that organ; but not produced, as the late Dr. Mackintosh of Edinburgh supposed by any Congestion or fulness of its blood-vessels. That, you know, was his doctrine of the cause of ague;—and as he was a very eloquent man, and a very pleasant and gentleman-like person to boot, he made many proselytes to his opinion, not only among his own pupils, who were very numerous, but also among the profession generally. To prove his hypothesis, or dream rather, he was in the habit, first of detailing the "congestion," found on dissection of the heads of persons who had died of the cold stage of ague, and then he appealed to the relief which very often followed the practice of bleeding at the commencement of that stage. "Behold the fact," he would say; "behold how the shiverings cease the very moment you open the vein—what can be a more triumphant answer to the opponents of the lancet!" But mark the fallacy of that fact—mark how the too-confident doctor was deceived by his own practice. The relief of which he boasted, for the most part temporary only—instead of being produced by the very trifling quantity of blood which flowed before such relief was obtained, was in reality nothing more than the effect of the ligature by which the arm was necessarily bandaged for the operation! The late Dr. Parr tells us, that when called to a patient in the fit of asthma, he was in the habit of tying up the arm as if he intended to bleed, but that though he never did more than scratch the skin with his lancet, the fit was at once arrested. But Gentlemen, ague, asthma, epilepsy, nay, every one of the non-contagious diseases to which man is liable, have all been produced by loss of blood. In that case, at least, they must have been diseases of exhaustion, the effects in a word, of diminished cerebral power. But when we come to consider that, in every instance in which the causes of the diseases now under consideration have been known, the Brain has been suddenly and primarily affected—as in the case of a blow, a poison, a purge, a passion, we can be at no loss in forming an opinion as to the real nature of these diseases—they are all the effect of cerebral weakness, and have all more or less analogy to faint. Faint, in fact, may be the premonitory symptom of them all; and the Walcheren ague in particular, generally began with a fainting fit, which faint was sometimes so alarming as to cause the greatest possible anxiety in the minds of the attendants for the immediate result. Now, what is the condition of the body you call

FAINT?

Is it not a state very like death! A person from his brain all at once ceasing to act, becomes instantly pale and pulseless;—the blood, having thus suddenly left the arteries and external vessels of the body, must go somewhere else. Had we never dissected a person who had died of faint, we should naturally expect it to settle in the internal veins; and there accordingly, when we do dissect the bodies of such persons, we do find the greater part of the blood. Now, this was what first misled Dr. Mackintosh. On opening the heads of subjects who had died in the cold fit of ague, he almost inva-

riably found the veins of the brain gorged with blood. This constant Effect of every kind of exhaustion he at once presumed was the Cause of such exhaustion. Gentlemen, he did not know that the very same internal vascular fulness may be seen on opening the bodies of those who died of loss of blood! To prove, however, what I say,—to demonstrate to you that this

CONGESTION,—

this bug-bear of medical quidnuncs—instead of being the invariable cause, is in reality the invariable effect of sudden exhaustion, I shall now read to you one of several experiments in which Dr. Seeds bled healthy dogs to death. The editor of the Medical Gazette will pardon me for reading it from his pages; but as my facts have been sometimes said to be "selected facts," I have at least this answer in store, that, in the greater number of instances, they have been selected from the writings of my opponents.

"All the larger veins of the legs," Dr. Seeds tells us, "were opened in a small Dog. At first the pulse was accelerated—soon after it became slow and languid. The heart's motions though feeble, were never irregular; and indeed, long before death, they could neither be seen nor felt. *Borborygmi* [*flatulent gurglings*] were early heard and lasted a long time. The breathing at first was hurried; soon it became slow and laborious, and at last convulsive. The pupils were frequently examined: they became gradually less and less obedient to the influence of light, and at length ceased to contract altogether. [That is, they became dilated.] Slight spasmodic contractions took place, first in the femoral and abdominal muscles: then the head, neck, and fore-legs, were likewise powerfully affected with spasms, [or convulsions.] At this time a deep sleep seized the animal: he breathed slowly and with difficulty, and, for a little time before death, respiration at intervals was suspended altogether. [All the symptoms of apoplexy!] Whenever the breathing was strong and quick, the pupils recovered their tone, and the blood was more strongly propelled. In an hour death closed the scene." Now for the dissection:—"The Dissection of the Head was first begun. The membranes of the Brain were loaded with turgid vessels, the larger of which were of a very dark color. A bright red spot was observed near the cornua, where some degree of sanguineous effusion had taken place. The sinuses were full of blood. In all the ventricles there was more or less water effused: the base of the brain, and the eighth and ninth pairs of nerves, were inundated with water. A net-work of red vessels was spread round their origins, and the optics were in the same state. In the cervical and lumbar regions of the spinal marrow there was a considerable degree of redness. The right side of the heart was full of blood; the left auricle contained a little. Some blood was found in the large veins, and a few clots in the thoraric aorta. The stomach, and all the intestines were tumid with flatus; the veins of the mesentary were turgid. The turgid state of the veins of the head was very remarkable: indeed, throughout the whole body the veins were tumid."

Now, Gentlemen, if anything in this world could open the eyes of "pathological" professors,—if facts or reasoning of any kind could possibly move those mechanical minded persons, who plan their treatment of living men from what they see on dissecting dead bodies,—this and similar experiments ought surely to do so. For here you not only find dilated pupil, convulsions, deep sleep, slow and difficult breathing, with other apoplectic symptoms, the effect of literally bleeding a healthy animal to death; but, to complete the deception of such as constantly ascribe these phenomena to pressure on the brain, the cerebral and other veins of the same animal were found after death loaded and congested with blood throughout! Nay, in addition there was water on the Brain, with "some degree of sanguineous effusion" even.*

Not long ago, I was shocked with the details of an inquest which took place "before the coroner for Middlesex, Mr. Wakley who is also the editor of the lancet. The inquest, according to the report in that paper was held on the body of a man, who, in the act of disputing with his master about his wages, "turned suddenly pale, and fell speechless and insensible for a time, breathing heavily until his neckerchief was loosed. In falling, his head struck the edge of a door and received a deep wound three inches long, from which blood flowed enough to soak through a thick mat on the floor." Before being taken from his master's shop to his own house, he recovered sufficiently to complain of pain of his head, and this fact I beg you will particularly mark. His wife immediately sent for "a doctor:" and what do you think was the first thing the doctor did,—what can you possibly imagine was the treatment which this wise man of Gotham put in practice the moment he was called

* We constantly hear of children dying of "Water on the Brain." I scruple not to declare, that in ninety-nine of every hundred of such cases, the water in the Brain is produced by the lancet or leeches of the doctor.

to a person who had fallen down in a faint, and who, from injury occasioned by the fall, had lost blood "enough to soak through a thick mat?" Why, to bleed him again! And what do you think was the quantity of blood he took from him? More than three pints! The landlady of the house,—and she was corroborated by other witnesses,—swore that "she thought that about three and a fifth pints of blood was taken besides what was spilt on the floor. The bleeding, she calculated, occupied twenty minutes. The bandage also got loose in bed, and some blood, not much, was lost there before its escape was discovered. He had convulsions on Saturday, after which he lay nearly still, occasionally moving his head. On Sunday he was more exhausted and quiet; in the evening he was still feebler, and on Monday afternoon, at ten minutes to one, without having once recovered his sensibility to surrounding objects, he died." Remember, Gentlemen, he did recover his sensibility after he left his master's shop, and only lost it again on repeated bleeding. And how could he possibly survive such repeated bleeding! That he died from loss of blood, was the opinion of every person who heard the evidence, till the Coroner, luckily for "the doctor," had the corsé opened. Then sure enough, just as in the case of the dog that was bled to death, the internal veins were found to be turgid and congested throughout. Deceived by this very constant result of any great and sudden loss of blood, Mr. Wakley and the jury were now convinced, not that the man had been bled to death but that he had not been bled enough! One of the strongest proofs of bad treatment was thus received as evidence of the best possible treatment under the circumstances, and a verdict pronounced accordingly! That an ignorant coroner and an ignorant jury should be imposed upon in this manner, were nothing very wonderful; but that the Editor of the Lancet, who publishes the case, and who from his position knows every thing going on at the present time in the medical world, should in his capacity of coroner pass over, without a word of reprobation, a mode of practice no conceivable circumstance could justify, only shows the lamentable state of darkness in which the profession are at this very moment on every thing connected with the proper treatment of disease! When St. John Long, or any other unlicensed quack, by an over dose, or awkward use of some of our common remedies, chances to kill only one out of some hundreds of his dupes, he is immediately hunted to death by the whole faculty; but when a member of the profession at one bleeding takes more blood by three times than is taken on any occasion by practitioners who kill their man every day with the lancet; not from a strong powerful man, but from a person so weakly that during the excitement of a trifling dispute with his master, he fainted and fell, and in falling had already lost blood enough to soak through a thick mat; not a word of blame is said! On the contrary it was all right, or if there was any error, it was on the safe side! If such things be permitted to be done in the heart of the metropolis, not only without censure, but with something like praise even, homicide may henceforth cease to be looked upon as a reproachable act.—The only thing required of the perpetrator is, that he should do it under the sanction of a diploma and secundum artem!

But, Gentlemen, to return to Ague, and the other morbid motions which led to this digression. Some of you may be curious to know how so simple a thing as the Ligature can produce such a salutary effect in these disorders. I will tell you how it does this, and the explanation I offer, if received as just, will afford you an additional proof not only that these diseases have all their common origin in the BRAIN; but that they are all the natural consequences of an arrest or other irregularity of the ATOMIC MOVEMENTS of the different portions of that organ; for to the diversity of the cerebral parts, and the diversity of the parts of the body which they respectively influence, we ascribe the apparent difference of these diseases, according to the particular portion of the brain that shall be most affected by some outward agency. Thus, after a blow on the HEAD, or elbow even, one man shall become sick, and vomit, another fall into convulsions, a third shiver, fever, grow delirious, and become mentally insane. In all these diseases the atomic movements of the brain being no longer in healthy and harmonious action, the natural control which it exercised in health over every part of the body, must be then more or less withdrawn from the various nerves through which it influenced the entire economy. The consequence of all this is, that some organs are at once placed in a state of torpidity, while others act in a manner alike destructive to themselves, and the other parts of the body with which they are most nearly associated in function. We find palsy of one organ, and spasm or palpitation of another. In fact, if I may be permitted to use so bold a simile, the various organs of the body, when beyond the control of the Brain, resemble so many race-horses that have escaped from the control of their riders—one stands still altogether, another moves forward in the right course perhaps,

but with vacillating and uncertain step, while a third endangers itself and every thing near it, by the rapidity or eccentricity of its movements. When the atoms of the various parts of the Brain, on the contrary, act in harmony with each other, there is an equally harmonious action of every organ of the body—supposing of course, every organ to be perfect in its construction. Whatever suddenly arrests or puts into irregular motion the whole cerebral actions, must with equal celerity influence the previous motive condition of every member and matter of the body—for evil in one case, for good in another. Were you suddenly and without any explanation to put a ligature round the arm of a healthy person, you would to a dead certainty excite his alarm or surprise. Now as both of these are the effects of novel cerebral movements, should you not thereby influence in a novel manner every part of his economy? How should you expect to influence it? Would not most men in these circumstances, tremble or show some kind of muscular agitation?—their hearts would probably palpitate—they would change color, becoming pale and red by turns, according as the brain alternately lost and recovered its controlling power over the vascular apparatus. If the alarm was very great, the pallor and tremor would be proportionally long. But in the case of a person already trembling and pale from another cause, the very natural effect of suddenly tying a ligature round the arm would be a reverse effect—for if the cerebral motive condition should be thereby changed at all, it could only be by a reverse movement; and such reverse cerebral movement would have the effect of reversing every previously existing movement of the body. The face that before was pale, would now become redder and more life-like; the trembling and spasmodic muscles would recover their tone; the heart's palpitations would become subdued into healthy beats; and a corresponding improvement would take place in every other organ and function of the body. The ligature, then, when its application is successful, acts like every other remedial agency; and a proper knowledge of its mode of action affords us an excellent clue to the mode of action of medicinal substances generally—all of which, as you have already seen, and I shall still further show, are, like the ligature, capable of producing and curing the various morbid motions for which we respectively direct their administration. It is in this manner that every one of the various passions may cause or cure every disease you can name—always excepting, as I have said before, the properly contagious disorders. The Brain, Gentlemen, is the principal organ to which, in most cases, you should direct your remedial means. When a person faints and falls, whatever be the cause of such faint—a blow, a purge, or loss of blood—the first thing to be done is, to rouse the brain. You must throw cold water on his face, put hartshorn, snuff, or burnt feathers to his nose, and a little brandy, if you can get it, into his mouth. You may also slap or shake him strongly with your hand—if you can only make him feel, you will be almost sure to recal him to life; but to think of BLEEDING a person in such a state—ha! ha! After all, this is no laughing matter; for when we see such things done in the nineteenth century, we should rather blush for a profession that would endeavour to screen any of its members from the contempt they merit, when they have so far outraged everything like decency and common sense. The proper treatment of a fit of fainting or convulsion, should be in principle the same as you may have seen practised by any well-informed midwife, in the case of children that are still-born—children all but dead. You may have seen the good lady place the child on her knee and beat it smartly and repeatedly with her open hand on the hips and shoulders, or suddenly plunge it into cold water: now while this is doing, the infant will often give a gasp or two and then cry—that is all the midwife wants. And if you will only follow her example in the case of

INFANTILE CONVULSIONS,—

which, after all, are the very same thing as Epileptic fits in the adult,—you will often succeed in substituting a fit of crying, which I need hardly say, is attended with no danger at all, for a spasmodic fit, which, under the routine treatment, is never free from it. Only get the child to cry, and you need not trouble yourself more about it,—for no human creature can possibly weep and have a convulsion fit of the epileptic or fainting kind at the same moment. Convulsive sobbing is a phenomenon perfectly incompatible with these movements--for it depends upon a reverse action in the atoms of the brain. The only thing which may prevent some of you from doing your duty on such occasions, is the fear of offending an ignorant nurse or mother, who will think you a monster of cruelty for treating an infant so. Gentlemen, these persons do not know how difficult it is to get a child in convulsions to feel at all;—and in proof of this, I may tell you, that such slaps as in a perfectly healthy child would be followed by marks that should last a week, in cases of this description leave no mark whatever after the paroxysm has ceased. During the fit, the child is so perfectly insensible as to be

literally all but half dead. Now this brings to my mind a case of infantile convulsions, in which I was gravely requested to meet an old woman in consultation—a nurse or midwife, I forget which, who being much with children, must necessarily be wonderfully clever in the cure of their diseases. You smile, doubtless, that I should be asked to do any thing of the kind; but it was in the case of the child of a relative; and relatives, you know, sometimes take strange liberties with each other. Still it was not altogether to tell you this, that I reverted to the case in question—it was, on the contrary, to show you what a wise person she proved, the female doctor who, on this occasion, was proposed for my coadjutor. On being asked by the mother what should be done in the case of a return of the convulsion fits, the old lady answered, "Oh madam, you must let the child be very quiet and not disturb it by noises or any thing of that sort!"—which sapient advice I have no doubt was found one of the best antidotes in the world to a state in which, if you were to roar till your lungs cracked, you could not by any possibility make the subject of it hear at all.

What is the present routine treatment of an infant taken with convulsion fits? That I can scarcely tell you; but when I settled in London, some four years ago, the Court doctors, who, of course, give the tone to the profession in the country, had no hesitation in applying all at once the Eight lancets of the cupping instrument behind the ear of infants under six months old,—and that, in some cases, repeatedly! In addition, they were in the habit of leeching, purging, and parboiling the poor little creatures in warm baths! If mothers will really suffer their children to be treated in this manner, surely they only deserve to lose them. The strongest and healthiest child in existence, far less a sick one, could scarcely survive the routine practice. But whether you believe me or not, there is nothing more true than what the Duke says in the play of *The Honeymoon*, such fits are

> ——seldom mortal,
> Save when the doctor's sent for.

In the case of adult epilepsy, especially at the commencement of the fit, a very little thing will often at once produce a counter movement of the brain sufficiently strong to influence the body in a manner incompatible with its further continuance. The application of so simple a means as the ligature may then very often do this at once; but, like every other remedy frequently resorted to, it will be sure to lose its good effect when the patient has become accustomed to it; for in this and similar cases, every thing depends upon the suddenness and unexpectedness of the particular measure put in practice whether your influence the brain of a patient in a novel manner or not. The sudden cry of "fire" or "murder," nay, the unexpected singing of some old song, in a situation, or under circumstances which surprised the person who heard it, has charmed away a paroxysm of the severest pain. In the army, the unexpected order for a march or a battle will often empty an hospital. The mental excitement thereby produced, has cured diseases which had baffled all the efforts of the most experienced medical officers. In the words of Shakspeare, then, you may positively and literally

> Fetter strong madness with asilken *thread*;
> Cure ache with *air*, and agony with *words*!

Suggestions relative to the cause of sleep.

By William Smith, Esq. Surgeon, Clifton.

Sleep appears to depend on a retardation of the circulation through the brain, thereby producing a venous condition of the blood in that organ, and this diminished or retarded circulation may probably depend on a periodic exhaustion of the propelling powers of the heart. The proofs of the first portion of this proposition are many, and I think satisfactory.

First. Venous congestion of the brain, from any obstacle to the return of the blood will produce drowsiness, stupor, coma, and finally, apoplexy, if its intensity be sufficiently great.

Second. In sleep, respiration and circulation are performed more slowly than in the waking condition: hence a change in the blood of the brain does not occur so frequently.

Third. Animal heat, and its causes, respiration and circulation, are feeble in hybernating animals during their winter sleep.

Fourth. The adult, in whom the respiratory and circulating systems are at the maximum of developement, takes less sleep than the infant, in whom the nutritive or glandular system is in full activity, but in whom the respiratory functions are at their minimum.

Fifth. Motion, with its tendency to increase circulation and respiration, prevents sleep.

Sixth. Hence an easy and quiet position of the body, and all the means which tend to favor a tranquil circulation, are incentives to sleep.

Seventh. Hence the whole class of sedatives

tive remedies eventually produce slowness of the heart's action after a longer or shorter stage of stimulation.

Eighth. Hence the desire of sleep after exercise, as the circulation becomes so much slower after, in proportion to its acceleration during it.

Ninth. From the same cause, wine and all stimulants act primarily as excitants; and when their stimulation has subsided, the circulation becomes slow, slightly oppressed, and drowsiness supervenes.

Tenth. The same may be said of the warm bath, the pulse at first rising, and subsequently becoming retarded.

Eleventh. Cold, applied to the head, rapidly lessens the circulation, and tranquil sleep is sometimes produced by this means in fierce delirium, and in violent paroxysms of insanity.

Twelfth. Motion is employed as a remedial means in obviating the effects of opium. We walk the patient about, and so keep the circulation excited, till the poison is got rid of, or its effects shall have passed off.

Thirteenth. Intense cold produces slow and retarded circulation, drowsiness, and coma. Hence the necessity not to allow persons exposed to its influence to cease from exercise, which supplies the necessary stimulation to the circulation. A celebrated surgeon, in describing the disastrous retreat from Moscow, says "those who sat down went to sleep, and those who slept, awoke no more."

Fourteenth. Hence the amount of fat animal food which is not only eaten with impunity by those who are exposed to great cold, but is found to be absolutely essential to maintain the proper amount of circulation.

Fifteenth. We have sneezing and yawning as important illustrations of the effect of an accelerated circulation in preventing sleep. The sneeze is a forcible expiration, after which a deep breath is taken in: this of course, produces arterialization and subsequent circulation of the blood. Yawning is a prolonged and deep inspiration, and in the same manner has the effect, for a time, of keeping up the attention, by furnishing to the brain a fresh amount of arterialized blood.

Sixteenth. Immersion in an atmosphere of carbonic acid, or in an atmosphere which contains a large proportion of it, will produce drowsiness, coma, and the sleep of death.

Seventeenth. Breathing oxygen gas, on the contrary, will produce acceleration of the pulse, and all the vital functions, and eventually delirium.

Eighteenth. In delirium, whether attended with symptoms of power or debility, whether of the sthenic or asthenic type, we have an accelerated pulse. In the former case, as we lessen the excitement by depleting measures, and in the latter, or true delirium tremens, as we obtain the same end by the use of narcotics, sleep gradually steals on the patient, and delirium ceases.—In fact, our grand object is to lessen the rapidity of the circulation through the brain, and thus induce sleep.

I trust that these very imperfect remarks may call the attention of the readers of THE LANCET to this most interesting subject, and tend to elicit more observations on a point which, being closely connected with health and disease, is peculiarly worthy of investigation. *Lancet.*

SURGICAL DISEASES.

Dr. ALFRED AUGUSTUS HARVEY, M.R.C.S.E., and formerly surgeon in the Hon. East India Company's Service, has forwarded to us for publication, the following account of the mode of procuring a radical cure for HYDROCELE, without injection, employed by him, at intervals, for thirty years, successfully:—First, discharge the fluid with a trocar, or pocket lancet, and then apply a warm vinegar poultice all over the scrotum, in order to bring on inflammation, which generally takes place in a few hours, and becomes painful. When sufficient inflammation has been excited, remove the vinegar poultice, and apply a bread-and-milk poultice. In a short time, the pain and inflammation generally subside, and the cure is completed. Give a few smart doses of purgative medicine. Dr. Harvey adds the subjoined:

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

FISTULA IN ANO (blind external) can often be cured without cutting, by injecting alcohol the whole length of the sinus, three or four times a-day, until it brings on inflammation; when that takes place, the cure is generally completed in a short time. In

full habits, bleeding by the arm should be practised, if required, and the bowels opened pretty freely, before the alcohol is injected. Should the inflammation become too severe, it should be regulated by poultice or cold-water dressings, and low diet should strictly be attended to. *Lancet.*

The Gastric Fluid, its nature and properties.

M. Blondlot has recently published in Paris a treatise on digestion, detailing very numerous experiments made upon a dog, in which a fistulous opening into the stomach was maintained for upwards of two years. The gastric juice was obtained in very large quantities. Submitted to distillation, the fluid passing over did not exhibit the slightest acid re-action, whilst the residue in the retort was always strongly acid. It is therefore certain that the acid of the gastric fluid is neither hydrochloric nor acetic acid, since both these are volatile. The gastric fluid of other animals gave the same result on being distilled. When chalk or any other carbonate of lime is added, no effervescence ensues, which further proves the acid not to be the lactic. M. Blondlot concludes, that the acid re-action of healthy gastric juice is owing to the presence of superphosphate and biphosphate of lime. He adds, 1st. "That there is no other acid which can remain acid, and fail to decompose carbonate of lime. 2nd. That sulphuric acid, added to gastric juice, precipitates an abundance of sulphate of lime, and oxalic acid precipitates oxalate of lime. 3rd. Potass, soda, ammonia, and lime water, produce abundant precipitates of neutral phosphate of lime. 4th. The calcined ash of gastric juice is not deliquescent, dissolves without effervescence in hydrochloric acid, forming chloride of calcium, it therefore contains neutral phosphate of lime, the excess of acid being drawn off in the calcination.

M. Blondlot also made many experiments, to determine whether, during digestion in the healthy stomach, lactic acid is formed by the transformation of sugar, starch, or other substance, and his conclusion is, that it is never found. He could never find even a trace of it, although he analysed the fluid expressed from the contents of the stomach, after remaining on the stomach various periods. He conceives that the acid of the gastric juice prevents the lactic acid fermentation, just as other acids are known to do under other circumstances. In confirmation of this, M. Blondlot relates many experiments upon birds and ruminating animals, which shew that the formation of lactic acid in these creatures takes place only in those parts of the alimentary canals where no acid is present—namely, in the crop of birds, the first and second stomach of ruminants, and the cœcum of man, and other animals. He first proves that the acid found in these cavities is not secreted by their walls. Feeding sheep, goats, chickens, and pigeons, on food destitute of sugar, and examining the fluid found in the cavities mentioned, he found it invariably alkaline. On the other hand, the addition of sugar to the food produced an acid fluid in the same cavities which proved to be the lactic. The contents of the cœcum are not more acid than those of the small intestines, except sugar has been taken in the food; but when sugar has been taken, it undergoes the lactic fermentation in the cœcum. These experiments agree with those of Mr. Ross, published in THE LANCET for January and February, 1844. Tiedemann and Gmelin found acid in the crop of a pigeon, which had fed for several days on nothing but meat; but this, as M. Blondlot shews, probably had regurgitated from the stomach—an accident requiring precautions to prevent, after death.

M. Blondlot believes that the digestive property of gastric juice depends, not on its obvious chemical constitution, but upon a peculiar organic principle. If exposed to a temperature of 104° to 122° F., or higher, it loses entirely and irrecoverably its digestive powers, although to all appearance, and even as to its composition, as made known by analysis, it remains unchanged. With the exclusion of the air, gastric juice may be kept for two years without loss of its activity; but with the free access of air, it putrifies in five or six days, although the chyme which it forms from nitrogenous organic substances may be preserved for two or three months without change. The precipitation of all the lime it contains does not affect its activity, nor are its chlorides indispensable, but whatever acts upon its organic constituents, heat, strong alcohol, or strong acids, or which removes them, such as animal charcoal, chlorine, tannic acid, or acetate of lead, destroys all its digestive properties.

M. Blondlot also shews—A. That coagulated albumen resists the action of the gastric juice only from its compact form. When coagulated in very small particles, as white of egg beaten into a froth and poured into boiling water, it is digested as quickly as soft fibrine. B. That the action of the stomach in coagulating milk is not due to its digestive principle solely, but to its acid, which acts like lactic acid. C. The effect of the gastric fluid upon bones, whether entire

or not, is to disintegrate the animal matter slowly, beginning at the surface, and to reduce the earthy matter into a fine chalky powder, but without dissolving or decomposing it. The earthy matter not being dissolved, proves that no hydrochloric acid has acted upon it, but it all is discharged with the fæces.

The physiological results of M. Blondlot's experiments confirm those of M. Beaumont, which are already familiar to our readers.—*Lancet.*

Indian Hemp in Traumatic Tetanus.

By H. G. Potter, F.L.S. Surgeon to the Newcastle Infirmary, and Lecturer on Surgery, at the Newcastle-on-Tyne School of Medicine and Surgery.

Though the attention of the profession has been frequently directed to Indian hemp as a medicinal agent in the treatment of spasmodic affections, I believe that its powers are not yet sufficiently appreciated. If, therefore, you will allow me a small space in your valuable publication, I will mention a case in which I lately tried this medicine with marked good effect. A young man while engaged at his work, Oct. 29, 1844, became entangled in the belt which moved a large wheel, and thus received a severe laceration on the upper part of right thigh, exposing the femoral vessels. He also received several other injuries. He was immediately brought to the Newcastle Infirmary, when the usual treatment, in such cases, was adopted. The case proceeded most favorably until the twelfth day, when symptoms of tetanus appeared. A large dose of calomel and Dover's powders was then given, and as no good effect followed, I ordered him to have ten grains of extract of Indian hemp, and to repeat the same dose every two or three hours, if required. I saw him again in a few hours, and finding that his bowels had not been acted upon by some purgatives he had taken, ordered two drops of croton oil to be placed on the tongue, and the following injection:—Tobacco leaves, one scruple; boiling water, eight ounces: macerate; strain for an enema. These produced free action in the bowels.

In consequence of the difficulty in swallowing, I determined to give the extract in the form of injection, and therefore ordered him to have the following enema every two hours: Extract of Indian hemp, one scruple; strong beef-tea, six ounces; mix. This was done, and the injections retained. No violent spasmodic actions took place, but the back became gradually more and more arched, so that it was necessary to place a pillow beneath. The extract did not cause any marked symptom of intoxication, though it evidently produced, at intervals, calm sleep.

Without suffering any pain, the disease gradually progressed, death taking place on the fourth day after symptoms appeared.

In this case, four drachms and two scruples of the extract were administered, and to the action of this medicine I attribute the freedom from pain and *clonic* spasm, which surely is sufficient to induce any one to give this remedy a full trial in so fearful a disease.

Before I conclude, it may be well to mention, that no abnormal appearances were detected at the post-mortem, to throw any light on the pathology of this disease.—*Lancet.*

A New Preparation of Cinchona Bark.

Mr. M. Donovan, of Dublin, has collected a considerable amount of evidence from numerous medical authors, tending to prove that the alkaloids of the barks, quinine, cinchona, &c., are not the only constituents which give those barks their medicinal properties, but that their anti-periodic efficacy depends, in part, upon other ingredients, and much upon the combination in which the alkaloids are found in the natural state of the bark. The sulphate of quinine is, at present, the form most commonly employed but many authorities are adduced by Mr. Donovan, to shew that it cannot in all cases be depended on.

Under the impression that these preliminary points are proved, Mr. Donovan proceeds to relate his experiments, made with the view to obtain an agreeable preparation containing all the virtues of the bark in a small bulk. "Hitherto," he says, "there has been no way of exhibiting bark in its full powers, except in the state of powder which, to most persons, is so disgusting a dose that it is rarely prescribed." The following is the preparation which he conceives accomplishes the purpose:—

Let eight ounces of yellow bark, in coarse powder, be digested with a pint of proof-spirit for a week, in a close vessel, with frequent agitation. The tincture is to be fully extracted by the screw-press; the residum is to be digested with another pint of proof-spirit for a week, and the tincture again expressed. The residum is now to be boiled for half an hour with a pint of water, and the decoction strongly pressed out. The boiling of the residum a second and third time, with a new pint of water is to be performed in the same manner, and then the three decoctions, mixed, are to be evaporated by heat to eight ounces. It will be much

the better if this be done in a vacuum. The tinctures, mixed, are to be distilled or evaporated until eight ounces remain; and these, still boiling hot, are to be added to the evaporated decoction. A pint of liquid will thus be produced, the chief ingredient of which is dikinate of quinina.

To this liquid add 315,31 grains of dinoxalate of quinina, and boil for a few moments; then add 21 troy ounces of refined sugar, and four ounces of best gum arabic, both in powder, and previously mixed. The whole is to be kept stirring until solution is effected, and if the resulting syrup, when cold, does not amount to 32 ounces by measure, water is to be added to make up that amount. When cold, filter through flannel.

In each ounce of this syrup there will be 16 grains of anhydrous dikinate of quinina. This syrup is twenty-five times stronger than the decoction of bark.

It remains to offer a few suggestions relative to the pharmaceutical employment of this syrup. In general it may be used in any mixture of compatible liquids, when the powers of bark are required, and when the other liquids are already sufficiently voluminous, and would be altogether too bulky if decoction of bark were employed. Thus, in the simultaneous exhibition of decoctions of bark and sarsaparilla, in equal quantities the smallest efficient dose of the mixture is six ounces three times a day. By altering the formula to fifteen and a half ounces of decoction of sarsaparilla, and five and a half drachms of syrup of bark, the same powers are exhibited in half the foregoing bulk.

The following contains all its energy in a state of perfect development and activity, and is a pleasant carminative tonic:—

Cinnamon water, six ounces and a half; syrup of bark, half an ounce; compound tincture of bark, an ounce. An ounce measure of this mixture is equivalent to thirty-six grains of bark in substance.

When bark and iron are indicated, the following is the formula in which the least chemical action takes places between the tannin and the iron, as no discoloration appears for several days:—

Precipitated carbonate of iron, syrup of bark, of each an ounce. Mix. Dose, the size of a small nutmeg.

The strength of this syrup is such, that one drachm is a full dose, either by itself or in water. Aromatics, such as anise or fennel, are said perfectly to mask the bitterness of preparations of quinina. M. Pierquin says that thirty-two grains of carbonate of magnesia conceal the taste of six grains of sulphate of quinina, without interfering with its virtues.

To conclude: this preparation of bark seems deserving of the attentive consideration of physicians, as it contains all that is valuable in that medicine, in a state of perfect preservation and full energy. It presents the active ingredients exactly in their natural state, which good judges have declared to be in many forms of disease absolutely necessary. It contains nothing but what is an unaltered proximate principle of bark. The form is commodious, not liable to spoiling, is less disagreeable than any other, and may be rendered even agreeable.—*Pharm. Journal.*

Adulteration of Sulphate of Quinine, and a Method of detecting it.

The suphate of quinine of commerce is very frequently adulerated with salicine. If the proportion of the latter alkaloid present be half, or even one-fourth, the fraud may be detected by the addition of concentrated sulphuric acid, which produces, with salicine, a characteristic red color. But if no more than a tenth of salicine is mixed with the sulphate of quinine, this red color is not developed by the addition of sulphuric acid. In order to detect the presence of salicine in this or less proportions, this alkaloid must be isolated. For this purpose, take three or four grains of the suspected sulphate of quinine, and pour on it about six times its weight of concentrated sulphuric acid, which dissolves the salt, and, if salicine be present, forms a solution of a brown color, just like sulphuric acid soiled by some vegetable matter. To this add carefully and gradually some distilled water, until a white precipitate appears. This will probably be salicine, which will not dissolve in a moderately dilute acid solution of sulphate of quinine. Filter the liquid, and collect the precipitate on a watch glass, and it will now produce, upon the addition of concentrated sulphuric acid, the bright-red color characteristic of salicine. If too much water be added, the precipitate will dissolve, and only a loose gelatinous precipitate will form, very difficult to separate. *Journal de Chemie Medicale.*

Epidemic Cholera treated by Transfusion.

In a preceding number of the same journal, several extraordinary cases of recovery from the late epidemic cholera thus treated by Mr. Torrance, are recorded. The fluid injected consisted of—Muriate of Soda, 2 drachms, carbonate of soda, 2 scruples, chloride of potassium, 7 grains, water (temperature 96°,) 2 quarts. Of this solution, as many as 10 quarts were, in some instances, injected into the system, at intervals, during 28 hours!—*Lancet.*

Miss Martineau's repudiation of Mr. Greenhow's Report.

It will be remembered that when inserting our analysis of the pamphlet of Mr. Greenhow, describing the medical facts of the case of his sister-in-law, Miss Martineau, we stated that they had been published by that gentleman, with the full assent and approval of the lady. But it appears from a letter of Miss Martineau, published in *The Observer*, London newspaper, of Sunday last, that Mr. Greenhow, in supposing that he had obtained the consent of the patient, labored under a "mistake;" and the same letter informs us that Miss Martineau considers it to be "impossible for her to remain under the supposition of concurrence" in the publication. She admits, however, that in "the writing and the reading" of the communications which passed between her and Mr. Greenhow on the subject, she is not much surprised that he should have been thinking of one thing and speaking of another. Miss Martineau says, "I have not seen the report, of course, and it was in circulation, I believe, ten days before I received that shock of painful amazement which your declaration occasioned. I understand the matter thus:—You told me that certain attacks on you by some members of your profession would compel you to report the case, *professionally*, in self-defence. By a strong effort I abstained from the slightest expression of my natural reluctance. This respect for your liberty of professional self-defence seems to have been understood by you, not merely as acquiescence but participation. In reply to a note from you, I wrote the following note, which you interpreted (I cannot conceive how) as not only concurrence but as permission to use my name as your sanction:—'I have no right or wish to give any opinion whatever. In fulfilling my personal obligations to truth and science, I have no other wish than that everybody else should do what he believes to be most right. This was one mistake on your part; another arose from a similar misapprehension. Being aware that an account of my recovery by mesmerism must appear, I proposed that you should transmit to the recorder of my recovery, for his private reading, your view of the case, in order that you might have no cause of subsequent complaint of misrepresentation. My note was as follows:—'Dec. 6th, I said send him your statement, doing, I trust, full justice to your excellent temper in the matter. Keep in mind two essential things—that whatever is said about the various disputes attributed to me is pure invention on the part of those who know nothing of the matter; and also that I may have my sense of duty about communicating the benefits I have received from mesmerism.' In July you were so struck as to write to me, 'I cannot but feel a great respect for the influence, whatever it be called, which has so improved your condition.' Your reply was—'As it becomes more and more evident that I must soon lay before the profession a complete report of your case, I must decline furnishing it, in the meantime, to any individual.'

"On this I remarked that your published report would answer all the purposes of a private statement to the recorder of my mesmeric recovery. Of all conceivable ideas, the last I could have found would be that of being made in any degree responsible for the issue of a shilling pamphlet of the kind that I am told yours is. A professional man may be enabled to understand the shock caused by such an act; but I must lament the misapprehension which has caused you to answer for any one but yourself. As a mistake, however, I take leave of it, and shall forget, as soon as possible, the painful occasion of this explanation."

It will now be seen, that Miss Martineau's physician, Dr. Greenhow, was compelled to draw up and publish an erroneous history of her case, to appease the agony of a portion of the medical profession, opposed to innovations or improvements in the theory and practice of the old astrological schools in which they were educated, and known under the familiar appellation of "Old Ladies in Breeches."

ACADEMIE DES SCIENCES.

Researches of MM. Andral and Gavarret on the Composition of the Blood.

MM. Andral and Gavarret have communicated the results of their further researches on the composition of the blood in disease. These researches tend still more to confirm the law which they previously found to exist with reference to the increase of fibrin in inflammatory diseases, and its decrease in adynamic. In four cases of acute meningitis, free from complication, which terminated fatally, (a malady that they had not yet been able to study under this point of view,) the blood drawn from the first bleeding did not present more fibrin than in the natural state. As the symptoms became more decidedly inflammatory, the quantity of fibrin increased from two-eighths to three-fourths, and at last to five-fourths; so that even before the

nature of the symptoms had clearly announced the transformation of a simple continued fever into inflammation of the meninges, the increase in the quantity of the fibrin contained in the blood forewarned it, constituting the first evidence of its manifestation: in these four cases of meningitis, the autopsy rendered it possible to appreciate, to their full extent, the changes which took place in the meninges and encephalon.

In several cases of saturnine epilepsy, the quantity of fibrin was normal, a circumstance which corresponds with our idea of the disease. In a case of jaundice, with pain in the right hypocondrium, tumefaction of the liver, and febrile re-action, the quantity of fibrin had increased: as, also, in women who presented, several months after delivery, the symptoms of a slight degree of inflammation of the uterus, and of the annexed organs; in a case of phlegmon of the right iliac fossa, which appeared on a woman delivered a few weeks previously; in a paralytic female, when an eschar, that had formed on the sacrum, separated; and lastly, in a case of erythema nodosum.

In forty cases of typhoid fever, free from complication, the quantity of fibrin always remained below four, and lowered even as far as two and one. In these forty cases there was a complete analogy between the diminution in the amount of fibrin and the adynamia.

The blood of a person who died from purpura hæmorrhagica, only contained 0.9 of fibrin, and there was only 0.6 in the blood of a man of fifty years of age, who, whilst being treated at the Charite, for cirrhosis of the liver, accompanied by its ordinary symptoms, all at once fell into a state of extreme prostration, with fever and delirium. When the bodies of these two patients were opened, the only anatomical data which had any reference to the last symptoms which they presented, were a liquid state of the blood in the heart and the large vessels, and ecchymoses in different parts of the sub-serous and sub-mucous cellular tissues.

The above results, substantiating the previous researches of MM. Andral and Gavarret in every respect, they are inclined to think that the examination of the varying proportions of the fibrin of the blood in certain diseases, may be of great use to determine the nature of disease, and to assist diagnosis.

MM. Becquerel and Rodier have likewise presented to the Academy an analysis of researches similar to those of M. Andral.—They have arrived at precisely the same results. Bur they have also ascertained two new facts: Firstly, that the proportion of cholesterine increases in the blood from forty to fifty years of age, as well in woman as in man. Secondly, that the proportion of this substance increases along with that of the fibrin in inflammatory diseases, whereas, on the contrary, the albumen diminishes.

On the Degeneresence of Vaccine Matter.

M. Viard has been performing comparative experiments in order to ascertain the differential characters of the developement, progress, and duration of the eruption of the vaccine matter taken from the cow in 1836 and 1844. The following are the conclusions at which he has arrived: It is not, as is generally supposed, in the degree of development of the vaccinal postules on the eighth or ninth day, that we must look for the degeneresence of the vaccine matter; but in the progress, and more especially in the duration, of the eruption, which diminishes progressively. In 1836, the vaccine of Jenner, after nine and thirty years sojournation in the economy of man, gave rise to postules which, on the twelfth day were perfectly dried; whereas postules, originating from vaccine matter taken from the cow that year, dried only on the seventeenth day. At present, the vaccine of 1836 dries on the thirteenth or fourteenth day; whereas that recently taken from the cow (1844) only dries on the seventeenth. Thus, in sojourning eight years in man, the vaccine of 1836 has decreased in its power of keeping up the eruption. M. Viard consequently concludes that vaccine matter should be procured fresh from the cow every five or six years.

Lancet.

The Sex of the Child as a Cause of Difficulty and Danger in Human Parturition.

Professor Simpson announces, and very adequately supports, the following propositions in the last number of the Edinburgh Medical and Surgical Journal:—

1. "Of the mothers that die under parturition and its immediate consequences, a much greater proportion have given birth to male than female children."

2. "Among labors presenting morbid complications and difficulties, the child is much oftener male than female."

3. "Amongst the children of the mothers that die from labor or its consequences, a larger proportion of those that are still born are male than female; and, on the contrary, of those that are born alive, a larger proportion are female than male."

4. "Of still-born children a larger proportion are male than female."

5. "Of the children that die during the actual progress of parturition, the number

of males is much greater than the number of females."

6. "Of those children that are born alive, more males than females are seen to suffer from the morbid states and injuries resulting from parturition."

7. "More male than female children die in the earliest periods of infancy; and the disproportion between the mortality of the two sexes gradually diminishes from birth onwards till some time subsequently to it."

8. "Of the children that die in utero, and before the commencement of labor, as large a proportion are female as male."

9. "Of the morbid accidents that are liable to happen in connexion with the third stage of labor, as many take place with female as with male births.

10. "The average duration of labor is longer with male than with female children."

11. "More dangers and deaths occur both to mothers and children in first than in subsequent labors."

The number of facts which Dr. Simpson brings forward in support of his views, extends his communication to a great length. The subject is treated with characteristic ability, and those for whom it has an interest will here find a fund of valuable practical information. The author concludes with the following startling announcement:—

"The official returns of the mortality of England and Wales have only, as yet, been collected for somewhat upwards of seven years—viz: from 1st July, 1837, to the present date. If the calculations we have already given are accordant with truth, (and we believe them to be much within the limits,) there have been lost in Great Britain, during that limited period, as a consequence of the slightly larger size of the male than of the female head at birth, about 50,000 lives, including those of about 46,000, or 47,000 infants, and of between 3000 and 4000 mothers who died in childbed. *Lancet.*

Illustrations of the Importance of Ventilation.

Mr. Squire, in the last month's number of the Pharmaceutical Journal, gives the following

"The usual argand gas-burner consumes about five cubic feet of gas per hour, producing rather more than five cubic feet of carbonic acid, and nearly half a pint of water.

"Shops using thirty of these lights, therefore, in an evening of four hours, produce upwards of nine gallons of water, holding in solution the noxious products of the gas.

"An argand lamp, burning in a room twelve feet high and twelve feet square, containing 1728 cubic inches of air, with closed doors and windows, produces sufficient carbonic acid, in rather more than three hours, to exceed one per cent., which is considered unfit for respiration, and when it amounts to ten per cent., it is fatal to life.

"A man makes on an average, twenty respirations per minute, and at each respiration inhales sixteen cubic inches of air: of these 320 cubic inches inhaled, thirty-two cubic inches of oxygen are consumed, and twenty five cubic inches of carbonic acid produced."

On the use of the Thymus Gland.

"Dr. Picci, after glancing at the theories of his predecessors, suggests that the use of this gland is chiefly of a mechanical nature—viz: to occupy a certain space within the thoracic cavity, while the lungs remain unexpanded in the fœtus; and thus to prevent the ribs and sternum from falling in too much upon these vital organs. The size of the thymus is inversely as the volume of the lungs; and, when the latter become dilated after birth by the admission of air into their cells, the former immediately begins to shrink and become atrophied. In truth, it is only in the adult that the thoracic parietes are moulded completely upon the lungs; for, in infancy and youth, it is rather the thymus gland that is, in their place, moulded upon the thorax.

"The situation of this gland in the anterior mediastinum, and along the median line, the very nature of its tissue, and the greater expansion and developement of its inferior half, are adduced as arguments in favor of the opinion now adduced. Besides the well known circumstance that, in those newborn children in whom the thorax is very largely developed, the thymus continues to increase gradually even to the end of the second year, it deserves notice that all those animals, in which the lungs are similar to those in the human subject, are provided with this gland; whereas, we fiud it to be entirely wanting in those which breathe by branchiæ, or membranous lungs. In hybernating animals, also, the thymus exhibits alternations of enlargement and decrease, according to the state of the respiratory organs. In the amphibia it attains its maximum of development."

"The circumstance, too, of the gland being usually rather larger than ordinary in phthisical patients, may be mentioned as lending some probability to the view proposed."—*Med. Chir. Review.*

Galvanism applied to the treatment of Uterine Hæmorrhage, etc.

Dr. Radford says that he has pursued this practice with great success, in cases of haemorrhage, accidental or unavoidable, accompanied by exhaustion, and occurring before, during or after labor. He adds—

"I am satisfied, from positive trial of the remedy, that it will be found a most important agent in tedious labor, depending upon want of power in the uterus, and where no mechanical obstacle exists. I would also suggest the probability of its proving valuable in originating uterine action de novo, in cases where it may be considered necessary, to induce premature labor. It seems to me also to be worthy of trial in certain cases of menorrhagia in the ungravid state, where, on vaginal examination, the uterus is found to be atonic, as evidenced by its large flaccid condition, and the patulous state of the os uteri."

The remedy is thus applied :—

"The brass ball of the vaginal conductor is to be passed up to the os uteri, at intervals, on to various parts of this organ; at the same time, the other conductor must be applied to the abdominal parietes over the fundus uteri. Shocks may be also passed transversely through the uterus, by simultaneously applying the conductor on each side of the belly.

"The application should be used at intervals, so as to approximate in its effects, as nearly as possible, to the natural pains. It may be continued until it meets the exigencies of the case."—*Lancet.*

In the same journal, Dr. Radcliff Hall recommends

The Use of Chloride of Lime in Diseases attended with Contagious Discharge.

"Gonorrhœa.—In the first stage, before the discharge has become completely puriform, or the scalding great, a single injection of about two fluid drachms of the strong solution will always put a stop to the disease, either in a first or subsequent clap. In the second stage, when there is considerable discharge of pus, and more pain, several injections are required. In gleet, provided the discharge be not kept up by some structural change in the urethra, the strong injection is likewise useful, but not to so striking an extent. The effects of injecting the strong solution are, sharp pain, and often erection for the moment, slight puffiness and eversion of the orifice of the urethra, and tenderness on pressure, and a feeling of unusual firmness for two or three inches down the corpus spongiosam, where these did not already exist. In a short time, the pain subsides, and in a quarter or half an hour, a serous discharge issues from the mouth of the urethra."

Purulent Ophthalmia, Dr. Hall has treated with like success. He thus uses the solution :—

"The eyelids are slowly and gently separated until the cornea can be seen, when that is manageable, and all secretion is wiped away with a fine soft sponge. A large bushy camel-hair pencil, charged with the strong solution, is then insinuated beneath the upper eyelid and swept round the front of the eye; the pencil is again charged with the solution and applied to the everted lower lid. Unless plenty of the fluid be thus applied, the application will be equally painful but less effectual. There is considerable pain, of a smarting, burning character, for half an hour or longer, and the already swollen eyelids become still more tumid and prominent. This tumefaction is œdamatous in character, the skin losing in some measure its peculiar redness, and becoming more transparent. In a few hours, a serous discharge oozes out from between the eyelids, and the swelling partially subsides. This is followed by secretion of matter, but after two or three applications of the chloride, in perceptibly diminished quantity, the discharge gradually loses its characteristic yellow color, and is seen in flakes on opening the eyelids. After three or more applications, the eyelids no longer swell as they did after the first, and the pain is much less. The eyes are kept clean with warm water, matter never being suffered to collect beneath the upper lid; a little spermaceti ointment is smeared on the edges of the eyelids, and the strong solution is applied once in every twenty-four hours, until the secretion ceases to be in the least degree puriform. No other treatment whatever is necessary."

Contributions to the Diagnosis and Pathology of Chest Diseases.

Under this title Mr. Mac Donnell offers some valuable facts and observations in the last number of the Dublin Journal. At page 74 of the Lancet for April, 1844, we gave an analysis of an essay, by the same Gentleman, on the "Diagnosis of Empyema." Of this form of disease his present communication affords another example. This case is chiefly remarkable for the close resemblance which it presented in its origin, in its general symptoms, and in many of its physical signs to tubercular consumption. There were present, emaciation, purulent expecto-

ration, hectic fever, mucous rales at the apex of the affected side of the chest, and various other signs, which would at once have led a superficial or ignorant inquirer to arrive at the most unfavorable prognosis. A sound knowledge of the phenomena of chest pathology discovered, however, sufficient grounds for a different conclusion, and the disease was pronouced to be Empyema. The progress of the case, and the final recovery of the patient, afforded the most satisfactory evidence of the accuracy of this opinion.

On the history of this, and of eight other cases of empyema, the author founds the following proposition:—

"That purulent expectoration in empyema, though attended by quick pulse, sweating, emaciation, and other hectic symptoms is not indicative of tubercular or pneumonic abscess, unless accompanied by unequivocal physical signs of these lesions; but, on the contrary, it is to be regarded as the consequence of an effort of the constitution to get rid of a large collection of matter by one of the ordinary emunctories."

Gangrene of the lung also might have been supposed to have been present in this case, as the breath and expectoration were extremely fœtid. The same characters were also present in certain other cases, which terminated fatally, showing that no such condition of the lung existed. Dr. Mac Donnell offers the following, and, we believe correct explanation of the phenomenon:—

"In such cases, we have a quantity of pus and air occupying the minute tubes and air cells, and having but an imperfect communication with the external atmosphere, owing to the larger tubes being nearly obliterated by the compression to which the lung is subjected by the fluid of the empyema, and in this way they act chemically on each other, and produce a decomposition, giving rise to the intolerable odour which both the pus and expired air soon acquire. In fact, the same phenomena are observed in these cases as in an ordinary abscess, the matter of which may be healthy and odourless on its being opened, but soon becomes altered in these respects when air enters the sac and acts upon its contents, which then become bad in quality and offensive in odour. This view is borne out by what was noticed in the present case—viz., that the breath was not fœtid during ordinary expiration, but became so immediately after coughing, by which the air pent up in the remote tubes was expelled, whilst that taken in during ordinary inspiration was exhaled devoid of odour."

A bruit synchronous with the heart's action was heard during the progress of the case, at the left side of the spine. It disappeared with the effusion. Further investigation will probably show this to be a sign of some importance in acquiring information as to the actual physical relations of the parts within the chest.—*Lancet.*

ELEGANT EXTRACT.

More food for the Old Ladies in Breeches.

MESMERISM AND MISS MARTINEAU.

"We do not know whether to congratulate or condole with the talented Heroine of Political Economy on the strange dream that has come o'er her soul. It appears that Miss Martineau recovered her health and—we were nearly saying—lost her senses! But this is not the case—she has acquired an aditional sense—CLAIRVOYANCE! Her maid, BETTY, placed her hand on her mistress's ivory forehead, and, presto, a STEAM-TUG that was passing became metamorphosed into a ship of celestial glory, fringed with gold and silver, and fit to be 'a God-head's dwelling.'

Its all in my eye BETTY MARTIN—EAU!

Betty, however, is no fool. She prescribed ale and brandy-and-water to her mistress, instead of opium-eating, and the change resulted in the best effects. Harriet's Mesmerie dreams will prove a god-send to the animal magnetisers, and will command more attention among the old women of both sexes than her Political Economy and her "Preventive Checks." But it won't do! It will be the wonder of the day—perhaps of nine days—and then sink into oblivion with the exploits of Miss Okey."—*Medico. Chir. Review.*

Dr. Duncan relates, in the last number of the *Northern Journal of Medicine*, an interesting case of *Removal of a coin from the Larynx by inversion of the body.*

An individual amusing himself by tossing up a shilling, and catching it in his mouth, it slipped through the glottis. The accident gave rise to comparatively little inconvenience. The coin seemed to the patient to be fixed at the cricoid cartilage, and he had an impression that it could be displaced were he to stand on his head. This impression corresponding with the opinion of Dr. Duncan and his associates—

"The man was placed with his shoulders against the raised end of a pretty high sofa, and then being seized by three of the most powerful of those present by the loins and thighs, he was rapidly inverted, so as to

bring the head into the dependent position, and, after a shake or two, Dr. Simpson at the same time moviug the larynx rapidly from side to side, the shilling passed into the mouth and fell upon the floor. Not the slightest cough nor dyspnœa was produced, and the patient immediately started up, delighted with the result. He was now perfectly free from uneasiness, and there was a marked change in the character of the voice. He had not the slightest subsequent bad symptom."

Curious case of Mesmeric Detection of Crime.

LYNN, Mass., May 28, 1845.

MR. EDITOR,

Thinking that you and perhaps your readers, might be interested in a specimen of what may be said on the possibility of detecting rogues through the power of Mesmerism, or Animal Magnetism, I have concluded to give you a brief account of a case, that has recently passed under my notice.—It may exceed your belief—I am confident that it will your explanation, as it does mine —meaning the process by which the given result has been reached; but incredulous as it may appear, I beg to say that the circumstances which I relate are bona fide facts, and can be shown to be such, should truth or virtue require, in any court of justice.

One of my nearest neighbors, a man of unquestionable veracity, on Tuesday of last week, in opening one of the money drawers in the counters of his store, discovered that some money had been taken from it, evidently by a stealthy hand, since he had been to it to make change—which, I believe, was in the time of an hour. The exact amount that had been taken he could not tell, though he knew it could not be large; and as to the individual by whom it had been taken, he could form no reasonable or satisfactory conjecture. His thoughts first recurred to his clerk, he being a boy that had been with him but a few days, and not knowing what power temptation might have over him; though he had seen so much to encourage confidence in his honesty, that he could not believe him to be the rogue. Who it could be, of those who had been about the store during the day, or of the suspicious characters in the neighborhood, he could not imagine or satisfy himself. After waiting a day or two, without fixing upon any one as the probable criminal, and having heard of the wonderful revelations asserted to have been made by Mr. and Mrs. C. in a neighboring street, through the power of Mesmerism, to gratify his curiosity in the shape of seeing what might be said on the subject by a person in the mesmeric state, taking along with him his clerk, he called on them for the purpose. Merely stating that he should like to have an experiment in clairvoyance, without telling them his motive or business, and they having had no means of knowing the circumstances in regard to the loss of money from his store, Mr. C. put his wife into the mesmeric sleep, and proceeded to ask her such questions as Mr. P. the applicant, might propose without being in communication with her. The first question related to the discovery and location of his store. She soon found it, describing it, without and within, to his entire satisfaction. The inquiry was next put, whether he had lost anything from the store within a few days. After a strong and somewhat protracted mental effort, she answered, "Yes, some money from a little drawer in the inside of a counter." In a free and earnest manner she went on to relate the particulars as they appeared to her, stating that, in the absence of Mr. P. from the store, and as the clerk stepped down into the cellar with a bare-footed boy to get some butter in a covered tin pail, (which the clerk well remembered,) a lad, apparently about fourteen years of age, entered the store, reached over the counter, pulled out the drawer, and took from it four dollars in two bills, one a three dollar bill, the other a one, which he hastily stuffed into his pocket; and then, instead of making off in a hurry, put on a composed air, and as the clerk came up from the cellar, made as if he had just come into the store in a very loitering, lazy, careless manner, and at last leisurely passed out of the store with the boy that had got the butter. She then described the boy, including his size, looks, hair, &c., with great particularity; also, his parentage, habits and business; and in tracing him from the store, followed him down to the corner of the next street, where she described him as going into a grocery, and giving two cents for an orange, &c., &c.—The clerk at once remembered that a boy answering exactly to her description had frequently been in the store, and that he saw him, apparently coming into the store, as he came from the cellar at the time mentioned; and he recognized as true of him what she had said concerning his parents and habits.

On returning from the examination, Mr. P. and his clerk thought the matter might repay a little further attention. They accordingly kept a look out for the fellow that had been so particularly, and, as they thought, on reflection, so correctly described. Before the week closed, he made his appearance at the store. Mr. P. taking him one side, and speaking to him in a friendly tone

and manner, told him that he wanted that money that he took from his drawer the other day, (intending to carry the impression that he knew him to be the rogue.) At first, he denied having taken the money; but when Mr. P. told him that a person in Nahant-street, (having in his eye Mrs. C.) saw him enter the store, take the money, put it into his pocket, and when he went out, pass down to a certain grocery, where he bought an orange, giving two cents for it, he lost his power of denial, and, in owning it, confessed that all the circumstances relating to the number and size of the bills, &c. were just as they had been described by the mesmerized subject; and after expressing regret and sorrow, and saying that he had paid away the money, he promised to go to work, earn it and restore it to him.

Such are the facts in the case, and I have them from the original and responsible sources. I submit them to the public, expecting them to be questioned and perhaps ridiculed, but knowing, at the same time, that they can be supported by the most unquestionable of human testimony. I have been particular to inquire whether either Mr. or Mrs. C. had any knowledge of the boy in question *before* the time of the examination, and if *they had*, whether they had any suspicion of *him* as a bad boy; and I learnt that, up to that time, they were ignorant that any such boy lived in town. Leaving every one to form his own opinion in the case, and to make his own comments, I here leave the subject.

Yours, believing in the progress of human discovery and knowledge.

M. S.

N. Y. Tribune.

The relation of the Physician to a Colleague.

This relation is twofold. The first embraces mutual respect, and where that is not possible, let indulgence at least be the principal law of conduct.

Nothing is more difficult than to judge others, but nowhere is it more so than in the practice of medicine. It is therefore unpardonable in the public; but it is revolting to hear physicians, who know the difficulties of the art, and of forming opinions regarding it, judge their colleagues with severity, harshness, contempt, or disclose their faults, and try to raise themselves by lowering others. O that I were able to impress the minds of my brethren with the truism, as forcibly as I am penetrated by it! He who degrades a colleague degrades himself and his art. For, in the first place, the more the public becomes acquainted with faults of physicians, the more will physicians become exposed as contemptible and suspicious, and the more will such exposure impair confidence: and confidence in the whole body being diminished, every single one, and the censurers included, will lose a share of it. The public would be less prone to censure the medical profession, and its faults would not be a favorite topic of conversation, if the members themselves did not broach it, and set the bad example. It shews a short-sighted selfishness, and want of all common spirit, when a physician acts in such a manner, and thereby hopes to raise himself, as he degrades others.

Lancet.

A Doctor and his Lizards.

A letter from Vera Cruz, to the Albany Evening Journal, relates the following marvelous incidents in a notice of a visit to the estate of Dr. Stephens:

"While enjoying our segars under a broad-spread tamarind tree, the lizards came down as usual to keep the mosquitoes away from their protectors. The doctor's kindness for animals has developed instincts and awakened affections that would not discredit a race, intellectually endowed. His beautiful fan-tailed pigeons, when he returns from town, come with their greetings to his carriage, and perch upon his shoulders. His lizards jump from the trees into his hands. A year or two since, when several of the officers of the United States ship Potomac, with two gentlemen residing here, were at breakfast with the doctor, a huge lizard that had the misfortune to lose its tail by some casuality, marched into the rooms, and up to the doctor, with its dismembered limb in its mouth! This looks, I confess, too much like a "Remarkable Snake Story," but it is nevertheless, a well authenticated fact. The maimed reptile, under the influence of instinct highly excited, sought relief from the hand by which it had been fed and cherished. The doctor himself regards the circumstance as a tribute to his skill in surgery.

The unreasoning species are not alone, however, in their appreciation of Dr. Stephen's medical services. He performed, at an early day, with entire success, some of the most difficult surgical operations. His writings on yellow fever, scurvey, &c., won for him the highest medical honors that Europe confers. He was one of three eminent physicians upon whom degrees were conferred upon the occasion of Lord Wellington's installation as Chancellor of Oxford University. He is now devoting himself to investigations of the highest interest touching the Phenomena of Life, which, in his judgment, prove, 1st. That the action of the body is

regulated by some power or agency other than the Brain. 2d. That there is a living, vital agent, independent of, and so far as muscular action is concerned, superior to the mind; and 3d. That in man, and in the higher order of animals, the principle of life is seated in the solar gangloin, from which the nervous system or machinery draws its power of motion, and by which it is propelled and governed.

Extraordinary facts relating to Combustion.

At a meeting of the Academy of Science, February 3, M. Dumas related some experiments to which he had submitted liquid chlorine refrigerated to 90 degrees below the freezing point, in a mixture of solid carbonic acid and ether.

1. Phosphorus falling into liquid chlorine is ignited with a violent explosion.

2. Phosphorus, itself previously cooled in the freezing bath, inflames in the same manner, with violent explosion.

3. Arsenic, taken at the ordinary temperature, is kindled when dropped into liquid chlorine.

4. Antimony, on the contrary, manifests no action on liquid chlorine.

M. Boussingault proposed that the Academy should give facilities for extending these experiments (which are attended with much danger) on some determinate plan.—*Comptes Rendus, 3d Feb.*

MEDICAL SOCIETY OF LONDON.

Dr. Theophilus Thompson, President.

Effects of Counter-Irritation.

Mr. Dendy, in reference to the discussion at the last meeting, remarked, that when properly and judiciously applied, blisters to children were by no means attended with danger. He himself, however, preferred the use of the acetum lyttæ, which merely required to be painted on the skin with a camel's hair brush, once or twice, to produce vesication. He was in favor of small vesications, such as the size of a shilling, being formed successively at intervals of twelve or twenty-four hours. The acetum lyttæ had the advantage of not producing strangury.

Some remarks on the effects of blisters to children were made by several members.—Applied with due caution, and allowed to remain only a short period, they might be and were serviceable in many cases. Their abuse however, was calculated to do much evil, and never more so than when applied by *ignorant persons*, who allowed them to remain on for a long period.

In order to shew that blisters, or any other kind of counter-irritation, might occasionally be of serious consequence to the patient, it was observed by Mr. Pilcher that he recollected six cases of inflammation of the chest succeeding to measles, in which blisters had been applied, and they were all fatal. He mentioned also the instance of a youth fifteen or sixteen years of years of age, in whom the irritation produced by a compound frankincense plaster applied to the chest, was so great that the parts sloughed, and the patient sunk. In these cases, doubtless, the constitutional powers of the patients were very low.

Mr. Stedman had found the acetic acid as efficacious as the acetum lyttæ, and considered the efficiency of the latter preparation to be dependent on the vinegar.

Mr. Dendy recollected Sir A. Cooper mentioning a case in which a young lady, recently arrived from Jamaica, fell a victim to the application of common blister to her knees. She sank in three days, from sloughing of the parts. In respect to the effects of the various paper preparations of the lyttæ, he had found them so uncertain that he never employed them.

Mr. Bishop remarked that when a large surface was exposed, either as the result of a blister or a burn, nervous irritation of such a character might be produced as to terminate fatally, and this even when the sore itself might have a healthy aspect. The nervous irritation killed Miss Clara Webster. In cases in which this irritation was set up, opium often exerted a most benign influence.

Dr. Forbes Winslow read a paper on

The Incubation of Insanity.

After dwelling upon the importance of studying and treating the disorders of the mind in their earliest or incipient form, or during the period of incubation, and lamenting the little attention which had hitherto been paid to this important subject, Dr. Winslow expressed as his belief, that a very large proportion of the 8,736 incurable lunatics confined in asylums in England and Wales, had been reduced to this sad state by the neglect to which they had been subjected in the incipient state of the malady. According to the last official return made by parliament, there were in the whole of England and Wales, confined in asylums, 11,272 lunatics. Out of this number, there were returned as "incurable," 8,736; and as "curable," only 2,519. This alarming disproportion was attributed to the ignorance which had prevailed with regard to the nature and treatment of this disease. The notion which had so generally been promulgated,

that insanity was an affection of the mind, the spiritual principle abstracted, and the material organization, and not at all associated with bodily disease, had had the effect of retarding the progress of sound pathological knowledge, with regard to the condition of the brain and nervous system, during this fearful inroad upon its recognized functions. The attempts which have also been made to define insanity, to establish a test or standard of mental unsoundness, had also operated most injuriously. Each medical man having formed his own notion of what constituted insanity, no person was admitted to be deranged until he came up to his preconceived standard; and, consequently, the period of incubation was entirely overlooked. The author maintained, with regard to the treatment of insanity, that the probability of recovery lessened in a ratio to the period which was allowed to intervene between the first onset of the disease and its more advanced stages; and that unless the result of physical injury, or connected with strong hereditary predisposition, derangement of mind was, if attacked in its incipient form, as easily curable as incipient inflammation, pneumonia, or rheumatism. He adduced a number of statistical facts to establish the point. He considered that in the primary stage, insanity was but slightly connected with lesions of nervous structure; but if the disorder be permitted to remain for any length of time without any attempt being made to remove it, serious organic changes take place in the delicate organization of the brain, which for ever place the patient beyond the reach of remedial measures. The author urged the importance of applying to the diseases of the brain and its disordered manifestations the same principles which guide us in the elucidation and treatment of other affections of organic structure. He considered that a person might be pathologically insane, who ought not to be held as legally mad. In studying this class of affections, the medical philosopher should dismiss from his mind all his preconceived notions, based upon legal and medical definitions of insanity; if he tied himself down to these metaphysical abstractions, he will close his eyes to a medical truth of the highest import to the human race. Dr. Winslow confessed his inability to define insanity. He thought that, with equal propriety, an attempt might be made to define yellow, red, blue, or any other abstract essence. He considered that insanity was not essentially different from other maladies, that it obeyed the same pathological laws. After entering at some length into the point, and having pointed out the evils which had resulted from the attempts which have been made to throw about this malady an air of mystery and superstition, Dr. Winslow next proceeded to detail the incipient symptoms of this affection. He thought that the period of incubation might last for months and years; cases had been recorded in which it had been of fifteen years duration. Long prior to the explosion of insanity, patients have confessed that they have for months and years been struggling against the encroachment of this malady. In forming an estimate of the presence of insanity in any given case, care should be taken not to confound natural healthy singularity and eccentricity with those deviations from sound mental health which are clearly the consequences of physical disease of the nervous system. The patient's own mind must be the standard of comparison. The physician must compare the manifestations which prevail at the time when the mind is supposed to be affected with the mental state of the individual in its natural and habitual condition. Insanity is often but an exaggeration of the natural habits, passions, and character. The author considered that almost invariably there existed in the early period of insanity, a stage of consciousness during which the patient was perfectly aware of the existence of an altered state of mind, and the approach of "thick coming fancies," against which he often heroically struggled. It was a fallacy to suppose that insanity was often suddenly developed; in those instances in which the malady appeared to break out suddenly, it would be found that a well-marked premonitory stage preceded the attack of mania. This was remarkably the fact in most cases of suicidal insanity. The author thought that the first stage of insanity had been properly denominated the state of "moral incoherency," and that in every case the moral faculties would be found, in the first instance, to be implicated in the disorder and that the intellectual derangement was to be considered but as an advanced stage of the moral disease. He then enumerated the early signs of insanity, before any delusion had fastened itself upon the mind, and the patient had lost all control over the will.

The following was said to be among the incipient indications of insanity:—an altered state of the affections towards relatives and friends, that alteration being often in a direct ratio to the former attachment; a difficulty in guarding against dislike; a restlessness of disposition; a disposition to magnify trifles; weakened volition; defective memory; the patient is inordinately depressed or elated by the most trifling circumstances; he manifests a restlessness and inability to concentrate his

attention to any subject; he neglects his business; avoids the society of those with whom he formerly associated; becomes violently passionate about trifles; manifests a peevishness and impatience of contradiction; he exhibits an extravagance in all his thoughts and actions.

High spirits are often the first manifest signs of approaching insanity; the patient takes larger quantities of wine than usual; if naturally reserved and modest, he becomes the reverse; all his actions betray extreme mental agitation; the imagination is often unnaturally brilliant; old impressions are revived; the patient will be seen to sit for hours in a state of abstraction, as if his mind was occupied in the contemplation of gloomy fancies. In this stage the patient has the appearance of being intoxicated.—Combined with these mental symptoms, are certain physical indications, snch as pain or lightness in the head; a sense of constriction across the forehead; heat and puffiness of the scalp; distress of countenance; prominence of cornea; contracted pupil; a disposition to bite the nails and tips of the fingers; defective articulation; sometimes, however, extreme loquaciousness; an oily or greasy appearance of the skin; fœtid cutaneons exhalation; great restlessness; the patient is disposed to pace up and down a room for hours together, muttering to himself. Before the development of insanity the patient often complains of being troubled by frightful dreams, or with illusions or hallucinations, out of which he is unable to reason himself. The patient complains of sleeplessness; the secretions often become diseased, and the hepatic, in fact, the whole of the digestive organs give evidence of derangement. The pulse is the pulse of excitement without power.

The value of these signs, the author stated, was often not sufficiently estimated until it was too late to repair the cerebral mischief done. Dr. Winslow then pointed out the treatment of incipient insanity. He stated that no specific plan of treatment could be pursued which would be applicable to every case. The medical practitioner must be guided in his treatment by the circumstances connected with each case brought under his consideration. As a general rule, he deprecated bleeding in the early or advanced stages of insanity: there were, however, cases in which considerable vascular action was going on in the brain, and for the removal of which it was necessary to abstract blood both locally and generally. Dr. Winslow also spoke of the exhibition of morphia, purgatives, counter-irritants, and the application of cold in the treatment of insanity, and pointed out the states of brain in which they were admissible.

Mr. Headland complained that the paper had failed in elucidating any new point connected with the subject discussed. He shewed that cause and effect had frequently been confounded, and referred to cases in which insanity existed without any appreciable physical change. He considered that the pathological condition was often the affect and not the cause of the mental disease. He had little expectation of insanity being either cured or prevented by physical remedies, but trusted that moral treatment and training might be of service in effecting, to some extent, its eradication. Altering the habits of the people would tend greatly to this desirable end. He shewed the difficulty of preventing the accomplishment of suicide where insanity on that point existed, although it was easy enough to detect its presence.

Mr. Dendy referred many states of mental aberration to a want of balance in the circulation of the brain, principally in respect to venous congestion.

The discussion was adjourned.

A communication was read from Mr. Curtis, in reference to the valerianate of zinc, in which it was stated that he had administered this medicine with great advantage in a variety of cases of tinnitus aurium, nervous deafness, amaurosis, and muscæ volitantes. The dose was a grain. He introduced the medicine to the Society with the view of inducing the members to try it in cases of nervous debility; and as at present it was not easily procurable in London, he had placed some of the medicine in the hands of the President, to supply any gentleman who would wish to give it a trial. This remedy had the advantage of having mineral and vegetable properties.

Mr. Hird had employed this medicine in two cases of hysterical neuralgia. In one case it was of advantage.

A member had also used the valerianate of zinc in a case of brain affection closely resembling delirium tremens. It was of much benefit.

The discussion of Dr. F. Winslow's paper was then resumed.

Dr. Costello was astonished at the opinions expressed, at the last meeting, by Mr. Headland, as they were perfectly opposed to pathology.

Mr. Headland explained, that in the absence of paralysis or other manifest physical disease, in a great majority of cases of insanity, there would be no appreciable change in the brain after death. There was no relation whatever between the amount of phy-

sical disease and the mental aberration. He referred to a case pulished in The Lancet some years since, in which there was complete destruction of a great portion of both hemispheres of the brain, and yet mind remained perfect to the last.

Mr. Dendy drew an analogy between simple concussion and incipient insanity, in which recovery took place, one from a moral, the other from a physical influence.

Dr. Chowne considered that every mental disease had a physical origin. In all cases of insanity there would be a physical change, though it might not always be appreciable. The brain might be temporarily affected by some change in the circulation, independent of organic changes, as spasm and diarrhœa might exist without physical lesion.

Dr. Alison shewed that disorder of the function of the brain might exist without appreciable organic change. Yet who doubted its presence any more than they did the presence of organic change in the kidney (though not to be detected) in certain disorders of function of that organ?

Dr. Clutterbuck regarded insanity as not a disease per se, but merely a symptom of disordered function of the brain. If we admitted—and, he thought, it could not be reasonably doubted—that the brain was the organ through which the mind was manifested, it followed that every disordered condition of the mind was dependent on some disordered condition of the brain; not always, it was true, obvious or appreciable, but still it was clear that the brain was not in a sound state of health. Not always to the extent of disorganization, for it was known that insanity often left the patient for a time, and then recurred, from causes not very obvious. The brain was often found diseased in cases of insanity, but he wanted proof that those changes were always the cause of the insanity. Authors of eminence, however, had asserted that they had always found the brain diseased in cases of insanity; Sutherland and Haslam were of this number; and Mr. Lawrence, out of seventy-two cases, had found the brain diseased in all, a structural change existing in each case. These facts did not prove that the structural disease was the cause of the symptoms, but it shewed that in insanity the brain was not sound. That these conditions were not the proximate cause of the insane phenomena, however, was proved, for they existed independent of insanity. We found opacity of the membranes, increased vascularity, bloody points, induration, softening, and serous effusions of the brain, in cases in which insanity did not exist. Changes, however, might exist beyond what we were at present enabled to discover. What then caused this state of brain? He believed that it was always the result of inflammation which had existed at some period or other. He thought this, because inflammation was the great disorganizing process; and if disorganized, therefore, the brain must, at one time, have been inflamed. The disorganization was the result, in some way, of inflammation. We might often trace insanity in its early stages to the influence of extreme mental emotion, the effects of alcohol, or of local injuries, the insanity subsiding on the subsidence of these causes, so that we had cause and effect at once before us. He complained that the term incubation was not expressive of the manner in which insanity progressed in its early stages. Confirmed insanity was incurable, as the brain had become permanently affected. The time for treatment was in the early stage; subdue the inflammation then, and you subdued the symptom, and the brain regained its natural condition.

Dr. Wigan agreed with Dr. Clutterbuck, except as to inflammation being the first cause in all cases. He briefly referred to his opinions on the duality of the brain and mind.

Dr. Costello agreed in the main with Dr. Clutterbuck; but believed that the changes of the brain connected with insanity might be dependent on other causes than inflammation. Thus there was a peculiar shining appearance of the white portion of the brain, not the result of inflammation, frequently found in cases of insanity. He alluded to the state of irritation, the result of long suckling, of softening of isolated portions of the brain, in which the vessels were impervious to injection, as being often passed over in examinations of the brain of lunatics.

Mr. Headland replied. He shewed that no observations which had been made affected the position with which he had started. He shewed, from reference to statistical facts, that insanity bore a ratio to the state of mental and physical destitution which prevailed, and he particularly directed attention to the prevalence of insanity in Wales. He shewed the little benefit likely to result from merely physical agents in the prevention of this disease, and trusted for the alleviation of mankind from this distressing malady to increased physical comforts, and improved mental and moral training.

Imbecility of Medical Colleges.—R. Replace the professors of the crude notions of a by-gone age, with the talented young men of the profession.—*Clairvoyant.*

Swedenborg's "Animal Kingdom."

This wonderful man is clearly destined to be acknowledged as one of the great lights of the race. His scientific works, which have hitherto remained locked up in the obscurity of the Latin, are now appearing in an English translation, and the profoundest minds are astonished at the gigantic powers which they display. The "Animal Kingdom" in two large volumes, 8vo, has recently appeared from the London press, the character of which may be judged of from the following notices, the one from the London "Forceps," a Medical Journal, and the other from the "Monthly Review." The writers are neither of them in the interests of the New Church, nor believers in the divine mission of Swedenborg.

"This is the most remarkable theory of the human body that has ever fallen in our hands; and by Emanuel Swedenborg, too! a man whom we had always been taught to regard as either a fool, a madman, or an impostor, or perhaps an undefinable compound of all the three. Wonders, it seems, never will cease, and therefore it were better henceforth to look out for them, and accept them whenever they present themselves, and make them into ordinary things in that way. For thereby we may be saved from making wonderful asses of ourselves and our craft, for enlightened posterity to laugh at.

"To return to our book, we can honestly assure our readers, (which is more than it would be safe to do in all cases) that we have carefully read through both volumes of it, bulky though they be, and have gained much philosophical insight from it into the chains of ends and causes that govern in the human organism. What has the world been doing the past century, to let this great system slumber on the shelf, and to run after a host of little bluebottles of hypotheses which were never framed to live for more than a short part of a single season? It is clear that it yet 'knows nothing of its greatest men.' The fact is, it has been making money, or trying to make it, and grubbing after worthless reputation, until it has lost its eyesight for the stars of Heaven and the Sun that is shining above it.

"Emanuel Swedenborg's doctrine is altogether the widest thing of the kind which medical literature affords, and cast into an artistical shape of consummate beauty. Under the rich drapery of ornament which diversifies his pages, there runs a framework of the truest reasoning. The book is a perfect mine of principles, far exceeding in intellectual wealth, and supassing in elevation, the finest effor's of Lord Bacon's genius. It treats of the loftiest subjects without abstruseness, being all ultimately referable to the common sense of mankind. Unlike the German transcendentalists, this gifted Swede fulfils both the requisites of the true philosopher; he is one 'to whom the lowest things ascend, and the highest descend, who is the equal and kindly brother of all.' There is no trifling about him, but he sets forth his opinions, irrespective of controversary, with a plainness of affirmation which cannot be mistaken; and in such close and direct terms, that to give a full idea of his system in other words would require that we lesser men should write larger volumes than his own.

"The plan of the work is this: Swedenborg first gives extracts from the greatest anatomists of his own and former times, such as Malpighi, Leuwenhoek, Morgagni, Swammerdam, Heister, Winslow, &c., &c., so that these volumes contain a body of old anatomy (translated now into close English) such as cannot be met with in this shape elsewhere. He then gives his own unincumbered deductions from this 'experience,' under the heading 'analysis.' Each organ of the thorax and abdomen in this way has a two-fold chapter allotted to its consideration, which chapter is a complete little essay, or we might say, epic, upon the subject. The philosophical unity of the work is astonishing, and serves to unlock the most abstruse organs, such as the spleen, thymus gland, supra-renal capsules, and other parts upon which Swedenborg has dilated with an analytic efficacy which the moderns have not even approached; and of which the ancients afforded scarcely an indication. Upon these more mysterious organs, we think his views most suggestive and valuable, and worthy of the whole attention of the better minds of the medical profession. Of the doctrine of series, since called by the less appropriate term 'homology,' he has afforded the most singular illustrations, not confining himself to the law of series in the solids, but boldly pushing it into the domain of the fluids, and this with an energy of purpose, and a strength of conception and execution, such as is rarely shown by 'any nine men in these degenerate days.' We opened this book with surprise, a surprise grounded upon the name and fame of the author, and upon the daring affirmative stand which he takes *in limine;* we close it with a deep-laid wonder, and with an anxious wish that it may not appeal in vain to a profession which

may gain so much, both morally, intellectually, and scientifically, from the priceless truths contained in its pages."

The language of the Monthly Review, June, 1844, is equally emphatic:

"In conclusion, we record our opinion positively, and not relatively, wholly and without reservation, that if the mode of reasoning and explanation adopted by Swedenborg be once understood, the anatomist and physiologist will acquire more information, and obtain a more comprehensive view of the human body, and its relation to a higher sphere, than from any single book ever published; nay, we may add, than from all the books which have been written (especially in modern times) on physiology, or as it has been lately named, transcendental anatomy. Swodenborg reasons not on any hypothesis, not on any theory, not on any favorite doctrine of a fashionable school, but on the solid principles of geometry, based on the immutable rock of Truth; and he must and will be considered at no distant period the Zoroaster of Europe, and the Prometheus of a new era of reason, however at present the *clouds of* prejudice may intervene, or the *storms of* passion obscure the corruscations *of his* intellect."

Thomasville, Ga., May 1st, 1845.

Dr. H. H. Sherwood.

Dear Sir—Inasmuch as I recently sent you a summary view of the merits of Swedenborg's Animal Kingdom, as taken from a foreign medical periodical, I now send you, in connection therewith, an extract from the work itself—A. K., vol ii., page 158—in which the principles of motion appertaining to the human organization are explicitly stated, and apparently in direct accordance with those which you are now advocating. Should they meet an approval, please insert them in your Dissector, with such comments as you may deem proper.

Respectfully yours, &c.

Wm. Hunnewell, M. D.

"It is a truth constantly presented to us as the result of all our analytic investigations, that every action of the cerebrum and cerebellum is determined through the fibres; and that the fibres cannot be determined into act, excepting by their beginnings or principles; in short, by the organs that are prefixed to the fibres. The latter must certainly be excited to motion by their principles, and commence and describe their motions in this way. It is absurd to suppose that any action can begin in the middle of a fibre, and not in its first terminus. If, then, it begin in the first organs, it must inevitably begin in the cortical glands; for the fibres commence, and are conceived and produced, in those glands, and the arterial vessels of the cerebrum terminate also in them. Hence, if the principles of motion exist in them, according to all physical and philosophical laws, as mutually confirmed by and confirming each other, those principles must necessarily commence by a kind of active, living, or locomotive reciprocal force, that is, by a kind of expansion and constriction, or systole and diastole, such as we observe in a gross form in the lungs and heart; for the same conditions are involved, whether the spirit is to be driven through the fibres, or the blood through the vessels. The blood cannot be driven through its arteries without the reciprocal expansion and constriction of the heart; nor can the spirit be driven through the fibres, which are little canals and vessels analogous to the arteries, only more pure, without the reciprocal expansion and constriction of the cortical glands of the cerebrum, which on this account deserve the appellation of pure corcula, or little hearts. Assuming or granting these points, the necessary consequence is, that every time the cortical and cineriterous substance of the cerebrum, cerebellum, medulla oblongata, and medulla spinalis, contracts or constringes itself, the whole mass of those parts sinks down, and undergoes systole; but, on the other hand, undergoes diastole, when the same substance, I mean the whole congeries, expands. This is the animation of the cerebrum—using the term cerebrum in its widest acceptation—that corresponds to the respiration of the lungs. We must now proceed a step farther. If the animal or nervous spirit, at the intervals of the constriction of these organic substances—of the little hearts of the cerebrum—is expressed by the cerebrum through the nerves and nervous fibres, of course it is expressed by the cerebellum into its grand sympathetic nerves, the par vagum and the intercostals: and granting this, it follows that these nerves act during the same intervals upon the fibres of the pulmonary plexus, and upon the fibres of the costal nerves; which cannot fail on the instant to act upon their muscles and membranes: nor the latter to act upon the ribs, and this upon the internal structure of the lungs. Hence, it follows that the animations of the cerebrum (using the term here again in its widest sense) must necessarily be coincident with the respiration of the lungs; and the fact is still more plainly declared by the influx of the fibres of the above-mentioned cerebellar nerves, the par vagum, and the intercostal,

into all the viscera of the abdomen; and by the motion of those viscera agreeing exactly, and keeping perfect time, with the respiratory motions of the lungs, as proved in detail in our Analysis."—*Animal Kingdom*, vol. ii., pp. 158–9.

Each convolution of the brain or phrenological organ is divided into two equal halves, by a very thin nurilema, on the opposite sides of which the different, or diverging and converging fibres are attached. Swedenborg, a hundred years ago, called the convolutions of the brain, organs, cortical glands, and corcula, or little hearts. He was also familiar with the fact, that motion is produced by the action of two forces. Wonder how many hundred years it will require to beat this knowledge into the heads of the professors of our medical colleges!

Magnetizing in Lateral Curvatures of the Spine.

Drawn and Engraved from a Daguerreotype.

In magnetising for lateral curvatures of the spine, we have introduced the chair represented in the engraving. It is a strong common office arm-chair, the upper and back part of which being sawed off, and the front part cushioned—the right arm resting on one cushion, and the magnetising buttons on the other. A loose cushion is crowded into the space on the right side, and a strong gallon glass bottle placed upon it; when the young lady with a right and left spinal curvature—or having the upper part of the spine curved to the right, and the lower part to the left side—is drawn over the bottle by an assistant, in the manner seen in the figure, and the buttons applied in the usual manner, as described in p. 60, 61.

In this case, it was eight years since the curvature commenced; and there was, as usual, a large white swelling of the right scapula, or shoulder-blade, which drew the spine under it.

On the 23d time we magnetised this patient (May 17, 1845,) the white swelling being greatly reduced, and the atrophied or emaciated muscles on the opposite side much thickened, the spine passed the centre, under the action of the machine, and began to curve to the left side, as seen in the figure.

The most prominent part of the white swelling was of a dark red color, produced by the heavy brass corsets the young lady had long worn, which was consequently shown in the daguerreotype.

We have here presented in the plainest manner, the extraordinary phenomena of the reduction of hypertrophied muscles on one side of the spine, and the thickened atrophied muscles on the other, by the action of the machine *alone*, directed by a scientific and easy application of the buttons.

GREENLAND.

English antiquarians are pursuing interesting enquiries relative to the original settlement of Greenland and the character of its soil and climate. It was supposed originally to have been connected with our continent but it has been distinctly ascertained that it is separated from the American continent by a wide channel called Davis Straits, and extends beyond 78 degrees of latitude. The most extraordinary fact about Greenland is the wonderful change of climate it has undergone. Barren soils have been reclaimed

by emigration and industry, and cold climates changed into warmer latitudes by clearing the woods and letting in the rays of the sun, but we have no instance on record of settlements originally in warm climates, and fruitful soils becoming in centuries cold, bleak, and barren, and yet such has been the case with Greenland. The country, although now consisting of little else than barren rocks, mountains covered with snow and ice, and vallies filled with glaciers,—although its coast, now lined with floes of ice, and chequered with icebergs of immense size, was once easily accessible, and its soil was fruitful, and well repaid the cultivator of the earth. This country was discovered by the Scandinavians, towards the close of the tenth century, and a settlement was effected on the eastern coast in the year 982, by a company of adventurers from Iceland, under the command of Eric the Red. Emigrants flocked thither from Iceland and Norway, and the germs of European enterprize and civilization appeared on different parts of the coast. A colony was established in Greenland, and it bade fair to go on and prosper. That the climate must have been mild and the soil fruitful, we gather from the fact that in 1400 there were not less than 190 villages, 12 parishes and 2 monasteries, and for 400 years there was constant and profitable mercantile intercouse with the Danish provinces and Europe, but in 1406 every thing changed—a wall or ice barrier arose along the whole line of coast, and no landing could be effected, and up to the seventeenth century the whole approach to the country was blocked by unsurmountable barriers of ice—vegetation was destroyed and all vestiges of its former inhabitants are gone—parts of houses, churches, &c, remain, but the inhabitants have all perished by cold. One of our cotemporaries in referring to the gloomy subject says:—It would require no very vivid imagination to imagine the appalling sense of destruction, which bleached the features and chilled the hearts of those unhappy colonists when they began to realize their forlorn condition, when the cold rapidly increasing and their harbors became permanently blocked with icebergs, and the genial rays of the sun were obscured by fogs—when the winters became for the first time intensely rigid, cheerless and dreary—when the summers were also cold, and the soil unproductive—when the mountains were no longer crowned with forests, but covered with snow and ice throughout the year, and the vallies filled with glaciers—when the wonted inhabitants of the woods and the waters were destroyed or exiled by the severity of the weather, and their places perhaps supplied by monsters of a huge and affrightful character.—*The New-York Sun, March 8th*, 1845.

A solution of the mystery of the extraordinary changes of climate, in which the people of Greenland flourished in one period, and became extinct in another, is found in the revolutions of the magnetic poles and lines of no variation and maximum declination. These poles and lines perform a revolution around the earth in 666 years, and produce and mark the lines of the greatest cold, while the lines of maximum declination, 90 degrees east of these lines in the different hemispheres mark the lines of the greatest heat in the different latitudes.

The line of no variation which is now 37 minutes west of Pittsburgh, passed over London in 1657, and over the meridian of the City Hall, New-York, in 1791. The line of maximum declination, which is now 90° 37' *west* of Pittsburgh, passed over the meridian of that city in 1623, and the one which is now 90° 37' *east* of Pittsburgh passed over London in 1820. These lines are therefore moving from east to west, and the heat increasing on the east, and decreasing on the west side of the line of no variation.

The cold is consequently increasing in Europe, and the heat increasing in this country, east of Pittsburgh, and from a line drawn on the 1st of January, 1845, from a point 3 degrees, 34 minutes, 55 seconds, east of St. Augustine, Fa., in latitude 29 degrees, 48 minutes, 30 seconds north, and longitude 77 degrees, 54 minutes, 37 seconds west; to a point 7 minutes, and 51 seconds east of Ashtabula, on Lake Erie, in latitude 41 degrees, 52 minutes north, and longitude 80 degrees, 47 minutes, 57 seconds west of London.

These lines are at an angle of 6° 27' 33" with the terrestrial meridians, and the line of maximum declination which passed over London in 1820, is now, or was on the first of January, 1845, 10° 52' 55" west of that meridian, on that parallel of latitude. Its longitude in the arctic circle; (latitude, 66° 32' 27".) which passes through the southern part of Greenland, was at the same time 14° 47' 07" west. In latitude 70°, 15° 38' 30";

and in latitude 80°, 18° 18′ 57″ west. On drawing a line on a globe through these latitudes and longitudes, it will be found to pass through the eastern and middle part of Greenland, where the mean heat in that country is now at its maximum, and the following table will show the position of the lines of maximum declination, in every 333 years from the commencement of the Christian era to the year 2178, or during the time the sun is passing through one sign of the Zodiac, and also the situation of the magnetic pole and lines of no variation in every 333 years of the intermediate periods.—× represents the pole and line of no variation, and=× the pole and line of maximum declinations.

Christian Era,		0	Obliq. Eclip. 23° 45′	
		$16\frac{1}{2}$	—× 180°	West.
		$166\frac{1}{2}$		
333	=	183	= 90°	East.
		$166\frac{1}{2}$		
	—	$349\frac{1}{2}$	—×	
		$166\frac{1}{2}$		
333	=	516	=× 90°	
		$166\frac{1}{2}$		
	—	$681\frac{1}{2}$	—× 180°	W.
		$166\frac{1}{2}$		
333	=	848	=× 90°	E.
		$166\frac{1}{2}$		
	—	$1013\frac{1}{2}$	—×	
			——	1073
		$166\frac{1}{2}$		
333	=	1180	—× 90°	W.
		$166\frac{1}{2}$		
	—	$1345\frac{1}{2}$	—×	
			——	1406
		$166\frac{1}{2}$		
333	=	1512	= 90°	E.
		$166\frac{1}{2}$		
	—	$1678\frac{1}{2}$	—×	
			——	1739
		$166\frac{1}{2}$		
333	=	1845	=× 90°	W.
		$166\frac{1}{2}$		
	—	$2011\frac{1}{2}$	—× 180°	W.
		$166\frac{1}{2}$		
333	=	2178	=× 90°	E.

It appears from the above table, that in the year 1013 1-2, the magnetic pole in the arctic circle, was in the same longitude as the line of maximum declination is in at the present period, and the cold was at its maximum in that latitude. This was 28 years after the first settlement of Greenland by Eric the Red.

It also appears that from the year 1073, when the climate may have become mild and the soil fruitful to the year 1406, when the whole coast was closed by ice barriers, was 333 years. From 1406 to 1739 was 333 years when the ice barriers gave way, and the climate became again mild and the soil began to be fruitful. The first period it will be seen from the positions of the pole and line of maximum declination, was that of heat, in which the colony flourished, and the second that of cold, in which it perished.

The historical evidence relative to the maratime enterprises, and voyages of discovery made by the northmen, at periods corresponding to those of the maximum and minimum temperature of this region from this cause, is highly interesting and corroborative. Thus we find that in the year 1000, but 13 1-2 years prior to the arrival of the pole in the longitude of Greenland, 14° 47′ west.—Lief Ericson, son of Eric the Red, commenced a voyage of discovery to the south, and landed at various places on the eastern shores of this continent, to which he gave the names of Hallu-land, Markland, and Vin-land, supposed to be respectively Newfoundland, Nova Scotia, and the coast of New England, whence he returned with timber and grapes. Two years subsequently, in 1002, Thorwald, brother of Leif, made a voyage to Vinland, or Vineland, and was killed by the Indians, together with eight of his crew. The survivors lingered until the year 1004 in the vain hope of effecting a settlement, but were so harassed by the natives as to be induced to return to Greenland in the spring of the ensuing year. In the course of the next six or eight years, several other expeditions were attempted, and appear to have been rendered abortive from the same cause. A long interval in the prosecution of this enterprise seems to have then ensued, and it is not until the year

1347, or more than 333 years from the date of the first recorded expedition, that we find it again resumed. At this period, however, the cold in Greenland had again become exceedingly severe, from the arrival of the magnetic pole on the same meridian, although 180 degrees of longitude distant, and on the opposite point of the arctic circle to the one which it had occupied 333 years previous. This return of cold probably furnished the strong impulse of necessity for the new expedition in search of the more genial climate of which record and tradition had preserved memorials; for the cold had become so intense, and the ice had so formidably accumulated, by the year 1406, as to create an insurmountable barrier of ice-bergs along the whole coast, gradually destroy the inhabitants, and leave their 190 villages desolate. The coast thus remained ice-bound, and the country inaccessible to explorers until the year 1739, or about 50 years after the magnetic pole had again passed that meridian, on its westerly quadrature of revolution. It was then that the desolation of the country, and the melancholy relics of its former prosperity were discovered, and a new colony established. In the present year, 1845, the descendants of these new colonists are enjoying the most genial climate of which their latitude admits, the pole being distant 90 degrees to the west, and the line of maximum declination in their midst. Their next cold period will be in the year 2011 1-2, when the pole will be 180 degrees west, coincident with their meridian of longitude as it was in 1345 1-2, but the cold will be less intense than it was in 1678 1-2, when its effects were so destructive and exterminating, because it will then be more distant from them in latitude, by the whole diameter of the arctic circle, or 46°, 56′; and this truly awful and intollerable epoch of maximum cold, will not return to them until the year 2344 1-2, or 666 years from the year 1678 1-2, when the pole will again be present, in all its horrors.

Similar changes of climate occur in all other latitudes, in the same periods, although in a milder and less remarkable degree, in proportion as countries approach the equator. In the year 1780, so memorable for the intensity of its winter, the magnetic pole was on the meridian of this city of New York, and being also on the proximate side of the arctic circle, the cold was greater than it had been for the previous 666 years, or than it will be again for the same period to come. The whole bay of New-York was frozen over, so as not only to be traversed by sleighs, but to admit of heavy cannon being taken on the ice down through the Narrows, and across the lower bay to the shore of New Jersey. Since that time the average temperature of our winters has been growing milder, and will continue to do so until the year 1967 1-2, when the magnetic needle in this city will have acquired its maximum westerly declination, or, in other words, when the line of maximum declination will be on this meridian. In the meantime, though very temporarily, our springs may be rendered fickle and chilly in temperature, by the breaking up of the ice, on the northeast coast of Europe, where that line is present on its course to the westward, and by the consequent passage of large fields of ice off our coast, on their way to the southward. Since this line, however, like the line of minimum declination, or no variation, crosses the terrestrial meridians at an angle of 6º 28′, (nearly) it follows, that countries situated in more southern latitudes, will receive their periodical meliorations and deteriorations of temperature later than those in higher latitudes; and consequently, the winters will be increasing in severity in Florida, Louisiana, Alabama, and all other regions which have now an easterly declination of the needle, while they are diminishing in severity in this and higher latitudes of this continent where the declination is increasing westerly.

In short, the temperature of all countries and climates is absolutely subservient to the following law, however it may have been over-looked by meteorologists and previous writers upon the subject, viz: Where the declination of the magnetic needle is increasing, the average cold is decreasing; and where the declination is decreasing, the average cold is

increasing. In briefer terms, the average temperature increases and decreases with the declination of the magnetic needle.

In Europe, where the westerly declination is decreasing, the cold of winter, as we learn from the unanimous report of the foreign journals, is sensibly increasing, and it will continue to do so, until the eastern half of the great circle of no-variation now in the East Indies, and 9° west of Pekin, shall arrive in Europe, and the declination there is diminished to Zero, preparatory to its becoming easterly.

LORD ROSSE'S TWO GREAT TELESCOPES.

[As the extraordinary telescopes recently constructed by Lord Rosse are beginning to excite popular attention, we extract from an able article in the British Review, a full account of what the noble astronomer has accomplished :]

'After the preliminary details respecting the constructions of gigantic telescopes, and the principal discoveries which they have enabled astronomers to make, our readers will be better able to appreciate the genius, the talent, the patience, and the liberality with which an Irish nobleman has constructed telescopes far transcending in magnitude and power all previous instruments, whether they were the result of private wealth, or of royal or national munificence. That nobleman is Lord Oxmantown, now the Earl of Rosse, one of a distinguished group of Irish philosophers, who, educated in the same academical institution, now adorn it with their genius, and sustain it with their labors.—In the records of modern science, there are few brighter names than those of Robinson, Hamilton, Lloyd and Maccullagh, and in the person of the Earl of Rosse and Lord Enniskillen, the aristocracy of Ireland have contributed their contingent to her intellectual chivalry.

If, in an eloquent address to the British Association at Cork, Dr. Robinson has given expression to his delight, "that so high a problem as the construction of a six feet speculum should have been mastered by one of his countrymen—by one whose attainments are an honor to his rank—an example to his equals—and an instance of the perfect compatibility of the highest intellectual pursuits with the most perfect discharge of the duties of domestic and social life :"—we also may indulge in the pleasing recollection that Lord Oxmantown's earliest plans for improving the reflecting telescope were first given to the world in three communications, which were published in a Scottish Journal of Science, and that some of us were the first to recognize their value, and to see looming in the distance that mighty instrument with which we are about to make our readers acquainted.

As the surfaces of all lenses and specula are necessarily of a spherical form, they are subject to what is called spherical aberration, that is the edge both of specula and lenses has a shorter focus than the centre. In lenses this may be diminished or even removed by the opposite aberration of a concave lens; but this remedy cannot be applied to specula. It therefore occurred to Lord Rosse, that the first step towards the improvement of the reflecting telescope, was to diminish the spherical aberration. With this view he formed the speculum of three parts, a central speculum, a ring, inclosing the central speculum, and outer ring. These three portions were cemented together, and ground and polished as one speculum.—They were then combined by an ingenious piece of mechanism, so that the first and second rings could be advanced each a small fraction of an inch, in order that their focus should accurately coincide with the focus of the central speculum. Lord Rosse's first attempt did not succeed to his wishes, owing to a defect in the mechanism, which required frequent adjustments, as the smallest shock displaced the images. He then tried to combine one ring only, 1 inch thick, with a central metal 1 1-2 inches thick, the two together forming a speculum of six inches aperture, and two feet focal length. This combination was more successful, as it "remained in perfect adjustment even after very violent shocks." In these combinations Lord Rosse did not perceive the ill effects which he had apprehended from contraction and expansion; and it remained to be seen, from future trials, if they did appear, whether or not they could be removed. "On my return from Parliament, (June 1828) says Lord Rosse, if other avocations do not interfere, I propose to construct a speculum in three parts of 18 inches aperture, and twelve feet focal length—this will be giving the experiment a fair trial on a large scale." This proposal was accordingly executed, and he found the speculum superior to a solid one of the same dimensions.

In order to grind and polish large specula, Lord Rosse soon perceived that a steam-engine and appropriate machinery were necessary. He accordingly invented a machine of this kind, and transmitted an account of it to the writer of this article, who published

from the Edinburgh Journal of Science, for October, 1828. The engine which his lordship actually constructed and used was one of two horse power, though from some rude trials with it he inferred that a one horse power would be fully sufficient for executing at the same time three or four specula six inches in diameter. For such sizes Lord Rosse conceived that a day would suffice for completing the process, and that a machine on the scale shown in his drawing, 'would be sufficiently large to grind and polish a speculum of three feet diameter, or perhaps larger.' In this interesting communication Lord Rosse suggests what he afterwards accomplished, that the motion for producing a parabolic curve, 'might be imitated by means of the eccentric guides, and the slow circular motion of the speculum, and with this advantage, that, were it found really successful, the same result would probably be always afterwards obtained.'

Before the year 1830, Lord Rosse had made still further advances towards the great object he had in view. He found from many experiments that he could not cast a speculum of the modern dimensions of 15 inches, without reducing the composition considerably below the highest standard, that *is without* using so much copper as to produce a soft and yellowish metal. All the specula cracked in annealing when the proper composition was employed.

In order to get over this difficulty, he tried to cast the specula in different pieces, and to unite them by their surfaces; but though this was practicable, he abandoned it for the following plan. He found that an alloy of copper 2-75 parts, with 1 of zinc, expanded and contracted with a change of temperature in the same degreee as speculum metal, and was an alloy maleable, ductile, and easily worked. With this alloy he cast a speculum 15 inches in diameter, with a rim and ribs behind. It was turned smooth and flat on one side, and tinned. Six pieces of the highest speculum metal, 1 1-4th of an inch thick, were then placed on the flat tinned surface, so as to complete a circular disc 15 inches in diameter, and when soldered to it, composed a plated speculum. When ground and polished, it formed an excellent telescope of twelve feet focal length. Upon the same plan, Lord Rosse constructed a speculum two feet in diameter, for a telescope twenty-six feet long. Hitherto it had been believed by opticians, that a fine polish could not be given to specula, unless when the polisher became dry and hot; but Lord Rosse at this stage of his researches found out a method of polishing a cold metal upon a moist polisher, an object of very great importance, as a speculum should he polished at the same temperature at which it is to be used.

First Telescope, Twenty-six feet long.

The next step in Lord Rosse's progress was to make a plated speculum, three feet in diameter. The proportions of copper and tin, which he found to be the best, were the definite ones of four atoms of copper to one of tin, or 126-4 parts of copper to 58-9 of tin, or 32 of the one to 14-91 of the other. After preparing the alloy speculum, which was to be plated, and turning it to a radius of 54 feet, Lord Rosse proceeded to cast the small plates of speculum metal, about 9 inches square. In doing this he encountered great difficulties, owing to their extreme brittleness, arising, no doubt, from the too rapid cooling of their edges, and the consequent state of tension. In order to produce uniformity of cooling, he tried two ways of constructing the mould. The first was to make the lower surface of the mould, containing the liquid speculum, absorb the heat rapidly, and the upper retain it; and the second was to cool the lower surface while the heat of the upper surface was undiminished. The first plan did not succeed; but the second did, by making the lower surface of the mould of iron, and the upper of sand; but though the castings were sound, there was this defect, that bubbles of air were entangled between the iron disc and the speculum metal, producing cavities which it was troublesome to grind out. Hence he was led to replace the iron disc, by one made of pieces of hoop iron, placed side by side with their edges up, tightly packed in an iron frame, the surface thus composed of edges, being smoothed to the proper curvature, by filing or turning. By this most ingenious process he constructed a metallic surface every where open, as the closest plates allowed the air to pass freely between them.

'So successful was this expedient,' says Lord Rosse, 'that of sixteen plates cast for the three feet speculum, not one was defective. The following particulars require to be attended to. The disc of hoop iron should be as thick as the speculum to be cast upon it, so as to cool it with sufficient rapidity; it requires to be warm, so that there may be no moisture deposited upon it from the sand. It may be heated to 212 deg. without materially lessening the cooling power. The metal should enter the mould by the side, as is usual in iron founding, but much quicker, almost instantaneously; one second is sufficient for filling the mould of a nine inch plate of speculum. As to the temperature of the metal, this can be best ascertained by stirring it with a wooden pole occasionally,

after it has become perfectly fluid: when the carbon of the pole reduces the oxide on the surface of the metal, rendering it brilliant like quicksilver, the heat is sufficient. When the metal has become solid in the ingate or hole through which it enters the mould, the plate is to be removed quickly to an oven heated a little below redness, to remain till cold, which, where the plates are nine inches in diameter, should be three or four days at least.'—[Phil. Trans., 1840, p. 511.]

When the nine inch plates are properly scraped and cleaned, much attention is necessary in soldering them upon the tinned surface of the alloy speculum. Care must be taken that until the tin on the speculum is fused, the melted rosin must not be poured in between the plates.

The great success which attended this new method of casting these nine inch specula, induced Lord Rosse to try it on a large scale, and he accordingly proceeded with one 20 inches, and another three feet, which on the first trial was cast perfect. The crucibles which he employed were made of cast iron, and cast with their mouth upwards; and the fuel used was peat or wood, which are both preferable to coke.

A perfect speculum being thus obtained, the next object to be accomplished is to work it, by grinding and polishing, to a perfect spherical figure. The machine for this purpose, which we have already described, was improved and enlarged so as to work a speculum three feet in diameter, and after several years experience, during which specula have been ground and polished with it many hundred times, it has been found to work large surfaces with a degree of precision unattainable by the hand. The peculiarity in this process, introduced by Lord Rosse, and as we conceive essential to success, is, that the polisher works above and upon the face of the speculum to be polished, and one singular advantage of this arrangement is, that the figure of the speculum can be examined as the operation proceeds, without removing the speculum, which, when a ton weight, is no easy matter. The contrivance for doing this is so beautiful, and has proved so useful that we must briefly explain it. The machine is placed in a room at the bottom of a high tower, in the successive floors of which trap-doors can be opened. A mast is elevated on the top of the tower, so that its summit is about 90 feet above the speculum. A dial plate is attached to the top of the mast, and a small plane speculum and eye-piece, with proper adjustments, are so placed that the combination becomes a Newtonian telescope, and the dial-plate the object.

During the operation of polishing the larger specula, a variety of difficulties occurred, but they were all surmounted by the ingenuity and patience of Lord Rosse. At first, in order to allow a lateral expansion of the pitch, it appeared necessary to increase the thickness of the bed of pitch as the diameter of the speculum was increased. This proved a failure, and the lateral expansion was provided for by making grooves in the pitch; but these grooves, though there were two sets at right angles to each other, and only two inches distant, were with difficulty kept open, and the other polisher lost its figure. All these evils, however, were removed by furrowing the polisher itself, so as to divide it into definite and insulated portions. The effect of this improvement was so great that the plated or divided three feet speculum defined better with a power of 1200 than it had previously done with a power of 300. In place of pitch, Lord Rosse used, as his polishing surface, a mixture of common resin and turpentine, and this composition was laid on in two strata of different degrees of hardness, the outer one being the harder, the subjacent softer layer expanding laterally, so as to preserve the figure of the polisher. The speculum being placed in a cistern of water, the polishing process is then effected by using peroxide of iron and water, of about the consistence of thin cream.

The last and most important part of the process of working the speculum, is to give it a true parabolic figure, that is, such a figure that each portion of it should reflect the incident ray to the same focus. This grand difficulty has been completely mastered by Lord Rosse. The operations for this purpose consist, 1st, of a stroke of the first eccentric, which carries the polisher along one-third of the diameter of the speculum. 2d. A transverse stroke 21 times slower, and equal to 0 27 of the same diameter, measured on the edge of the tank, or 17 beyond the centre of the polisher. 3d. A rotation of the speculum performed in the same time as 37 of the first strokes; and 4th. A rotation of the polisher in the same direction about sixteen times slower. If these rules are attended to, the machine will give the true parabolic figure to the speculum, whether it be six inches or three feet in diameter. In the three feet speculum, the figure is so true, with the whole aperture, that it is thrown out of the focus by a motion of less than a thirtieth of an inch, "and even with a single lens of one-eighth of an inch focus, giving a power of 2592, the dots on a watch dial are still in some degree defined.

The twenty-six feet telescope thus executed, has a general resemblance to that of Ra-

mage, but the tube, gallery, and vertical axis of the stand are counterpoised. It is used as a Newtonian telescope, with a small plane speculum, to prevent the image being deformed by oblique reflection which is the effect of the front view. When the specula are not used they are preserved from moisture and acid vapors by connecting their boxes with chambers containing quick lime, an arrangement which Dr Robinson had applied for several years to the Armagh reflector.

Discoveries made by the Telescope.

When this telescope was completed, it became an object of high interest to ascertain its performance. In doing this, Dr. Robinson had, as he remarks, "the advantage of the assistance of one of the most celebrated of British astronomers, Sir James Smith;" but the weather, the state of the air, and the light of the moon, between the 29th of October and 8th of November, 1840, were unfavorable. The following is the substance of Dr. Robinson's report:—

'Both specula, the divided and the solid, seem exactly parabolic, there being no sensible difference in the focal adjustment of the eye-piece with the whole aperture of 36 inches, or one of twelve; in the former case there is more flutter, but apparently no difference in the definition, and the eye-piece comes to its place of adjustment very sharply.

'The solid speculum showed *a* Lyræ round and well defined, with powers up to 1000 inclusive, and at moments even with 1600; but the air was not fit for so high a power on any telescope. Rigel, two hours from the meridian, with 600, was round, the field quite dark, the companion separated by more than a diameter of the star from its light, and so brilliant that it would certainly be visible long before sunset.

'Orion is well defined, with all the powers from 200 to 1000, with the latter a wide black separation between the stars; 32 Orionis and 31 Canis minoris were also well separated.

'It is scarcely possible to preserve the necessary sobriety of language, in speaking of the moon's appearance with this instrument, which discovers a multitude of new objects at every point of its surface. Among these may be named a mountainous tract near Ptolemy, every ridge of which is dotted with extremely minute craters, and two black parallel stripes in the bottom of Aristarchus.*

'There could be little doubt of the high illuminating power of such a telescope, yet an example or two may be desirable. Between *s*1 and *s*2 Lyræ, there are two faint stars, which Sir J. Herschel (Phil. Trans., 1824) calls 'debilissima,' and which seem to have been at that time the only set visible in the 20 feet reflector. These at the altitude of 180° were visible without an eye-glass, and also when the aperture was contracted to 12 inches. With an aperture of 18 inches, power 600, they and two other stars (seen in Mr. Cooper's achromatic of 13.2 inches aperture, and the Armagh reflector of 15 inches) are easily seen. With the whole aperture, a fifth is visible, which Dr R. had not before noticed. Nov. 5, strong moonlight.

'In the nebula of Orion, the fifth star of the trapezium is easily seen with either speculum, even when the aperture is contracted to 18 inches. The divided speculum will not show the sixth with the whole aperture, on account of that sort of disintegration of large stars already noticed, but does, in favourable moments, when contracted to 18 inches. With the solid mirror and whole aperture, it stands out conspicuously under all the powers up to 1000, and even with 18 inches it is not likely to be overlooked.

Among the few nebulæ examined were 13 Messier, in which the central mass of stars was more distinctly separated, and the stars themselves larger than had been anticipated; the great nebula of Orion and that of Andromeda showed no appearance of resolution, but the small nebula near the latter is clearly resolvable. This is also the case with the ring nebula of Lyra; indeed, Dr. R. thought it was resolved at its minor axis; the fainter nebulous matter which fills it is irregularly distributed, having several stripes or wisps in it, and there are four stars near it, besides the one figured by Sir John Herschel, in his catalogue of nebulæ. It is also worthy of notice, that this nebula, instead of that regular outline which he has there given it, is fringed with appendages, branching out into the surrounding space, like those of 13 Messier, (Sir J. H's, 86), and in particular having prolongations brighter than the others, in the direction of the major axis, longer than the ring's breadth. A still greater difference is found in 1 Messier, described by Sir John Herschel, as 'a barely resolvable cluster,' and drawn, fig. 81, as a fine eliptic boundary. This telescope, however, shows the stars, as in his figure 89, and some more plainly, while the general outline, besides being irregular and fringed with appendages, has a deep bifurcation to the south."*

* Dr. Robinson, in his address to the British Association, on the 24th August, 1843, stated, that in this telescope, if building the size of the one in which they were assembled would, under favorable circumstances, be easily visible on the Lunar surface.—[Athenæum, Sept. 23, p. 867.]

* Phil. Trans., 1833, p. 503.

In a Paper entitled 'Observations on some of the Nebulæ,' communicated to the Royal Society on the 13th of June last, Lord Rosse has given sketches of five of the nebulæ in Sir John Herschel's Catalogue,* numbered 88, 81, 26, 29, and 47, as seen in his three feet specula, and as soon as this paper is printed, the comparison of these drawings with Sir John Herschel will exhibit the power of the new telescope.

Fig. 26 of Sir J. Herschel's Catalogue (Messier 27) called the Dumb-bell Nebulæ, from its supposed resemblance to a dumb-bell, is shown by Lord Rosse's telescope to be a cluster of stars, or rather two clusters in close proximity, and, indeed, to a certain extent, blended together, and without the exact elliptical termination of Herschel's figure.

Fig. 81 of Sir J. Herschel's Catalogue (Messier 51) seen as an oval nebulæ by both these astronomers, is found to be a cluster of stars remarkable for its singular appearance, the ramifications from its southern extremity extending to a distance equal to its major axis, and giving it the appearance of a scorpion.

Fig. 45 of Sir J. Herschel's Catalogue is a perfectly circular planetary nebula: but Lord Rosse has discovered it to be an annular nebula like the elliptical annular nebula in Lyra, (29 Sir J. Herschel's Catalogue, and 57 Messier) but very much more difficult to be seen.

Fig. 49 of Sir J. Herschel's Catalogue is represented as a remarkable round planetary nebula, containing three stars, one at each of the three vertices of an equilateral triangle; Lord Rosse's telescope shows this as a long irregular patch, with about seven stars in it, grouped unsymmetrically.

There are a few interesting examples of the manner in which the new telescope has resolved nebulæ into stars, and has destroyed that symmetry of form in globular nebulæ, upon which was founded the hypothesis of the gradual condensation of nebulous matter into suns and planets.

The second Telescope, 50 feet long.

Such is a brief account of the construction and performance of a telescope which Dr. Robinson characterizes as the most powerful that has ever been made. Its superiority to all other instruments must have been very gratifying to Lord Rosse, and might have justified him in resting from his labors, and enjoying the honor of having triumphed in so noble an undertaking; but the instrument was scarcely out of his hands before he resolved upon attempting the construction of another reflector, with a speculum six feet in diameter, and fifty feet long! This magnificent instrument was accordingly undertaken and within the last month has been brought to a successful termination. The speculum has six feet of clear aperture, and therefore an area four times greater than that of the three feet speculum, and it weighs nearly four tons! The focal length is 53 feet. It was polished in six hours, in the same time as a small speculum, and with the same facility; and no particular care was taken in preparing the polisher, as Lord Rosse intended to re-polish it as soon as the focal length was ascertained to be correct; but upon directing it to a nebula, the performance was better than he expected, and he therefore has suffered it to remain in the tube for the present. The second or duplicate speculum, not yet finished, is in every respect the same in size. It was only three weeks in the annealing oven, and is reckoned very good.

The casting of a speculum of nearly four tons must have been an object of great interest, as well as of difficulty; but every difficulty was foreseen and provided against. In order to insure uniformity of metal, the blocks from the first melting, which was effected in three furnaces, were broken up, and the pieces from each of the furnaces were placed in three separate casks, A, B, and C.

Then in charging the crucibles for the final melting of the speculum, successive portions from cask A were put into furnaces a, b, and c, from B into b, c, d, and so on.

In order to prevent the metal from bending or changing its form, Lord Rosse has introduced a very ingenious and effective support. The speculum rests upon a surface of twenty seven feet of cast iron, of equal area, and strongly framed so as to be stiff and light. There are twelve of these in the outer rim, nine in the next, and six sectors at the centre. Each of these pieces is supported at the centre of gravity on a hemisphere bearing at the angle of a triangle of cast iron, these triangles being in their turn similarly supported at the angles of three primary triangles, which, again, are supported at their centres of gravity by three screws which work in a strong iron frame, and serve for adjusting the mirrors. This frame carries also levers to give internal support to the speculum, in the same diffused manner. The frame, which contains the speculum, is attached to an immense joint, like that of a pair of compasses moving round a pin, in order to give the transverse motion for following the star in right ascension.

* Proceedings of the Royal Irish Academy, No. 25, pp. 8, 11, Nov. 9, 1840.

This pin is fixed to the centre piece between two trunnions, like those of an enormous mortar, lying east and west, and upon which the telescope has its motion in altitude. To the frame there is fastened a large cubical wooden box, about eight feet a side, in which there is a door through which two men go in to remove, or to replace the cover of the mirror. To this box, is fastened the tube, which is made of deal staves, hooped like a huge cask. It is about 40 feet long, and 8 feet diameter in the middle, and is furnished with internal diaphragms, about 6 1-2 feet in aperture. The Dean of Ely walked through the tube with an umbrella up!

* * * * * * *

In looking back upon what the telescope had accomplished—in reckoning the thousands of celestial bodies which have been detected and surveyed—in reflecting on the vast depths of ether which have been sounded, and on the extensive fields of sidereal matter out of which worlds and systems of worlds are forming and to be formed—can we doubt it to be the Divine plan that man shall yet discover the whole scheme of the visible universe, and that it is his individual duty, as well as the high prerogative of his order, to expound its mysteries, and to develop its laws? Over the invisible world he has received no commission to reign, and into its secrets he has no authority to pry. It is over the material and the visible he has to sway the intellectual sceptre—it is among the structures of organic and inorganic life that his functions of combination and analysis are to be chiefly exercised. Nor is this a task unworthy of his genius, or unconnected with his destiny. Placed upon a globe already formed, and constituting part of a system already complete, he can scarcely trace either in the solid masses around him, or in the forms and movements of the planet, any of the secondary causes by which these bodies have been shaped and launched on their journey. But in the distant heavens where creation seems to be ever active, where vast distance gives us the vision of huge magnitudes, and where extended operations are actually going on, we may study the cosmogony of our own system, and mark, even during the brief span of human life, the formation of a planet in the consolidation of the nebulous mass which surrounds it.

Such is the knowledge which man has yet to acquire—such the lesson which he has to teach his species. How much to be prized is the intellectual faculty by which such a work is to be performed—how wonderful the process by which the human brain, in its casket of bone, can alone establish such remote and transcendental truths. A soul so capacious, and ordained for such an enterprise, cannot be otherwise than immortal.

But even when all these mysteries shall be revealed, the mind will still wrestle with eager curiosity to learn the final destiny of such glorious creations. The past and the present furnish some grounds of anticipation. Revelation throws in some slight touches of its light—but it is in the indications of science chiefly—in the results of mechanical laws—that we are likely to find any sure elements for our judgment. In the creation around and near us all is change and decomposition. This solid globe, once indecandescent and scarcely cooled, has been the theatre of recurring convulsions, by which every thing has been destroyed, and after which every thing has been renewed. Animal life in its varied organizations has perished, and written its epitaph upon imperishable monuments. Man too, though never extinct as a race, returns one by one to his clay, and his intellectual functions are perpetuated in the re-production of his fellow. In the solar system we see fragments of planets—asteroids, as they have been called—occupying in almost interlacing orbits, the place of a larger body; and in the direction and amount of the annual and diurnal motions of the primary and secondary planets we recognise the result of a grand creative movement, by which the sun, with its widely extended atmosphere, or a revolving atmosphere itself, has cast off, by successive throes, the various bodies of the system, at first circling in gaseous zones, but subsequently contracted into planets and a sun.

This system, so wonderfully formed, is again enchained with another more distant by an assemblage of comets—a class of bodies which doubtless carry on some reciprocal intercourse for the benefit of both. Composed of nebulous matter, they may yet be consolidated into habitable globes; and resembling in aspect the vast nebulæ which fill the sidereal spaces, and forming a part of our own system, they countenance the theory, that the nebulæ which the telescope cannot resolve may be the pabulum out of which heat and motion are to form new systems, where planets, thrown off from a central nucleus, will form new abodes of life and intelligence.

But while all the phenomena in the heavens indicate a law or progressive creation, in which revolving matter is distributed into suns and planets, there are indications in our own system, that a period has been assigned for its duration, which, sooner or later, it must reach. The medium which fills universal space—whether it be a lumiferous

ether, or arise from the indefinite expansion of planetary atmosphere—must retard the bodies which move in it, even though it were 360,000 millions of times more rare than atmospheric air; and, with its time of revolution gradually shortening, the satellite must return to its planet, the planet to its sun, and the sun to its primeval nebula.

The fate of our system, thus deduced from mechanical laws, must be the fate of all others. Motion cannot be perpetuated in a resisting medium; and where there exists disturbed forces, there must be primarily derangement, and ultimately ruin. From the great central mass, heat may again be summoned to exhale nebulous matter—chemical forces may again produce motion, and motion may again generate systems: but, as in the recurring catastrophes which have desolated our earth, the great First Cause must preside at the dawn of each cosmical cycle—and, as in the animal races which were successively reproduced, new celestial creations, of a nobler form of beauty, and of a higher order of permanence, may yet appear in the sidereal universe. 'Behold, I create new heavens, and a new earth, and the former shall not be remembered.' 'The new heavens and the new earth shall remain before me.' Let us look, then, according to this promise, for 'the new heavens, and the new earth, wherein dwelleth righteousness.'

MAGNETIC SLEEP.

(*Continued from page* 106.)

LIGHT AND IMAGES OF THE DEGREES.

In the first degree and first state of magnetic sleep, the light is a pale blue.*

In the second degree and second state, the light is a little stronger, and a little deeper blue.

In the third degree and third state, these sleepers are fully under magnetic influence, and the light a clear sky blue. They see objects in a straight or direct line, through the magnetic medium in space, but not comprehensively, or inclosing various objects as in the natural state.

In the fourth degree and fourth state, the light is stronger, and extends farther than in the lower degrees. Persons with moral organs largely developed, are disposed to see immaterial or spiritual objects in this degree.

In the fifth degree and fifth state, the light is still more intense, and clairvoyants less inclined to view or take cognizance of natural, external or material subjects, but disposed to remain in this exaltad state.

In the sixth degree and sixth state, the *tendency* of going into it is instant death, and should be most cautiously avoided.

Galvanic Rings.—A knowledge of the remedial effects of magnetized rings, in persons who are very susceptible to magnetic or mesmeric influence, has excited the cupidity of adventurers, who are inundating the country with "Galvanic Rings"—so called, under the patronage of the professors of medical colleges.

These rings are made of zinc and copper, and zinc and copper gilded, plated or silvered. Such rings cannot, however, be galvanized or magnetized so as to retain or maintain polarity; and are, consequently, of no value as remedial agents. They serve, however, as a badge to distinguish the weak, ignorant and credulous from the rest of the community.

Magnetized Rings.—These rings should be made of steel wire, plated with gold, silver, tin, copper, or brass. When finished, they should be magnetized, one at a time, by placing a ring flat on one of the poles of a strong magnet, and then pressing on, and at the same time drawing it entirely off of the magnet with a quick motion. The ring will then have two poles, which will affect the compass or variation-needle; one of which should be worn on a finger of the right, and another of the left hand.

Gold rings made in this manner have a real value, as their influence on children and adults affected with *tubercula*, and at the same time very susceptible to magnetic or mesmeric influence, is very salutary, as shown by a trial of their effects in a great number and variety of cases during the last three years, and they will last a life-time. They have, however, little or no effect upon those who are insusceptible to these influences.

These rings are manufactured by J. & R. ELKINS, Jewellers, 60, Reade Street, near Broadway.

* They change from the natural to higher states, as they enter in, and advance in the degrees.

MEDICAL DUODYNAMICS.

The symptoms we have introduced to distinguish chronic tuburcula or chronic disease of the serous surtaces, are always present in acute diseases of these surfaces, and depend entirely upon the action of two forces, or upon the duodynamic or moving powers of the system. They are founded upon the fact that these forces act in unison in health, but are interrupted in disease—the signs of which are distinguished with facility and certainty, without any previous knowledge of the case.

The absence of these symptoms, and the presence of disease in the organs, limbs, or other structures, determine, with the same facility and certainty, disease of the mucous surfaces, acute or chronic.

The duodynamic treatment we have introduced, is founded on the fact that motion is interrupted or lost in some part of the body, organs, or limbs, and cures the disease in restoring the interrupted or lost motions, by the action of two forces, emanating from different kinds of matter, and acting on the same, or different surfaces of the body, organs or limbs. These symptoms are prominent and uniform in their character, and reduce and bind down the classification of diseases to the narrow limits of *acute* and *chronic* diseases of the *serous*, and of the *mucous* surfaces, or to four clases, orders, genera, and species, and the duodynamic treatment of diseases which we long since adopted, supports and sustains this classification in the most steady and successful manner, and presents a strong contrast with the old never ending classification and ever varying symptoms and treatment.

The posterior spinal nerves are connected with and terminate in the serous membranes or serous surfaces of the body, organs, and limbs, including those of the skin and fasciæ of the muscles, &c., and are the media of sensation: while the anterior motor nerves are connected with and terminate in the mucous membranes, or mucous surfaces, including those of the fasciæ of the muscles, the bronchia and the alimentary canal, and are the media, only, of the forces which produce motion.

These different arrangements of the nerves of motion and those of sensation account for the absence of the magnetic symptoms in disease of the mucous surfaces. Insensibility in these surfaces is as necessary to the maintenance of animal life, as sensibility is in the serous surfaces. The most intense inflammation of the mucous surfaces produce no pain. There is never any pain in these cases without an extension of the disease to the serous surfaces; yet our modern medical writers continue to repeat the tales of their grandfathers about the great and wonderful sensibility of the mucous surfaces.*

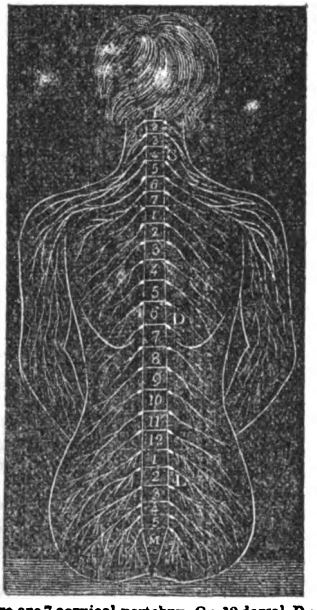
Acute or inflammatory diseases run through their course in a few days, or a few weeks: while chronic diseases continue not only many months, but many years. The excitement of the system in the first is exalted and continuous, or has brief remission or intermissions, while in the last it is depressed and periodical or accidental, with long periods of repose of many weeks or months, and is consequently as different as darkness is from light; yet the modern astrologers of the schools, like their ancient masters who were priests, physicians and astronomers, class them all as inflammations of the different degrees, and treat them as such. Our modern astrologers also follow their ancient masters in pretending to distinguish these diseases by feeling the pulse, the aspects of the tongue and urine, and the color and odor of the stools, &c.

There is however nothing more uncertain than these signs or symptoms, unless it is the treatment founded upon them, as is well known to our faculty; yet they are taught as a science with all the gravity due to these subjects, involving life or death. On the contrary there is nothing more certain than the magnetic symptoms, or the duodynamic treatment founded on them, in the absence of accidents not under the control of the physician; yet such is the attachment of men to old systems—the old astrological symptoms and treatment will continue to be taught by the professors in our medical colleges as long as they are of any value in their market.

Acute and chronic tubercula, or inflammatory and chronic diseases of the serous membranes, or serous surfaces of the body, organs or limbs; including the skin and facia of the muscles, is easily and invariably distinguished by pain more or less severe (in proportion to the intensity of the disease) produced by pressure on the ganglions of the spinal nerves, in the intervertebral spaces along each side of the spine, without any previous knowledge of the case—no matter what name may have been given to the disease by physicians, nosologists, or other medical writers.

* We commenced a series of experiments with the magnetic machine about a year since, for the purpose of ascertaining whether the least susceptibility could be detected in the great mucous surfaces, and the result showed that no sensation whatever could be felt from the brass cylinder in contact with these surfaces, under the action of our most powerful machines, while the sensation from the button in contact with the skin or serous surface, was so intense that it would only be borne momentarily.

Ganglions of the spinal nerves in the intervertebral spaces.



There are 7 cervical vertebræ, C; 12 dorsal, D; and 5 lumbar, L; these vertebræ with the os-coxyx, m; constitute the spinal column.

Press on the sides of the 1, cervical vertebræ to find symptoms of tubercula of the head—of the brain, throat, nose, eyes, or ears.

Press on the sides of the 2, 3, 4, 5, 6 and 7 cervical to find tubercula of the musucles, (Rheumatism) or of the vertebræ, or of the joints of the limbs—white swellings, &c.

Press on the sides of the intervertebral space between the 7 cervical, and 1 dorsal, to find tubercula of the lungs, and

Press on the left side of the same space to find tubercula of the heart.

Press on the space between the 1 and 2 dorsal vertebræ to find tubercula of the stomach.

Press on the space between the 2 and 3 dorsal to find tubercula of the duodenum.

Press on the right side of the space between the 7 and 8 dorsal to find tubercula of the liver.

Press on the spaces between the 11 and 12 dorsal to find tubercula of the small intestines.

Press on the spaces between the 12 dorsal and first lumbar to find tubercu a of the kidneys.

Press on the spaces between the 1 and 4 lumbar to find tubercula of the uterus.

Press on the spaces between the 4 lumbar and os-coxyx to find tubercula of the genital organs.

We always press with the thumb of the right hand on the intervertebral spaces of the left side of the spine, and with that of the left hand on the intervertebral spaces of the right side.

These directions will enable any person of common sense to distinguish tubercular disease with facility and certainty, without even the aid of a physician. Negative matter, as the acids and the metals should be the principal ingredients in the preparations of medicine for disease of the serous surfaces, and should be used in connection with the action of the rotary magnetic machine.

Diseases of the Mucous Surfaces.

Acute and Chronic diseases of the mucous surfaces are invariably distinguished by the presence of disease of the body, organs or limbs, and the absence of the magnetic symptoms; and require for their reduction a treatment entirely different from that of tubercular disease of the serous surfaces. Positive matter, as the alkalies and the gums, should be the chief ingredients in the preparations of medicine for diseases of the mucous surfaces, and should be used in connection with the action of the rotary magnetic machine.

(For the Dissector.)

"ELECTRICAL PILLS," &c.

Dear Sir:—I have thought it might subserve the cause of justice, if I were to give you some account of a man, who has been travelling through the New England States, for a year or two past, selling what he calls "Electrical Pills," "Magnetic Ether," and "Galvanic Plaster." That these pretended "Electrical Pills," are sold on the credit of your remedies, there can be no doubt, and hence it would seem to be time for the public to be duly informed of the base imposition played upon them in the sale of these worthless drugs.

The man who sells them is in the practice of lecturing on what he calls the "Philosophy of Mesmerism Discovered." He has a subject whom he puts to sleep for examining disease; and, of course, in every case examined, his oracle recommends the invalid to take the "electrical pills," or the "magnetic ether," or, to wear the "Galvanic Plaster." Hundreds and thousands, I have no doubt, have been duped in this way, as B——(for this is the man's name,) stated in Provincetown, Mass., a few weeks since, that he had made over $1800 during the last six months.

Having stated that this man's name is B——, I should add, that this is not the name by which he announces himself to the public, at the present time. He was apprehended for theft in the city of New-York, some years since, and gave his name as H. H. B.——; and a few years after he was exposed in the Boston Recorder, as an infamous impostor, under the name of J. B. D. He was expelled from Phillip's Academy, Andover, and again from the Bangor Seminary; and has been found guilty of forging letters, and other disgraceful crimes, which render him unworthy of public confidence. And yet, this man is ever and anon announcing himself in the public papers, as "*Dr.* J. B. D.—!! As he will probably visit the South and West, it would seem to be important that the public should be made acquainted with his character; and hence the above is submitted for your columns.

JUSTITIA.

May, 1845.

We are acquainted with the correspondent, who has sent us the above exposure of a very gross case of imposition, and we are well informed, both by observation and frequent transmitted intelligence, that it forms but one of many, of a very similar character which are practised in almost every part of the country, including this city, and Philadelphia. The real and indisputable effects of metallic, medicinal, and animal magnetism, are so truly remarkable and are exciting so much attention throughout our wide spread population that mercenary impostors, without the least regard to conscience or character, are taking advantage of it in a thousand ways, throwing deplorable obstacles in the progress of a science so important to humanity, if not inflicting more direct injury upon the community.

IMPORTANT PROPOSAL.

The acknowledged importance of Magnetism and Phrenology, as physical and psychological sciences; the profound and fervent interest which they are exciting and maintaining in every section of this extensive country; and their manifest liability to ignorant desecration and mercenary charlatanism, forcibly appeal to all who desire the advancement of knowledge, to adopt some means by which these comprehensive sciences may be propagated with more systematic efficiency and greater security from perversion. To this end the undersigned have deemed it important, if not indeed essential, that a central society, for the rigid investigation of the facts and inferences which these subjects involve, should be established in this metropolis, with the view of affording authentic information concerning them to the public in general, and to induce the formation of kindred associations, in fraternal alliance, in the principal cities and towns of the country.

Aiming at nothing but fair and honest inquiry, and the extension of useful knowledge for the benefit of mankind, they earnestly invite the many scientific and philanthropic individuals around them, who already concur in this object, to co-operate with them in forming the society here respectfully suggested. Ample intelligence and talent could readily be contributed for this purpose, without any serious sacrifice of time, or any hazard of reputation; while sciences, confessedly the most interesting and elevated of any now in active progress, would be rescued from the incompetent dissemination which now stamps them with but an equivocal authority and character.

Communications upon the subject, post paid, will be cheerfully received and published in the Journals, of which the undersigned are the editors.

H. H. SHERWOOD, M. D.
Editor of N. Y. Dissector.

O. S. FOWLER, A. B.
Editor N. Y. Phrenological Journal.

MAGNETIC MISCELLANY.

EYES—*acute and chronic diseases of.* The forces from the magnetic machine combine to reduce acute and chronic diseases of the eyes, and to remove opacities of the cornea, in the most extraordinary manner. These interesting and important results furnish the best materials for the most withering comments on the absurd theories and practice of the schools.

ALOPACIA—*loss of hair, baldness.* The effects of the magnetic forces in producing the most rank vegetation from the earth, suggested their employment in the production of a luxuriant vegetation from the skin, which has been found perfectly successful.

Among the cases in which magnetic machines have been used for this purpose, is that of a gentleman who having lost every hair from his head, commenced magnetising it with one of our vibrating instruments in February last, and, on the first of June, had already cut two heavy crops of hair from his head!

APOPLEXY.—The magnetic machine reduces the apoplectic state in a more safe and powerful manner, than any other means that has been heretofore adopted.

ULCERATED LEGS AND VARICOSE VEINS.—Nothing can be compared to the action of the magnetic machine in these cases, or in acute or chronic diseases of the skin.

PROLAPSUS UTERI.—*atonic.* These cases from feebleness or debility are quickly restored by the action of the instrument or by the mesmeriser. In cases, however, which are the consequence of tubercular disease of the uterus, the remedies for chronic tubercula are required to aid the action of the instrument.

MAGNETIC SLEEP. There are now a great many persons who have gone into the magnetic sleep, under a very slight but steady action of the magnetic machine, some of whom have been clairvoyant. These facts, with the increased susceptibility to mesmeric influence by the action of the instrument, are strong evidences of the identity of the influences from these different sources.

Homœopathy.

The homœopathic practice is everywhere increasing in favor with the people, and many alopathic physicians have consequently found it necessary to adopt it, or lose their practice in many of the most intelligent and wealthy families.

In 1837 there was only four homœopathic physicians in this city, and there is now more than forty, and their number has increased in the other cities of the Union in about the same proportion to the population.

It is the extraordinary effects of homœopathic or magnetised medicines upon children and upon adults who are very susceptible to magnetic or mesmeric influence that maintain the high character of these remedies. They have, however, little or no effect upon those who are naturally insusceptible to these influences.

Animal Magnetism.

It is now only about nine years since the subject and practice of animal magnetism was first introduced into this country, and although it has everywhere met with great opposition in its progress from the bigoted and the ignorant, a practical knowledge of it has extended more or less into all the States of the Union; and its extraordinary and beneficial effects are everywhere acknowledged.

MAGNETIC MACHINES.

The magnetic machines first used in medical practice, although very superior to the old electrical apparatus, were naturally very defective and strikingly inferior, both in construction and effect, to those of the improved rotary and vibratory principle which greater knowledge and experience have at length produced. The former were not only comparatively clumsy and unmanageable, but liable to such derangement as to be frequently wholly inoperative except in the hands of persons accustomed to their defects, and skilful in repairing them. Notwithstanding this, we find that these obsolete contrivances, with miserable imitations of our machines, are still imposed upon persons ordering magnetic machines, through druggists and other indirect agents, as those of the latest and best construction. The natural consequence is that, from perplexing difficulties almost inseparable from the use of them, and the failures in beneficial effect which thence ensue, the influence itself, however inestimable, becomes disparaged in the estimation of medical men who have had no better means of testing its value, and

still more so in private practice. This is much to be regretted, as well for the sake of science, as the victims of disease who might otherwise have been relieved and restored. The most improved and best instruments, can be applied with ease and certainty, without any other instruction than is afforded in the *Manual* which accompanies them, by any person of the most ordinary capacity, and in a wide range of cases. The others are constantly liable to complete failure, even in the hands of the most patient professional men, on whom they may be either carelessly and ignorantly, or designedly and selfishly imposed.

Mr. J. G——of Penn Yann, N. Y., reports the following case which recently came under his observation.

Mrs. A. C. Randall living near the village of Penn Yan, N. Y., had been deranged nearly one year; during which time she was incapable of taking care of herself. She was attended by three or four physicians, without any favorable results. Her husband made application to me to mesmerize her—but instead of doing so, I mesmerized a young lady, who in the clairvoyant state, examined Mrs. Randall. Her report was, "That the brain was diseased — that it had become inflamed in consequence of taking cold, together with some other irregularities of the system. To mesmerize the deranged person, would have a tendency to spread the disease through the system."

Her prescription was, to put a seton in the back part of the neck, saying that the disease would run off by this means, and the brain would resume its healthy functions. This was done—the seton was kept in about two months, during which time the patient improved; at the end of the second month, her reason was restored—she was cured. This was about two months ago. She is now in good health, and perfectly sane.

J. G.

Penn Yan, N. Y., April 5, 1845.

Newark, N. J., June 2nd, 1845.

Dr. Sherwood, Sir:

A few weeks since I was called to a Mrs. B. of this city, who had been for two months under regular treatment for fever: a few days before I was called, she aborted, and excessive hemorrhage, and inflammation of the womb ensued. Before the miscarriage, she had lost the use of the lower limbs and was helpless. In this condition her physician left her, and sent word to the family that they might employ whom they pleased. I was called upon, but regarded the case as a hopeless one. The symptoms were aggravated and discouraging. After some simple applications for allaying the inflammation and hemorrhage of the womb, I resorted to the magnetic instruments, and although, she had not slept for nights, and the cerebral derangement was bordering on delirium; yet under its influence she soon fell into a refreshing sleep, and convalescence commenced from that hour. She is now getting about the house, and looks more healthy, than for many months previous.

On the 8th of May, I was called on to visit Mrs. G. an elderly lady, under an attack of pleurisy. It was a clear case. She said she had been subject to it for years, and had always been confined to her room from four to six weeks. Two applications of the instrument reduced the symptoms, and on the 12th she was about her house. They were perfectly astonished at the result of the treatment.

About the same time I was called to see Master L., ten years of age with inflammatory rheumatism. He was perfectly helpless; not a finger could be moved without causing him to scream. In one week he was entirely relieved, by the machine. I am satisfied of the value of the instrument in both acute and chronic diseases.

In haste, I am as ever yours,

L. D. FLEMING.

ANTIQUITY OF AMERICA.

A person writing to the Paris Academy of Sciences, from Brazil, says he has observed in one of the numerous calcareous caverns in that country a quantity of human bones near those of different species of animals, some of which are now extinct. He concludes from this fact that it is erroneous to regard the South American race as a variety of the Mongolian race, who are supposed to have peopled what is called the New World, by emigration. The geological constitution of America shows, he says, that it is anterior to what we call the old continent, and the Mongolian race is but a branch of the American race, instead of being the primitive root.

CLAIRVOYANCE.

We were requested to see a clairvoyant, at Professor Roger's rooms, 95 Chamber-street, on the 23d of June inst., in the person of a little girl aged nine years, who it was reported, could read with facility while in the mesmeric state. We went prepared to secure her eyes with adhesive plaster, and after having placed one securely over each eye, presented her with a book, which she handled in the same manner, and read in various places, with apparently the same ease as in the natural state.

Such feats have been frequently performed by clairvoyants of private families in this city.

SWEDENBORG'S ANIMAL KINGDOM.

Introductory Remarks by the Translator.

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

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

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

The system therein propounded rests upon the foundation of experience; namely, of such experience as the learned world had accumulated at Swedenborg's time; not indeed upon the particular experience strictly and proximately belonging to any one science; for such experience would be inadequate, in the present imperfect state of our insight, to suggest the universal truths that each science involves; but upon the general experience of all ages in all the sciences. This, it is to be presumed, was Swedenborg's meaning, when he likened himself to one of the racers of olden time, who before he could merit the crown, was commanded to run seven times round the goal; and again, when he declared that we must be instructed by all things of one thing, if we are to know that one thing thoroughly. As his theory is not derived from particular experience, so it cannot finally be either confirmed or denied by any isolated fact or facts. For it is a conclusion from the order and tenor of facts universally; in a word, from an integral survey of nature. Unless this be borne in mind, the very largeness of the field from which his inductions are drawn, and the very strictness of mind which caused him to test them through all the sciences, will only make them seem the more like baseless hypotheses. In this case the analytic process may easily be mistaken for the synthetic, and Swedenborg may be charged with committing the error which he begins his work by denouncing in others.

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

In many instances indeed it will be impossible to trace effects to visible organic causes, in which case the mental sight must take up the operation, and continue and complete it, and this, by the assistance of the several instruments and appliances which are now to be mentioned

It is impossible to understand either the Word or the works of God without doctrines, which in both cases require to be formed by "one who is enlightened."* The doctrines made use of by Swedenborg in the "Animal Kingdom," are the Doctrines of Forms, of Order and Degrees, of Series and Society, of Influx, of Correspondence and Representation, and of Modification. These doctrines themselves are truths arrived at by analysis, proceeding on the basis of general experience; in short, they are so many formulas resulting from the evolution of the sciences. They are perpetually illustrated and elucidated in the "Animal Kingdom," but never stated by Swedenborg in the form of pure science, perhaps because it would have been contrary to the analytic method to have so stated them, before the reader had been carried up through the legitimate stages, beginning from experience, or the lowest sphere. Each effect is put through all these doctrnes, in order that it may disclose the causes that enter it in succession, that it may refer itself to its roots and be raised to its powers, and be seen in connexion, contiguity, continuity, and analogy with all other things in the same universe.† They may be compared to so many special organs, which analyse things apparently homogeneous into a number of distinct constituent principles, and distribute each for use as the whole requires To deny any of these doctrines, or to give them up in the presence of facts that do not range upon them at first sight, is to nullify human mind as the interpreter of nature.

The Doctrine of Forms teaches that "the forms of all things, like their essences and substances, ascend in order and by degrees from the lowest to the highest. The lowest form is the angular, or as it is also called, the terrestrial and corporeal. The second and next higher form is the circular, which is also called the perpetual-angular, because the circumference of the circle involves neither angle nor rectilinear plane, being a perpetual angle and a perpetual plane; this form is at once the parent and measure of angular forms. The form above this is the spiral, which is the parent and measure of circular forms, as the circular, of angular forms. Its radi or diameters are not rectilinear, nor do they converge to a fixed centre like those of the circle; but they are variously circular, and have a spherical surface for a centre; wherefore the spiral is also called the perpetual circular. This form never exists or subsists without poles, and axis, foci, a greatest circle, and lesser circles, its diameters; and as it again assumes a perpetuity which is wanting in the circular form, namely, in respect of diameters and centres, so it breathes a natural spontaneousness in its motion. There are other still higher forms, as the perpetual-spiral, properly the vortical; the perpetual-vortical, properly the celestial;* and a highest, the perpetual-celestial, which is spiritual, and in which there is nothing but what is everlasting and infinite." There is then a scale of forms, whereof the higher are relatively more universal, more perfect, and more potent than the lower. The lower again involve the higher and the highest, and are generated by them: so that where there is an angular body, there is a circular form and force intimately present as its ground; where there is a circle, it is the limit of an interior spiral; and so forth. For nature operates from the very principles of geometry and mechanics, and converts them all to actuality and use. The purer substances in creation gyrate through the higher forms; the less pure circulate through the lower, or are fixed in the lowest. All the essentials of the angular form are opposed to each other, whence the origin of gravitating and inert matter, intrinsically unfitted for motion. But the other forms, according to their eminence, are more and more accomodated to motion and variation,

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

The Doctrine of Degrees teaches the distinct progressions through which nature passes when one thing is subordinated to, and co-ordinated with another. There are three discriminated degrees in all things, both natural and spiritual, corresponding to end, cause, and effect. In the human body there is a sphere of ends, a sphere of causes, and a sphere of effects. The body itself, comprehending the viscera of the abdomen and chest, and the external sensoria of the

* Arcana Cœlestia, n. 10582.

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

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

head, is the sphere of effects; the brain, and the whole of its appendages, are the sphere of causes; the cortical substances of the brain are the sphere of ends or principles. These spheres are subordinated to each other in just series from the highest to the lowest. The highest degree or sphere is active, the lowest is passive and re-active. The above degrees, in their order, indicate the progression from universals and singulars to generals or compounds. But every organ again involves the same triplicity of spheres; it consists of least parts, which are congregated into larger, and these into largest. All perfections ascend and descend according to degrees, and all attributes, functions, forces, modes, in a word, all accidents, follow their substances, and are similarly discriminated. Each degree is enveloped with its common covering, and communicates with those below it thereby.

There is no continuous progression from a lower degree to a higher, but the unity of the lower is the compound of the higher, and in transcending that unity, we leap out of one series into another, in which all the predicates of force, form, perfection, &c., are changed and exalted. The Doctrine of Degrees enables us to obtain a distinct idea of the general principles of creation, and to observe the unity of plan that reigns throughout any given organic subject; and by shewing that all things are distinct representations of end, cause, and effect, it empowers the mind to refer variety to unity, as the effect to the cause, and the cause to the end, and to recognize the whole constitution of each series as homogeneous with its principles.

Series is the form under which the co-ordination and subordination of things, according to order and degrees, ultimately present themselves. The whole body is a series, which may be looked at either generally, from above to below, as comprising the head, the chest, and the abdomen; or universally, from within to without, as divisible into the three spheres already alluded to. All the organs of each region are a series; each organ in itself is a series; and every part in each organ likewise. In short, everything is a series and in a series. There are both successive and simultaneous series, but the latter always arise from the former. Essences, attributes, accidents, and qualities follow their substances in their series. Every series has its own first substance, which is more or less universal according as the series is more or less general. This first substance is its simple, unity, or least form, governing in the entire series, and by its gradual composition forming the whole. Each series has its limits, and ranges only from its minimum to its maximum. Whatever transcends those limits at either end, becomes part of another series. The compounds of all series represent their simples, and shew their form, nature, and mode of action. The Doctrine of Series and Society teaches that contiguity and continuity of structure, are indicative of relationship of function, and that what goes on in one part of a series, goes on also, with a determinable variety, in all the other parts: wherefore each organ is to be judged of, and analysed, by all the others that are above and around it. In this manner, the whole series is the means of shewing the function of each part of itself, and indeed of analysing that function into a series similar to that of the whole; for the least in every series must represent an idea of its universe. Under the operation of this law, the point becomes a world analogous to the great world, but infinitely more perfect, potent, and universal.

Such is a very brief illustration of the Doctrines of Order and Degrees, Series and Society, from which it will be evident how closely connected these doctrines are, and that they can hardly be stated without our seeming to repeat of one what has already been predicated of the others. Degrees appear to involve the distinct progressions of creation from above to below, or from within to without: order, to appertain to the law of succession observed in degrees, whereby rank and height are given to excellence, priority, universality, and perfection; series, to involve the complex of the whole and the parts when created and coexisting; and society, to be the law of contiguity and relationship existing between different series, and between the parts of any single series. Perhaps it would not be far wrong to state in generals, that order and degrees involve the creating and successive, series and society, the created and simultaneous. But as we have said before, Swedenborg never stated these doctrines as promised in the "Animal Kingdom," but contented himself with using them as analytic instruments in the exploration of the body; and therefore the reader will learn them best in the way of example and illustration in the Work itself.

The Doctrine of Influx involves the manner in which the lower substances, forms and forces of the body subsist, as they at first existed, from the higher and the highest; and in which the body itself subsists from the soul, as it at first existed; and the natural world from the spiritual. But there is not only an influx from within, but also from without; and by virtue of both, the body, which otherwise would be a mere power, is raised into an active force.*

* See "Animal Kingdom," vol. II, p. 369.

The Doctrine of Correspondence and Representation teaches that the natural sphere is the counterpart of the spiritual, and presents it as in a mirror; consequently that the forms and processes of the body are images of the forms and activities of the soul, and when seen in the right order, bring them forth and declare them. It shows that nature is the type of which the spiritual world is the ante-type, and therefore is the first school for instruction in the realities of that which is living and eternal.

The Doctrine of Modification teaches the laws of motion and change of state in the several auras or atmospheres of the world, and in their spiritual correspondents.†

What was stated of the Doctrines of Order, Degrees, Series, and Society, as mutually supposing, or as it were interpenetrating each other, may be repeated generally of the whole of these doctrines, and this, because they are all but so many varied aspects of the one principle of divine truth or order. Like nature itself they are a series, each link of which involves all the others.

The Doctrine of Series and Degrees in conjunction with that of Correspondence and Representation, teaches that there is a universal analogy between all the spheres of creation, material, mental, and spiritual: and also between nature and all things in human society. The circulation of uses in the body perfectly represents the free intercourse of man with man, and the free interchange of commodities between nation and nation. The operations that go on in the body, analogically involve all the departments of human industry; nay, and infinitely more, both in subdivision, unity, and perfection. There is not an art or trade, whether high or low, so long as it be of good use, but the Creator himself has adopted and professed it in the human system. Nay, in the richness of his pervading love, the very prerogatives of the mind are representatively applicable to the body. End, cause, and effect, as existing in Himself, are represented in the latter as well as in the former. Liberty and rationality, the universal principles of humanity, are transplanted by analogy from the mind into the body. It presents an analogon of liberty, in that every organ, part, and particle, can successfully exercise an attraction for those fluids that are adapted to its life and uses; of rationality, in that it acts as though it took cognizance of the adaptability, and operates upon the materials demanded and supplied, in such a manner as will best secure the well-being of itself and of the whole system.

This may account to the reader for the extremely figurative character of Swedenborg's style, and shew that it proceeded from the reason and not from the imagination. It is because each thing is a centre to the life of all things, that each may freely use the exponent terms of all. Analogous uses in the body and the soul, furnish the point of contact between the two, and the possibility and the means of intercourse. Had Swedenborg confined himself to the dry straitness of what is now called science, he must have forfeited the end he had in view; for matter, as matter, has no communion with spirit, nor death with life. It was absolutely necessary that the body should be tinctured with life in all possible ways, when it was to be the medium of instruction respecting the soul.

But it is time to instance a few of the results to which the above doctrines lead when wisely applied to the living body. It will, however, be impossible to give anything beyond the merest sketch of Swedenborg's physiology, or to look at it from more than a single point of view. He himself has regarded it from all sides, or from each organ and sphere of the body, and given what may be called a combined proof of its correctness.

The alimentary canal and the whole of the viscera of the abdomen form one grand series subservient to the creation of the blood. This again is divided into three inferior series, whereof one primarily respects the chyle, another the serum, and a third the blood already formed. There are then three series of digestions. 1, The alimentary canal commencing at the tongue and terminating with the rectum, performs as many distinct digestions of the food, and eliminates from it as many distinct products, as the canal itself has distinct divisions and articulations. Thus there is the chyle of the tongue and mouth, the chyle of the stomach, the chyle of the small intestines, and the chyle of the large intestines, and all these chyles subserve the blood in a successive series, coincide in its formation, and ultimately coexist within it in a simultaneous series. When the chyle has been inaugurated into the blood, and is once in the arteries and veins, it is no longer called chyle, but serum. 2. The serum is the object of the second digestion. The finer parts of it therefore are secreted, and the worthless parts are excreted and thrown out, just as was before the case with the food. The former operation is performed by the pancreas, the latter by the kidneys. 3. The blood itself is the object of the third digestion. This process, termed by Swedenborg

† See Animal Kingdom., vol. II., p. 49.

the lustration of the blood, takes place in the capillaries and glandular elements all over the system, but specifically in the spleen, the pancreas, and the liver. As in the first series there are various menstrua or media between the chyle and the blood; namely, in the mouth, the saliva; in the stomach, the gastric juice, which is the saliva potentialized by the peculiar action of the stomach;* in the small intestines the pancreatic juice, and the hepatic and cystic biles; and in the large intestines the liquid distilled from the vermiform appendage of the cœcum; so in each of the other series corresponding menstrua are required and applied. The blood of the pancreas, and the blood of the spleen deprived of its serum by the pancreas, serve in the liver as a menstruum for refining the chyle and lustrating the blood. The lymph is a kind of ultimate saliva which digests the chyle as the common saliva digests the food. The lymph of the spleen, for instance, digests the chyle in the mesentery, as its blood digests the chyle and blood in the liver. In short, as all the abdominal viscera form one series of uses, so the lowest and largest form of that series may be taken as an exponent of the whole; and it will then be found that all these organs are high evolution of the alimentary tube, digesting finer and finer aliments, (for the blood itself is the essential aliment of the body,) and throwing out subtler and subtler excrements or impurities. Thus the liver is the stomach of the chyle and blood; and the ductus hepaticus and the gall-bladder and ductus cysticus are respectively analogous in their proper series to the small and the large intestines.

The viscera of the thorax also minister to the blood. The heart is a chemical organ for preparing liquids to enter into its composition, at the same time that it is the beginning of the circulation. It separates the blood into two parts, a purer and a grosser; the purer it sends away through the lacunæ underneath the columns on its inner surface, by a series of ducts into the coronary vessels, which are the true veins of the heart,† the grosser into the lungs. Thus it also is an organ of blood-digestion or sanguification. The lungs have three general functions: 1. They lustrate all the blood of the body, especially in regard to its chyle or serum; their office in this respect being analogous to that of the kidneys in the abdomen. 2. They feed the blood with aerial and ethereal chyle, as the viscera of the abdomen with terrestrial chyle. 3. They call forth the powers of all the organs of the body by respiration. With respect to the last-named of these offices of the lungs, namely, that they supply the body and all its parts with motion, it is one of the most important discoveries in the "Animal Kingdom," and not less wonderful in its consequences than in its simplicity and obvious truth.

We have published the above commencement of the Translator's Introduction to Swedenborg's "Animal Kingdom," with the view of continuing it, to completion, in the future numbers of this Journal, together with such other extracts from the work itself as we may deem most interesting and important. This introduction by the translator, a medical scholar of distinction, probably gives a better synoptical and analytical view of the whole of this really wonderful work than could be presented by any one less thoroughly acquainted with every page and sentence of its contents. It will be seen from notices of it which we adduce from English Reviews, that it is beginning to excite the profound attention and astonishment of the enlightened and learned minds of that country; and there being no American reprint whatever, and the London edition, moreover, being entirely exhausted and out of print, we have thought it scarcely possible to occupy a portion of our pages with any matter of equal novelty and value. We confess, too, that in making these extracts we are not wholly uninfluenced by what, we trust, is a very natural and excusable gratification, in finding and submitting to our readers such remarkable and unexpected illustrations of the physiological doctrines which, in perfect independence of the great mass of medical writers and on the authority of our own discoveries and convictions alone, we have been publishing to the world, and adopting in practice, for more than thirty years past.

Being fortunately in possession of a copy of Swedenborg's "Principia," we intend to enrich our Journal with consecutive specimens of this extraordinary work also, which successfully aspires to the highest altitude of intellectual acumen and generalization.

* See "Animal Kingdom," vol. I., p. 122, note (*a*) p. 133, note (*y*.)

† On this subject examine Swedenborg's "Economy of the Animal Kingdom," tr. I., n. 399—459.